How does Secularization shape Tolerance towards Transgender People in Europe? A

Cross-National Assessment

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Abstract

Over the past decade, research has focused on the individual-level determinants explaining tolerance towards transgender people, whilst country-level characteristics remain relatively unassessed. In my cross-national study in Europe, I argue that the literature can be enriched by including country-level secularization as a determinant for tolerance towards transgender people. Whilst taking a socialization-based approach, I claim that citizens in more secularized countries are more tolerant towards transgender people. Moreover, I argue that general between-country differences in tolerance towards transgender people, explained through secularization, may differ for social subgroups due to two societal divides: A religious divide, between religious and non-religious individuals, and an educational divide, between the less-educated and more-educated. Survey data of the Eurobarometer 91.4 (2019; 17,489 respondents in 24 European countries) are used in multi-level analyses to test my hypotheses. In line with the socialization-based approach I find that citizens in more secularized countries are indeed more tolerant towards transgender people. Furthermore, in accordance with the moral community hypothesis approach and contrary to the religious polarization approach, the social order approach, and the ceiling effect approach, only a religious divide is found wherein especially religious individuals are more tolerant towards transgender people in more secularized countries. When post-Communist countries are analyzed separately from countries without a Communist history in my explorative analyses, different patterns emerge that future research should aim to explain.

Keywords: Educational divide; religious divide; secularization; tolerance towards transgender people

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Introduction

While the attitudes of European citizens towards transgender people have generally become more tolerant (Organization for Economic Cooperation and Development [OECD], 2019), transgender people experience substantially more discrimination and harassment than other members of the LGBT-community (i.e., lesbian, gay, bisexual, and transgender individuals; European Union Agency for Fundamental Rights [FRA], 2019). Individuals who identify as transgender experience a disruption between their biological sex (e.g., a female body) and their gender identity (e.g., feeling a male; Stryker, 2006). Intolerant attitudes towards transgender people often originate from inflexible binary ideas about gender and gender norms (Brassel & Anderson, 2020; Dietert & Dentice, 2013; Norton & Herek, 2013).

Over the past decade, attention has been given to individual-level determinants explaining tolerance towards transgender people (see e.g., Perez-Arche & Miller, 2021; Lewis et al., 2017; Norton & Herek, 2013), whilst country-level characteristics remain relatively unassessed. I argue that the literature can be enriched by including country-level secularization as a determinant for tolerance towards transgender people in Europe. Traditional European-dominant monotheistic religions, such as Judaism, Islam, and Christianity (Pew Research Center, 2012), contain gender binary dogmatic beliefs which (implicitly) prescribe conservative stances towards transgender people (Campbell, Hinton, & Anderson, 2019). Country-level secularization is the process in which the power of religion on a society and its citizens decreases; religious beliefs, values, and practices within a society decline. As a result, citizens become less exposed and socialized into religious norms (Verbrakel & Jaspers, 2010; Kelley & De Graaf, 1997).

Whilst a general secularization trend across Europe exists, the degree to which a country is secularized varies across countries (Tromp, Pless, & Houtman, 2022; Norris & Inglehart, 2004). Research (Thijs, Te Grotenhuis, Scheepers, & Van den Brink, 2019; Scott,

2006; Moore & Vanneman, 2003) indicates that the degree to which a country is secularized is an important factor shaping citizens attitudes towards gender and gender norms. Moreover, Van den Akker, Van der Ploeg, and Scheepers (2013) highlighted the relevance of country-level secularization in explaining tolerance towards gay people, as citizens in more secularized countries are generally more tolerant. Even though factors affecting attitudes towards gay people often influence attitudes towards transgender people as well (Flores, 2015; Norton & Herek, 2013), attitudes towards distinct subgroups within the LGBT-community may differ and should therefore be studied separately to combat prejudice more effectively (Worthen, 2013).

Aligning with research into other sexual minorities (Jaspers, Lubbers, & De Graaf, 2007; Scheepers, Te Grotenhuis, & Van der Slik, 2002), secularization may influence tolerance towards transgender people differently for citizens with different individual-level characteristics. Recent secularization research (Pless, Tromp, & Houtman, 2021) considered together with theorizing on cultural value orientations and attitudes towards transgender people (Beijeman, 2022) suggests that especially two societal divides in tolerance towards transgender people are relevant to consider: A religious divide, between religious and non-religious individuals, and an educational divide, between the less-educated and more-educated. Aiming to reach a more encompassing understanding of the cross-national differences in the role of secularization on tolerance towards transgender people, this research considers the interaction of country-level secularization with religion and education on the individual-level. I formulate the following research question to extend the literature on secularization and tolerance towards sexual minorities: *How does secularization shape the attitudes of European citizens towards transgender people?*

To answer the research question, I conduct linear multi-level regression analyses on European survey data from the Eurobarometer 91.4 (2019; European Commission Brussels,

2020). The final sample for the main analyses comprised of 17,489 respondents nested in 24 countries. In the first place, this research adds to the literature on secularization and tolerance towards sexual minorities by examining the role of country-level secularization in shaping between-country variations in tolerance towards transgender people. Secondly, this research contributes to the literature by analyzing whether general between-country differences in tolerance towards transgender people, explained through secularization, differ for individuals who are religious or non-religious and for individuals who are less-educated or more-educated. Lastly, in doing so, this research aims to increase clarity on country-level and individual-level characteristics that influence tolerance towards transgender people. It therefore has societal relevance for European (supra)national policymakers (OECD, 2019) aiming to formulate targeted policies to increase tolerance towards transgender people in Europe (see e.g., European Commission, 2020).

The hypotheses are formulated below, whereafter the analytical strategy, the data, and its operationalizations are discussed. The results-section reports the findings in relation to the hypotheses. Overall, my analyses indicate that, when the outlier Czech Republic is excluded, individuals in more secularized countries are generally more tolerant towards transgender people. Moreover, the main analyses indicate a smaller religious divide in tolerance towards transgender people in more secularized countries, but simultaneously do not indicate the presence of an educational divide in tolerance towards transgender people across countries with differing secularization levels. After exploring whether secularization influences tolerance towards transgender people differently in European post-Communist countries compared to countries without a Communist history, the robustness of the findings is tested. Lastly, implications and directions for future research are discussed.

Country-Level Secularization and Tolerance towards Transgender People

The attitudes of European citizens are influenced by the secularization level of their country: In religious countries, religious values are more prevalent in politics, education, and media; thereby influencing the national policies, culture, and public debate (Moore & Vanneman, 2003). Additionally, the proportion of religious individuals is higher in more religious countries, thereby increasing the chance for (non-)religious individuals to interact with other religious individuals (Kelley & De Graaf, 1997). In more religious countries individuals are therefore collectively more exposed and socialized into religious norms (see e.g., Verbakel & Jaspers, 2010; Moore & Vanneman, 2003).

Within more religious countries, citizens in general hold more conservative cisgender norms, wherein women and men have distinct and predetermined roles (Inglehart & Norris, 2003; Moore & Vanneman, 2003). According to European-dominant monotheistic religions, 'God' created a perfect gender binary distinction between men and women (e.g., Adam and Eve within Christian teachings; Campbell et al., 2019; Ortlund, 2006). Gender norms based on these monotheistic teachings prescribe gender as binary, inflexible, and in correspondence with sex (Campbell et al., 2019), and therefore contain an anti-transgender component. Following this line of reasoning, European citizens in more religious countries will be generally more exposed to and hence socialized into these religious gender norms. Therefore, I expect that *individuals hold more tolerant attitudes towards transgender people in more secularized countries (hypothesis 1)*.

Country-Level Secularization, Societal Divides, and Tolerance towards Transgender People

The general pattern wherein individuals in more secularized countries are expected to be more tolerant towards transgender people may differ for social groups with differing

individual-level characteristics. Recent secularization research (Pless et al., 2021) considered together with theorizing on cultural value orientations and attitudes towards transgender people (Beijeman, 2022) suggests that especially two societal divides in tolerance towards transgender people are relevant to consider: A religious divide, between religious and non-religious individuals, and an educational divide, between the less-educated and more-educated. Below I will elaborate upon the possible role of secularization on tolerance towards transgender people for these different social subgroups within the societal divides. Research has indicated that the religious divide is distinct from but strongly correlated to the educational divide (De Koster, Achterberg, Houtman, & Van der Waal, 2010), especially in more secularized countries (Pless & Houtman, 2020; Pless, Tromp, & Houtman, 2020). Therefore, it is important to note that this research systematically elaborates upon one societal divide whilst 'controlling' for the other societal divide.

Country-Level Secularization, the Religious Divide, and Tolerance towards Transgender People

Building onto the religious polarization thesis (Ribberink, Achterberg, & Houtman, 2018; Wilkins-Laflamme, 2016, 2014), the religious divide wherein religious individuals are generally less tolerant towards transgender people (Campbell et al., 2019; Kanamori, Pegors, Hulgus, & Cornelius-White, 2017; Norton & Herek, 2013), is larger within more secularized countries. Within highly secularized countries, relatively small yet defensive groups of religious individuals oppose a large group of non-religious individuals, which is suggested to enlarge the divide in their moral views and behaviors (Wilkins-Laflamme, 2014). Research (Wilkins-Laflamme, 2016; Achterberg et al., 2009) in currently highly secularized Western countries observed religious polarization between religious groups and the secular population over time. Religious polarization is strongest in the countries that are most secularized

because religious individuals in these countries hold on to their religious worldviews and values most strongly (Ribberink et al., 2018; Wilkins-Laflamme, 2016, 2014). Additionally, non-religious individuals may hold less religious-inspired values as they get less exposed to religious norms in more secularized countries (Verbakel & Jaspers, 2010; Kelley & De Graaf, 1997). Building onto the religious polarization thesis it can be expected that *the religious divide in tolerance towards transgender people, wherein religious individuals (non-religious individuals) are less (more) tolerant towards transgender people, is larger in more secularized countries (hypothesis 2a).*

By contrast, building upon literature on the moral community hypothesis (see e.g., Adamczyk, 2022; Stark, Kent, & Doyle, 1982; Stark, 1996), it can be argued that an opposite pattern may occur, wherein the religious divide between less tolerant religious and more tolerant non-religious individuals is smaller in more secularized countries (see e.g., Scheepers et al., 2002 for similar patterns on moral attitudes). The moral community hypothesis posits that religious individuals are less bound to a religious moral community in more secularized countries. When religious individuals are less bound to a moral community, the likelihood that their religious beliefs influence their moral attitudes is decreased. In other words, individual-level religious beliefs have more effect on moral attitudes in more religious countries. This implies that religious individuals hold less strong religiously inspired attitudes in more secularized countries, indicating the religious divide between religious individuals and non-religious individuals to be smaller in more secularized countries. Building onto the moral community hypothesis it can be expected that *the religious divide in tolerance towards transgender people, wherein religious individuals (non-religious individuals) are less (more) tolerant towards transgender people, is smaller in more secularized countries (hypothesis 2b).*

Country-Level Secularization, the Educational Divide, and Tolerance towards Transgender

People

The theoretical model on cultural value orientations and tolerance towards transgender people argues that attitudinal differences of European citizens towards gender norms and hence transgender people may not only be explained through the religious divide, but also through the educational divide (Beijeman, 2022). The educational divide mirrors the opposition between the less-educated, who are especially authoritarian individuals preferring conformity and social order, and the more-educated, who are especially libertarian individuals preferring individual freedom and diversity (De Koster et al., 2010; Stubager, 2009). Authoritarians and libertarians evaluate social groups based on their preferences for either conformity and social order or individual freedom and diversity (Stubager, 2009; De Koster & Van der Waal, 2007). Less-educated authoritarians prefer to categorize the social world in absolute terms and are intolerant towards ambiguity (Stubager, 2009), and may therefore evaluate all individuals negatively who do not conform to their authoritarian social norms or are seen as subordinate within their social order (Beijeman, 2022). Previous research (Makwana et al., 2018) indicated that individuals who prefer social order and clarity hold prejudice toward transgender people. Transgender people do not conform to the absolute gender norms authoritarians hold, as authoritarians view gender as a stable distinction between men and women, in alignment with sex, and predetermined at birth (Prusaczyk & Hodson, 2020; Norton & Herek, 2013). Consequently, the less-educated in general may hold more negative attitudes towards transgender people than the more-educated.

Building on the line of reasoning of multiple scholars (e.g., De Koster et al., 2010; Houtman, Achterberg, & Duyvendak, 2008), the educational value divide between the less-educated and more-educated on issues concerning social order and hierarchy is larger within more secularized countries. Secularization decreases the exposure to religious norms and

hence collective conformation to these norms within a country (Kelley & De Graaf, 1997), facilitating individual freedom and diversity throughout society (Inglehart & Welzel, 2005), which reduces the perceived social order within a country (De Koster et al., 2010). Less-educated authoritarians favor conformity to a social order they perceive as absolute and as natural given (Stubager, 2009). Within secularized heterogeneous countries, less-educated authoritarians experience a lack of meaningful social order, evaluate this as problematic, resulting in intolerance towards dissimilar others (De Koster et al., 2010). More-educated libertarians, favor individual freedom and diversity (Stubager, 2009), are less affected by a perceived lack of social order within secularized heterogeneous countries and are therefore more tolerant towards other social groups (De Koster et al., 2010). As the perceived social order is lower in more secularized countries a similar pattern, as suggested in *hypothesis 2a* for the religious divide, can be expected for the educational divide: *The educational divide in tolerance towards transgender people, wherein less-educated individuals (more-educated individuals) are less (more) tolerant towards transgender people, is larger in more secularized countries (hypothesis 3a).*

However, the opposite pattern may occur for the educational divide as well. Research (Jaspers et al., 2007) in the Netherlands indicated that, alongside a process of secularization, the educational divide in tolerance towards gay people decreased over time. The researchers suggested this may be due to ceiling effects wherein more-educated individuals cannot become more tolerant. In more secularized countries all citizens are less exposed to religious moral norms and therefore generally hold more liberal moral attitudes (Finke & Adamczyk, 2008; Kelley & De Graaf, 1997). However, when more-educated individuals in more secularized countries have 'reached the ceiling' in terms of their tolerance, the educational divide should become smaller. As factors influencing attitudes towards gay people often also influence attitudes towards transgender people (Flores, 2015; Norton & Herek, 2013), an

alike process may occur for tolerance towards transgender people. Based on this line of reasoning a similar pattern, as suggested in *hypothesis 2b* for the religious divide, can be expected for the educational divide: *The educational divide in tolerance towards transgender people, wherein less-educated individuals (more-educated individuals) are less (more) tolerant towards transgender people, is smaller in more secularized countries (hypothesis 3b).*

Analytical Strategy, Data, and Operationalizations

Analytical Strategy

To study how secularization shapes the attitudes of European citizens towards transgender people, individual-level survey data nested in European countries will be used from the Eurobarometer 91.4 (2019; European Commission Brussels, 2020). After operationalization of all crucial variables, the final sample for the main analyses comprised 17,489 respondents in 24 countries. Since the data has a two-level hierarchical structure, wherein individuals (level 1) are nested within countries (level 2), multi-level regression models were applied to test the hypotheses (Field, 2018).

Six separate linear multi-level regression models were estimated. Model 1 represented the null model, which determined whether multi-level modeling was warranted and how much of the variance in tolerance towards transgender people existed on the country-level. Model 2, a random intercepts model, included all individual- and country-level variables relevant for the main analyses to test *hypothesis 1*. Before testing *hypotheses 2a* and *2b*, Model 3, a random slopes model, was constructed to estimate the slope residuals for the religious divide and educational divide across countries and to see whether they improved the model fit. To test *hypotheses 2a* and *2b*, Model 4 included the interaction between being religious on the individual-level and secularization on the country-level. Model 5 included

the interaction between education on the individual-level and secularization on the country-level to test *hypotheses 3a* and *3b*. Lastly, Model 6 included both interaction terms simultaneously, to control for one interaction whilst testing for the other and thereby scrutinizing possible spurious findings in Model 4 or Model 5.

Given the limited number of countries (n = 24) to which the analyses can be applied, only a restricted number of country-level variables and cross-level interactions can be estimated (Field, 2018). Therefore, I only included secularization as a country-level variable in the main analyses. In an additional robustness check the main findings were reproduced whilst also controlling for the general level of education on the country-level. Literature indicates that more education increases liberal attitudes towards diversity and equality (Borgonovi, 2012; Inglehart & Welzel, 2005; Bolzendahl & Myers, 2004), and suggests that general educational expansion in a country is accompanied by a more liberal discourse in which its citizens are subsequently socialized (Thijs et al., 2019). Controlling for the general education level of country, and hence contextual authoritarianism (included in e.g., Pless et al., 2020), enables disentangling the effect of secularization on tolerance towards transgender people more clearly.

Moreover, explorative analyses were conducted to examine whether secularization influences tolerance towards transgender people differently in European post-Communist countries compared to countries without a Communist history. The post-Communist countries (n = 10; i.e., Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Bulgaria, and Croatia) were analyzed separately from the countries without a Communist history in the sample (n= 14; i.e., France, Belgium, the Netherlands, Germany, Italy, Denmark, Ireland, the United Kingdom, Spain, Portugal, Finland, Sweden, Austria, and Cyprus). These analyses were conducted as processes of secularization are suggested to be different in these political historical different countries (Norris & Inglehart, 2004).

Data

The variables were measured with data from the Eurobarometer as this is, to the best of my knowledge, the only cross-country European survey including waves that measure tolerance towards transgender people through the special thematic survey 'Discrimination in the European Union' (i.e., Eurobarometer 77.4 (2012), Eurobarometer 83. 4 (2015), and Eurobarometer 91.4 (2019); European Commission Brussels, 2015, 2018, 2020). The sample consists of residents (aged 15 years or above) of any of the 28 European Union member states. Although it would have been optimal to include multiple waves of the Eurobarometer to test for effects over time, the items measuring tolerance towards transgender people were not formulated similarly across waves. Therefore, only data from the Eurobarometer 91.4 (2019) was used to measure the individual-level variables. All descriptive statistics are available in the Appendix Table A1 and all individual-level correlations are available in the Appendix Table A2 (no multicollinearity existed between all independent variables; Brambor, Clark, & Golder, 2006). Moreover, an ethics and privacy checklist is available as a final document within the Appendix.

Operationalization of the Main Individual-Level Variables

The individual-level dependent variable, *tolerance towards transgender people*, was measured through a reliable four-item scale (Cronbach's $\alpha = 0.82$), covering four different social domains (see the Appendix Table A3 for the items with their response categories and factor loadings). All items loaded on the first factor, explaining 65.17% of the variance. The first three items, tolerance towards transgender people in politics, in the workplace, or as the spouse of your child, ranged from (1) to (10) wherein a higher value indicated more tolerance towards transgender people. The fourth item, tolerance towards information about transgender people in school programmes, ranged from (1) to (4) wherein a higher value

indicated less tolerance towards transgender people, and was therefore reverse coded. The following answer options were coded as missing: 'Don't know', 'Indifferent', and 'It depends'. Respondents who did not substantively respond to at least three of the four items were excluded from the analysis (n = 2,417, based on the 24 countries present in the final sample). The items were standardized to ensure measurements on the same range, whereby higher values indicate more tolerance towards transgender people.

The main individual-level variables are *religion* (Campbell et al., 2019; Jaspers et al., 2007) and *education* (see the Appendix Table A3 for the items and their response categories; Norton & Herek, 2013; King, Winter, & Webster, 2009). Religion was measured by asking respondents to which religious denomination they belonged (cf. Van der Noll, Rohmann, & Saroglou, 2018). Since this research focuses on the religious divide between individuals believing in European-dominant monotheistic religions and non-religious individuals, I distinguished between (0) non-religious (i.e., atheists and non-believers or agnostics) and (1) religious (i.e., Christians, Jews, and Muslims) individuals within my analyses. All respondents with another denomination (i.e., Buddhist, Hindu, Sikh, or any other religion), who refused to answer, or reported 'Don't Know' were excluded from the analyses (n = 1,651). Education (continuous, group mean centered; Enders & Tofighi, 2007) was measured by asking respondents at which age they stopped full-time education (cf. Müller, Blommaert, Savelkoul, Lubbers, & Scheepers, 2023). Those respondents who reported to have never received education (n = 230) were excluded from the analyses, as its only incidental for European citizens to receive no education. Furthermore, respondents were coded missing if they still followed full-time educated, refused to answer, or reported 'Don't Know' answers (n = 1,797). In line with Müller et al. (2023) all respondents who stopped full-time education at age 13 or younger were set to the cut-off age of 13, additionally the data was capped at age 26 (n = 1,581; aged above 26). In an additional robustness check the data was only capped at

age 26 and respondents younger than 13 when they stopped full-time education were not recoded to age 13 (cf. Müller et al., 2023).

Operationalization of the Main Country-Level Variable

At the county-level, *secularization* was measured through a reliable scale (Spearman-Brown coefficient: 0.87; Eisinga, Te Grotenhuis, & Pelzer, 2013) constructed of two secularization indicators. The indicators both loaded on the first factor, explaining 88.54% of the variance, and had a correlation of 0.77 with each other. Multiple studies have calculated secularization on the context-level based on individual-level religiosity data (see e.g., Pless, Tromp, & Houtman, 2021; Van den Akker et al., 2013; Finke & Adamczyk, 2008; Scheepers et al., 2002). The Eurobarometer 91.4 (2019) did not include a religiosity measure and only captured respondents' religious denomination. Therefore, the first indicator measured the percentage of secular individuals in each country based on aggregated individual-level religion data.

To capture the secularization level of each country more encompassing, the second indicator covered the religiosity level per country. This country-level data was derived from the QoG Standard Dataset (2023; Teorell et al., 2023; Norwegian Centre for Research Data [NSD], 2020), and based on individual-level religiosity data from the European Social Survey which ranged from (0) to (10), with higher scores indicating more religiosity. The QoG Standard Dataset (2023) did not contain religiosity data for 2019, therefore the second indicator was based on the nearest and prior 2018 data. The second indicator was reverse coded resulting in higher scores indicating higher secularization levels, whereafter both indicators were standardized to ensure measurement on the same range. Since the Eurobarometer only samples from European member states, all 23 European countries not part of the European Union were excluded from the analyses. Additionally, data from Greece,

Luxembourg, Malta, and Romania was excluded from the analyses as the 2018 data from the QoG Standard Dataset (2023) did not cover these countries.

Operationalization of the Control Variables

In line with previous research on secularization (Pless et al., 2021) and tolerance towards sexual minorities (for an overview see Adamczyk & Liao, 2019) control variables were included to control for possible spurious relationships and confounding variables. On the individual-level *gender* (0 = male, 1 = female) and *age* (continuous, group mean centered; Enders & Tofighi, 2007) were included (Pless et al., 2021; Norton & Herek, 2013), as generally females and younger age cohorts hold more positive attitudes towards transgender people than males and older age cohorts (Worthen, 2016; Gerhardstein & Anderson, 2010; Winter et al., 2009; Landén & Innala, 2000). I additionally controlled for *marital status* (dummy coded, 0 = not married, 1 = married) as married individuals hold more conservative views than non-married individuals (Andersen & Fetner, 2008; Finke & Adamczyk, 2008). Respondents were coded missing when they refused to answer or reported 'Other' (n = 338). Furthermore, I controlled for being part of a *sexual minority* (0 = cis-heterosexual, 1 = sexual minority; i.e., like being gay, lesbian, bisexual, transgender, or intersex), as cis-heterosexual individuals are generally less tolerant towards transgender people than individuals part of a sexual minority (Pistella, Tanzilli, Ioverno, Lingiardi, & Baiocco, 2018; Warriner, Nagoshi, & Nagoshi, 2013). Since religion and education are correlated (the overall correlation being - 0.08), I controlled for *education* in the models testing for the religious divide and vice versa (Pless et al., 2021). On the country-level the general *education level* was included in an additional robustness check. This variable was operationalized by calculating the average age at which individuals quit their full-time education for each country. Thereafter, the variable

was standardized to ensure all continuous predictor variables were centered, which allowed easier interpretation of the lower-order coefficients (Field, 2018).

Results

Before moving on to the main analyses which test the hypotheses, general contextual differences relating to the crucial variables will be provided. First, the secularization level (Figure 1) and general tolerance towards transgender people (Figure 2) for each country are graphically displayed. Figure 1 and Figure 2 both roughly display the expected patterns wherein citizens of West-European countries are generally most secularized and most tolerant towards transgender people (e.g., Sweden and the Netherlands), whereas citizens of East-European countries are generally least secularized and least tolerant towards transgender people (e.g., Slovakia and Lithuania; these findings align with general findings on secularization and tolerance towards sexual diversity, Pew Research Center, 2018). Figure 1 indicates Czech Republic as an outlier, although the secularization level resembled a plausible value (Pew Research Center, 2018; Casanova, 2009) it is noticeably large compared to the other countries. Therefore, an additional robustness check was performed wherein Czech Republic was excluded from the analyses (see 'Robustness Checks').

Following Figure 1 and Figure 2, insights into the country-level differences for the effects of religion (Figure 3) and education (Figure 4) on tolerance towards transgender people are given. Figure 3 shows the regression coefficients of the relation between religion and tolerance towards transgender people for each country. Figure 4 shows the regression coefficients of the relation between education and tolerance towards transgender people for each country. All regression coefficients displayed in Figure 3 and Figure 4 were derived
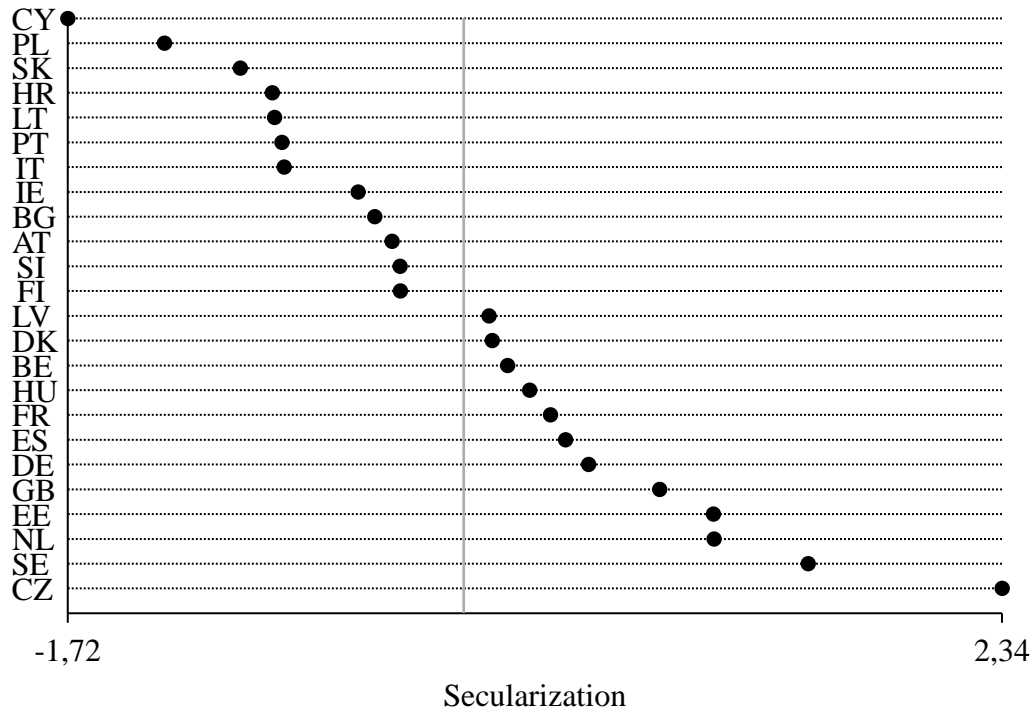
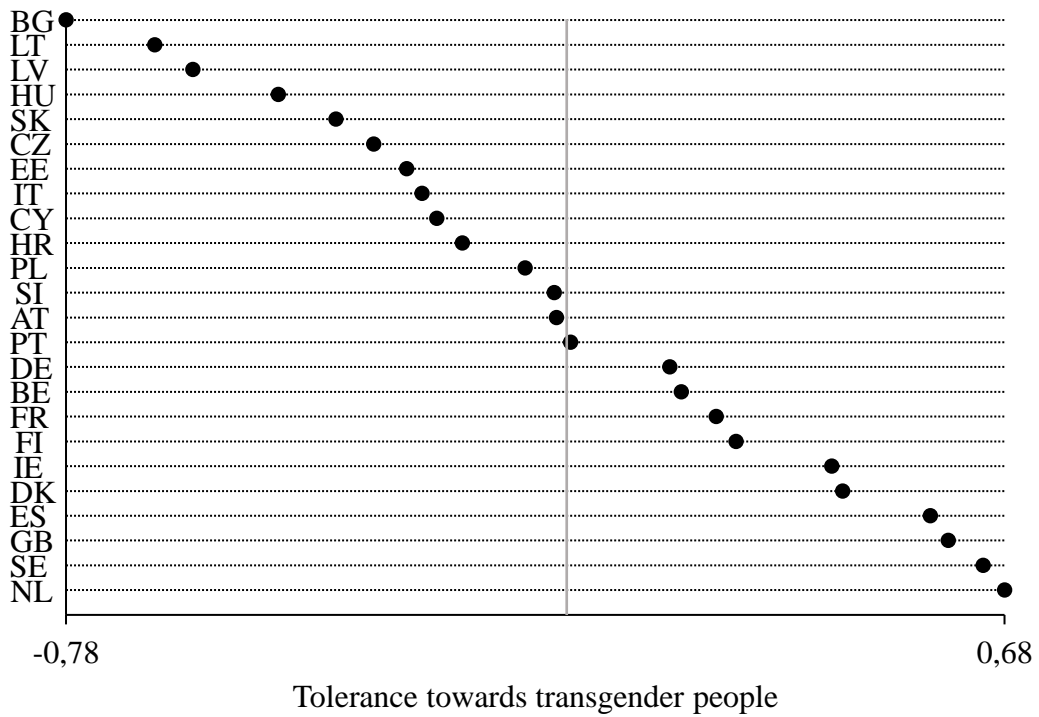*Figure 1*. The secularization level for each country.

Figure 2. The average degree of tolerance towards transgender people for each country.

from separate regression analyses per country, in all cases including all individual-level variables. Figure 3 and Figure 4 show unexpected results as no clear patterns, wherein secularized West-European countries are distinct from religious East-European countries, can be discerned. In both figures the largest and smallest effects can be found in secularized and religious countries simultaneously. In Figure 3, the strongest negative effects of religion on tolerance towards transgender people are found in for example the Netherlands, but also in Croatia. Less strong or reversed effects are found in for example Germany, but also in Bulgaria. Similar patterns can be discerned in Figure 4, where the strongest positive effects are found in for example France, but also in Lithuania. Less strong effects are found in for example the United Kingdom, but also in Poland.
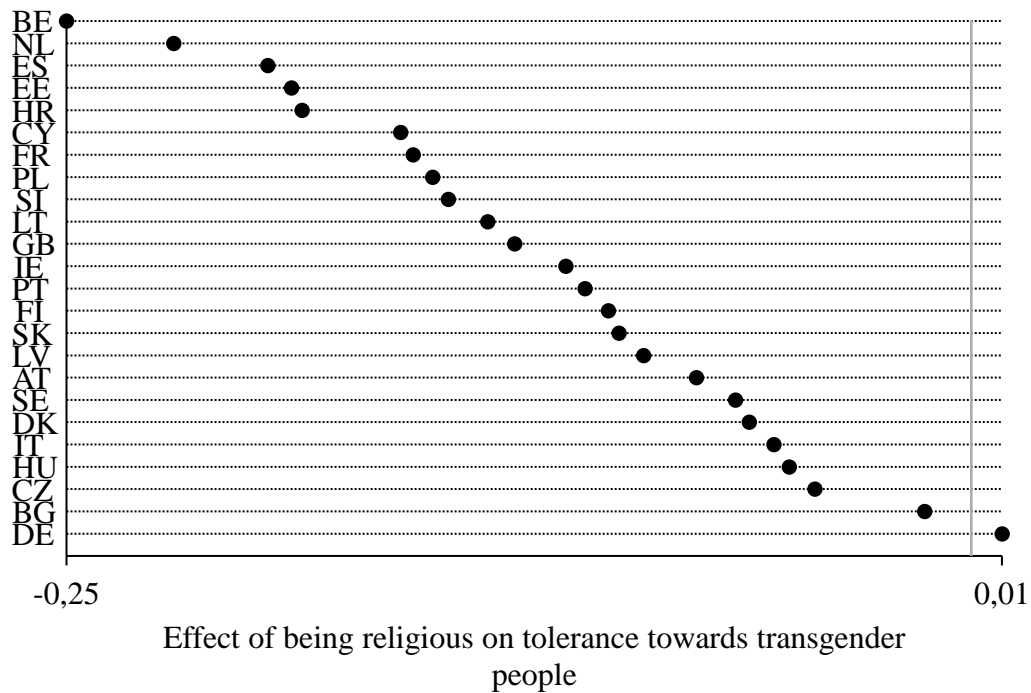

Figure 3. The effect of being religious on tolerance towards transgender people for each country (regression coefficients derived from models including all individual-level variables).
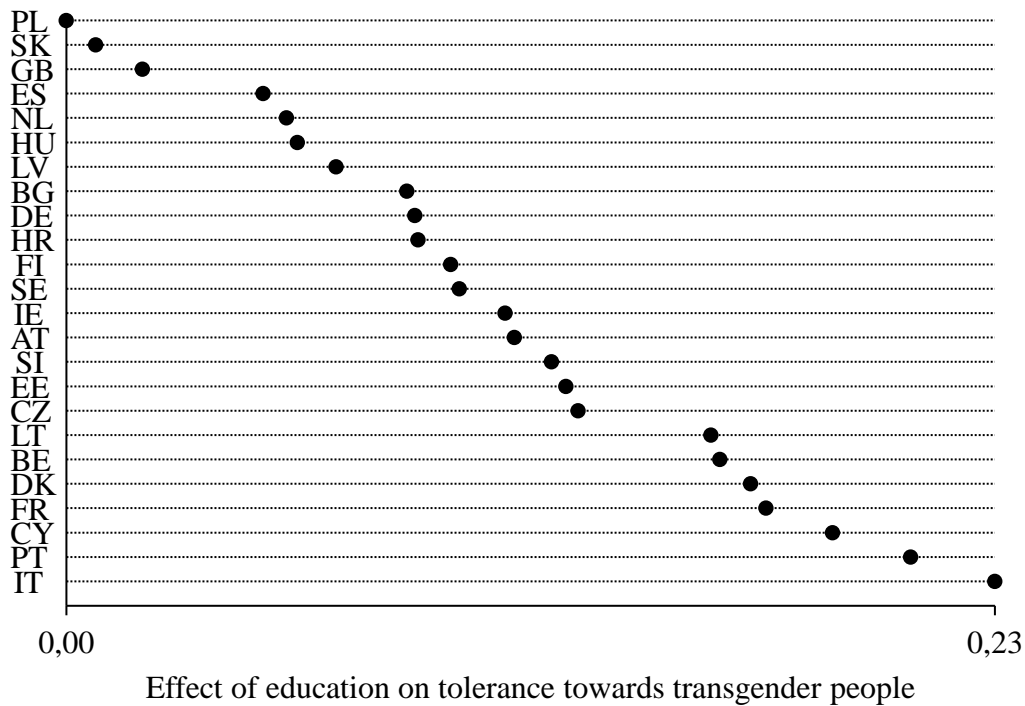
Figure 4. The effect of education on tolerance towards transgender people for each country (regression coefficients derived from models including all individual-level variables).

Although Figure 3 and Figure 4 provide some unexpected results, eyeballing both Figure 1 and Figure 3 simultaneously seems to suggest that the religious divide is smaller in more secularized countries (suggesting support for *hypothesis 2b* but not *hypothesis 2a*). Looking at Figure 1 and Figure 4 simultaneously does not provide a clear indication for either a smaller or larger educational divide in more secularized countries (suggesting no support for *hypothesis 3a* and *hypothesis 3b*), the multi-level models should provide more clarity in relation to the hypotheses.

Table 1 presents all multi-level models for the main analyses. As expected, the analyses on the individual-level indicate that both religious and more-educated individuals are more tolerant towards transgender people. The same applies to the control variables, wherein individuals who are female, younger of age, non-married, or part of a sexual

Table 1. Linear multi-level regression models for tolerance towards transgender people.

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual level						
Religion		-0.19***	-0.21***	-0.22***	-0.21***	-0.22***
		(0.01)	(0.03)	(0.02)	(0.03)	(0.02)
Education		0.03***	0.02***	0.02***	0.02***	0.02***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country level						
Secularization		0.13	0.08	0.06	0.08	0.06
		(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Interactions						
Secularization x Religion				0.09**		0.09**
				(0.03)		(0.03)
Secularization x Education					0.00	0.00
					(0.00)	(0.00)
Control variables						
Age		0.00***	0.00***	0.00***	0.00***	0.00***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender		0.11***	0.11***	0.12***	0.11***	0.12***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Marital Status		-0.02*	-0.02*	-0.02*	-0.02*	-0.02*
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sexual Minority		0.19***	0.19***	0.19***	0.19***	0.19***
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Intercept	0.01	0.10	0.12	0.13	0.12	0.13
	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Variance (Individual level)	0.47***	0.45***	0.45***	0.45***	0.45***	0.45***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Variance (Country level)	0.18***	0.16***	0.16**	0.16**	0.16**	0.16**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Slope (religion)			0.01*	0.01*	0.01*	0.01*
			(0.01)	(0.00)	(0.01)	(0.00)
Slope (education)			0.00*	0.00*	0.00*	0.00*
			(0.00)	(0.00)	(0.00)	(0.00)
n (individual level)	17,489	17,489	17,489	17,489	17,489	17,489
n (country level)	24	24	24	24	24	24

Sources: Eurobarometer 91.4 (2019; European Commission, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; Norwegian Centre for Research Data [NSD], 2020) (own calculations).
Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-sided). Unstandardized coefficients with the standard errors in parentheses; estimation: Restricted maximum likelihood.

minority are more tolerant towards transgender people. Model 1 indicated that multi-level modelling was warranted (DEFF above 1.5; Muthén & Satorra, 1995). The ICC indicated that 27% of the variance in tolerance towards transgender people existed on the country-level (large within-cluster homogeneity; Kreft & De Leeuw, 1998). The following analysis indicates whether secularization explains this country-level variance. Model 2 did not support the first expectation, wherein it was expected that individuals in more secular countries are more tolerant towards transgender people. The results indicate that a country's secularization level does not influence how tolerant its citizens are towards transgender people (rejecting *hypothesis 1*).

Model 3 additionally estimated the slope residuals for the religious and educational divides across countries to see whether they improved the model fit. Comparing the deviance of Model 2 and Model 3 using a likelihood-ratio test, $LR \chi^2 = 56$, $p < .001$, indicated that it was justified to include the slope residuals (Aguinis, Gottfredson, & Culpepper, 2013). Hereafter Model 4 tested whether the religious divide in tolerance towards transgender people, wherein non-religious (religious) individuals are expected to be more (less) tolerant, is larger (*hypothesis 2a*) or smaller (*hypothesis 2b*) in more secular countries. The positive cross-level interaction between secularization and religion indicates the religious divide in tolerance towards transgender people to be smaller in more secularized countries. The cross-level interaction effect was visualized in Figure 5 to fully interpret the results (Brambor et al., 2006). Figure 5 shows that the religious divide in tolerance towards transgender people is smaller in more secularized countries wherein generally non-religious individuals are more tolerant towards transgender people than religious individuals (rejecting *hypothesis 2a*; confirming *hypothesis 2b*). In the most secularized countries, the religious divide disappears or even turns the other way around: A religious divide emerges wherein religious individuals are more tolerant towards transgender people than non-religious individuals. This unexpected
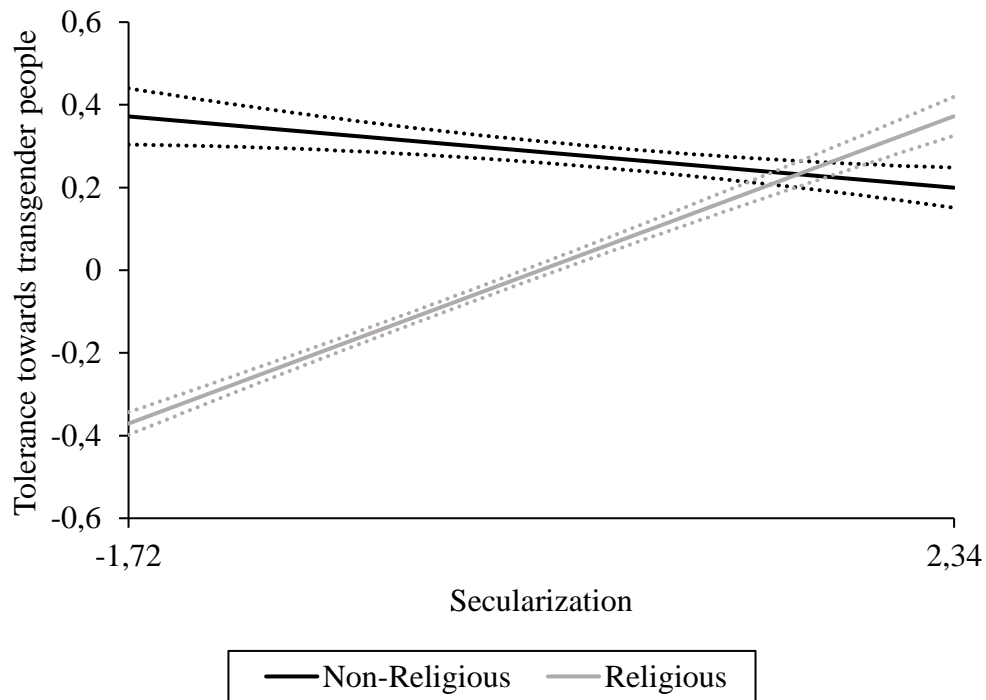
Figure 5. The tolerance towards transgender people of non-religious and religious individuals across 24 European countries with differing secularization levels (Table 1, Model 4), including 95 percent confidence intervals (dotted lines).

result may be explained by the secularization level of the outlier Czech Republic. The robustness check below, excluding Czech Republic, provides insight in whether this remarkable finding is robust.

Model 5 did not support the theoretical reasonings from which it was expected that the educational divide in tolerance towards transgender people, wherein more-educated (less-educated) individuals are expected to be more (less) tolerant, is larger (*hypothesis 3a*) or smaller (*hypothesis 3b*) in more secularized countries. The interaction between secularization and education did not result in significant coefficients. The insignificant results were visualized in Figure 6, which indicates that both the more-educated and less-educated are more tolerant towards transgender people in more secularized countries. At the same time, the results show that no educational divide in tolerance towards transgender people is present in any of the European countries. This general pattern is at odds with both educational divide

hypotheses, wherein group-specific patterns were expected (rejecting *hypothesis 3a*; rejecting

hypothesis 3b). Although these results were unexpected, they are in line with previous

research wherein differing moral values on matters of gender roles and sexuality are merely

explained through the religious divide and not through the educational divide (Pless et al.,

2021; De Koster et al., 2010). To complete, Model 6 included both interaction terms

simultaneously, to control for one interaction whilst testing for the other. The effects

remained completely the same as they were in Model 4 and Model 5 (rejecting *hypothesis 2a*;

confirming *hypothesis 2b*; rejecting *hypothesis 3a*; rejecting *hypothesis 3b*).

Figure 6. The tolerance towards transgender people of individuals with more education
(mean + 1 SD; based on education data before group mean centering) and individuals with
less education (mean – 1 SD; based on education data before group mean centering) across
24 European countries with differing secularization levels (Table 1, Model 5), including 95
percent confidence intervals (dotted lines).

Explorative analyses

The following analyses were performed to explore whether secularization influences tolerance towards transgender people differently in European post-Communist countries compared to countries without a Communist history. I explored this as processes of secularization are suggested to be different in these political historical different countries (Norris & Inglehart, 2004). The main results for post-Communist countries are visualized in Figure 7 and Figure 8 (all results are presented in the Appendix Table A4), whereas the main results for countries without a Communist history were visualized in Figure 9, Figure 10, and Figure 11 (all results are presented in the Appendix Table A5).

Figure 7. The tolerance towards transgender people of non-religious and religious individuals across 10 European countries with differing secularization levels and with a Communist history (Table A5, Model 4), including 95 percent confidence intervals (dotted lines).
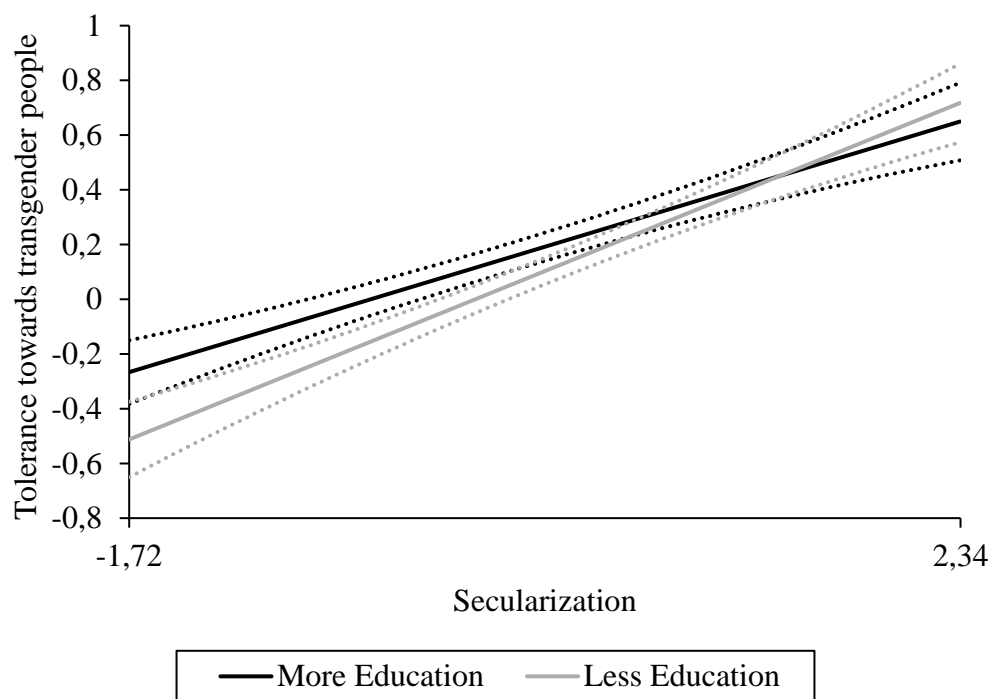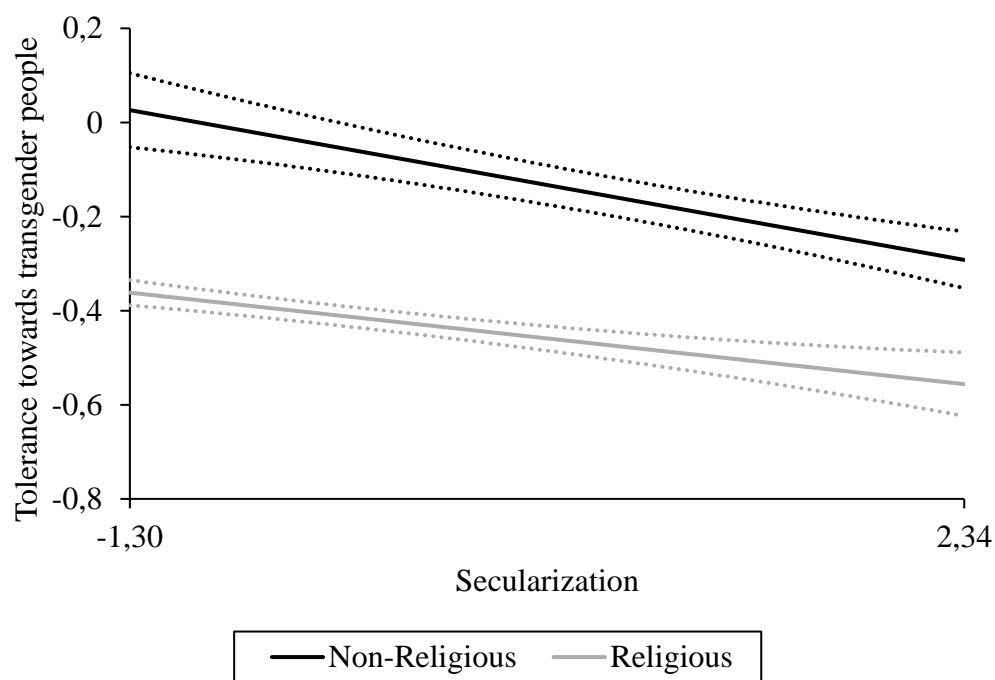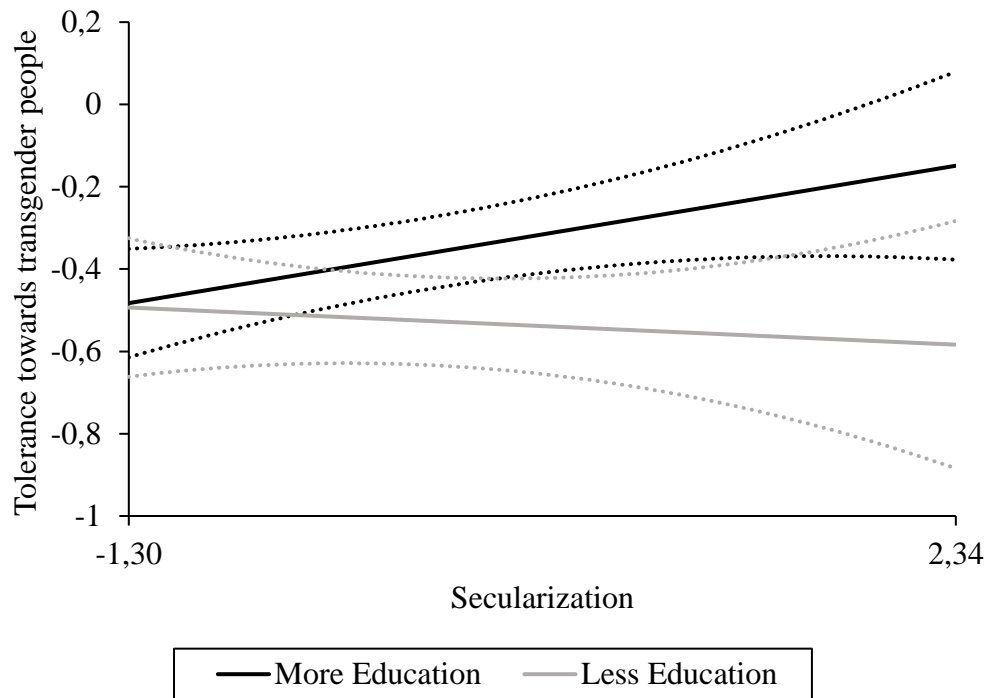
Figure 8. The tolerance towards transgender people of individuals with more education (mean + 1 SD; based on education data before group mean centering) and individuals with less education (mean – 1 SD; based on education data before group mean centering) across 10 European countries with differing secularization levels and with a Communist history (Table A5, Model 5), including 95 percent confidence intervals (dotted lines).

Although the results for post-Communist countries are like the results of the main analyses (rejecting *hypothesis 1*; rejecting *hypothesis 2a*; confirming *hypothesis 2b*; rejecting *hypothesis 3a*; rejecting *hypothesis 3b*), a different pattern emerged for the cross-level interaction between secularization and religion (comparing Figure 5 and Figure 7). In post-Communist countries, both non-religious and religious individuals were less tolerant towards transgender people in more secularized countries instead of more tolerant. This remarkable result did not align with previous research (Halman & Van Ingen, 2015) which concluded that citizens in more religious post-Communist countries hold less tolerant moral attitudes.

In the countries without a Communist history, citizens in more secularized countries were generally more tolerant towards transgender people (Figure 9, confirming *hypothesis 1*). Moreover, the cross-level interactions indicated different results compared to the main analyses. Whilst a religious divide in tolerance towards transgender people existed, the divide

was similar across countries (Figure 10, rejecting *hypothesis 2a*; rejecting *hypothesis 2b*). These findings suggest that secularization affects the moral attitudes of non-religious and religious individuals equally in European countries without a Communist history. Although these results were unexpected, they are analogous to previous research in the US (Bolzendahl & Brooks, 2005) wherein differences in moral attitudes on for example sexuality and gender roles remained relatively stable whilst secularization advanced. Furthermore, an educational divide, in which more educated were more tolerant towards transgender people, was present and was smaller in more secularized countries (Figure 11, rejecting *hypothesis 3a*; confirming *hypothesis 3b*).

Figure 9. The tolerance towards transgender people of individuals in 14 European countries with differing secularization levels and without a Communist history (Table A4, Model 2), including 95 percent confidence intervals (dotted lines).
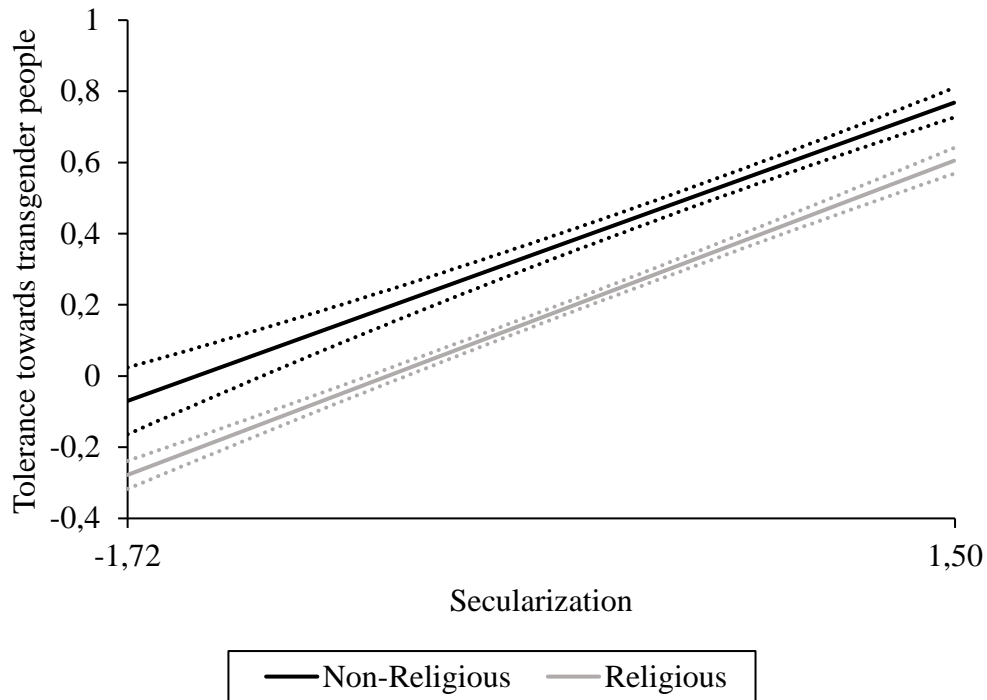
Figure 10. The tolerance towards transgender people of non-religious and religious individuals across 14 European countries with differing secularization levels and without a Communist history (Table A4, Model 4), including 95 percent confidence intervals (dotted lines).

Figure 11. The tolerance towards transgender people of individuals with more education (mean + 1 SD; based on education data before group mean centering) and individuals with less education (mean − 1 SD; based on education data before group mean centering) across 14 European countries with differing secularization levels and without a Communist history (Table A4, Model 5), including 95 percent confidence intervals (dotted lines).
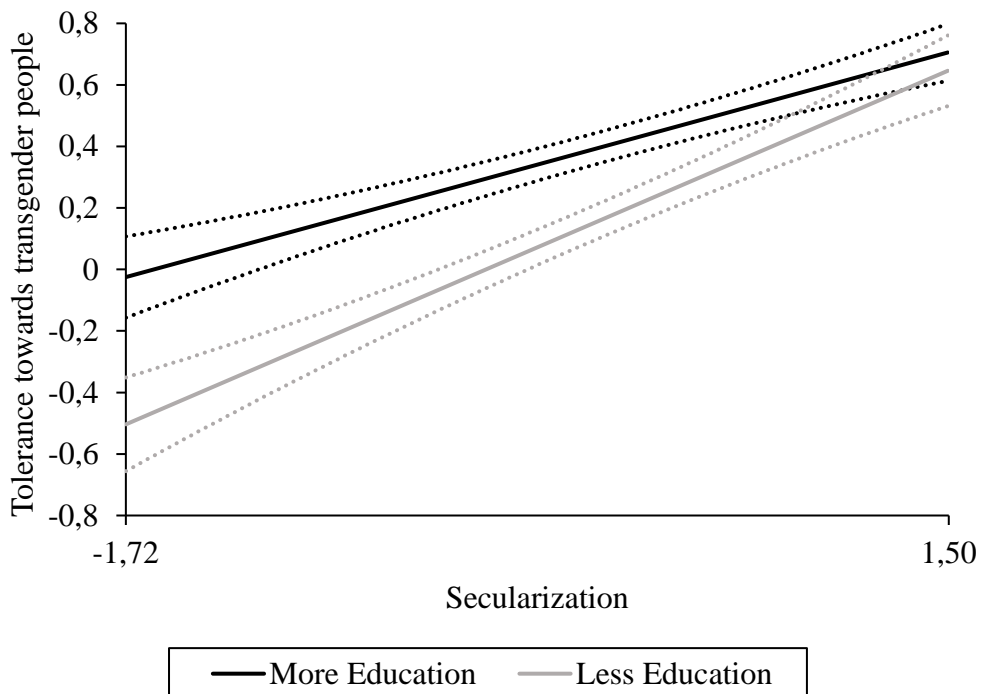
Robustness Checks

Three robustness checks were performed to control for the robustness of the findings in the main analyses. First, the main findings were reproduced whilst also controlling for the general level of education on the country-level, as general educational expansion is associated to a more liberal society (Thijs et al., 2019). The general education level was not a significant country-level control variable within the analyses and hence no substantial differences were found compared to the main analyses (see the Appendix Table A6 for the results).

Thereafter, the second robustness check was performed wherein outlier Czech Republic was excluded from the analyses, as its secularization level was noticeably large compared to the other countries (see the Appendix Table A7 for the results). Model 2 indicated a substantial positive effect of secularization on tolerance towards transgender people when Czech Republic was excluded (visualized in Figure 12). The expectation that in more secular countries citizens are more tolerant towards transgender people was therefore supported when Czech Republic was excluded (confirming *hypothesis 1*). The other Models did not show substantial differences compared to the main analyses. The visualization of Model 4 in Figure 13 did show that the unexpected results shown in Figure 5 disappeared when Czech Republic was excluded: The religious divide wherein religious individuals are more tolerant towards transgender people than non-religious individuals in most secularized countries was not present.

In the last robustness check the data was only capped at age 26 and respondents younger than 13 when they stopped full-time education were not recoded to age 13 (Müller et al., 2023). The results of this third robustness check did not substantially differ from the results of the main analyses (see the Appendix Table A8 for the results).
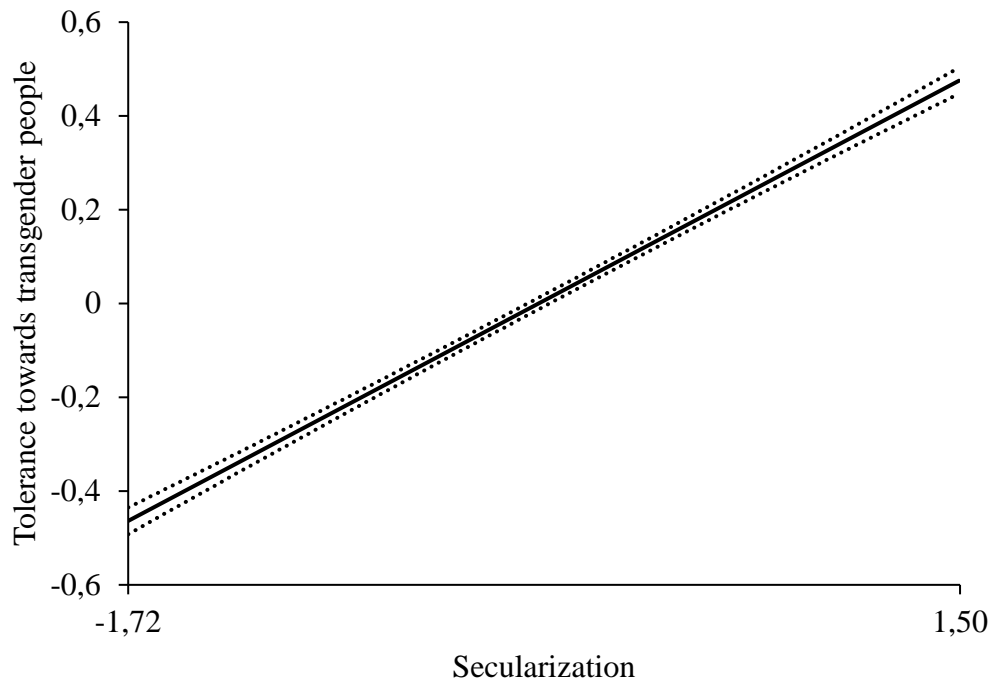
Figure 12. The tolerance towards transgender people of individuals in 23 European countries, excluding outlier Czech Republic, with differing secularization levels (Table A7, Model 2), including 95 percent confidence intervals (dotted lines).

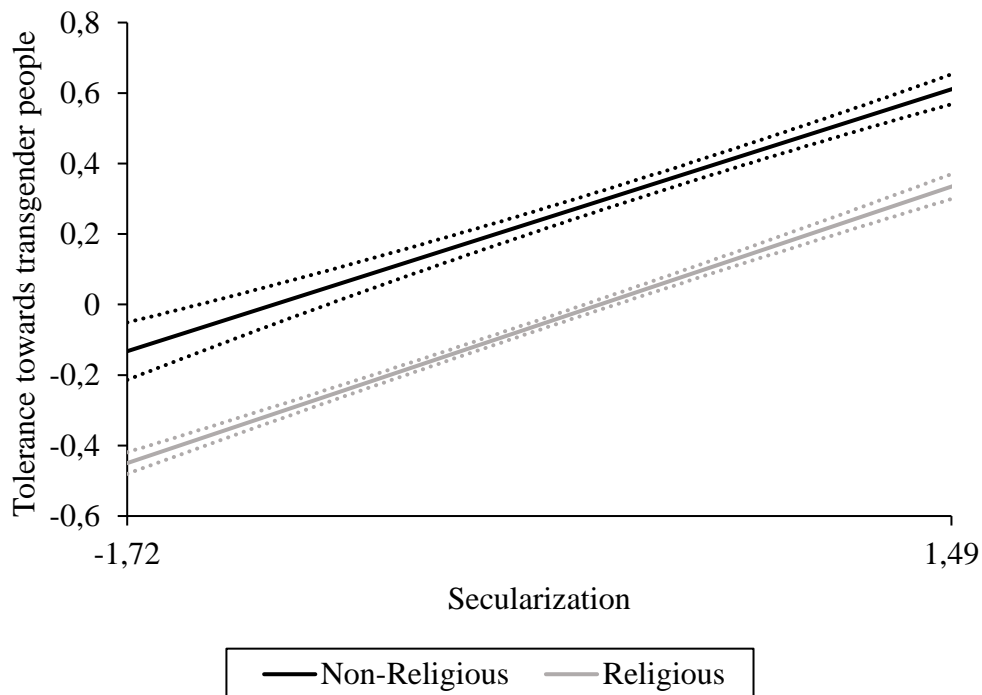*Figure 13.* The tolerance towards transgender people of non-religious and religious individuals across 23 European countries, excluding outlier Czech Republic, with differing secularization levels (Table A7, Model 4), including 95 percent confidence intervals (dotted lines).

Conclusion and Discussion

Previous studies have shown interest in the individual-level determinants of tolerance towards transgender people but kept country-level characteristics relatively unassessed. This research included secularization as a country-level determinant to explain tolerance towards transgender people. Based on previous research on secularization and tolerance towards sexual minorities I took a socialization-based approach, from which it was inferred that citizens in more secularized countries should hold more positive attitudes towards transgender people. Aiming to reach a more encompassing understanding of cross-national differences in the role of secularization on tolerance towards transgender people, I considered recent secularization research together with recent theorizing on cultural value orientations and attitudes towards transgender people. Based thereon, I argued that attitudinal differences of European citizens towards transgender people can be explained through both a religious divide and an educational divide. I therefore interacted country-level secularization with religion and education on the individual-level. In doing so, I aimed to extend the literature on secularization and tolerance towards sexual minorities whilst answering the following research question: *How does secularization shape the attitudes of European citizens towards transgender people?*

Overall and in line with my socialization-based approach this research indicates that, when outlier Czech Republic is excluded, citizens in more secularized countries generally hold more tolerant attitudes towards transgender people. Contrary to what was theorized based upon the religious polarization thesis, my main analyses demonstrate that the religious divide in tolerance towards transgender people, wherein generally non-religious individuals are more tolerant towards transgender people, is smaller in more secularized countries. This finding is in line with the moral community hypothesis. Moreover, I found no support for the 'social order' approach or the 'ceiling effect' approach from which cross-country differences

in the educational divide in tolerance towards transgender people were expected due to differing secularization levels across countries: Although both more-educated and less-educated individuals are more tolerant towards transgender people in more secularized countries, no support for an educational divide in tolerance towards transgender people was found. Apart from the robustness check wherein outlier Czech Republic was excluded, the other robustness checks did not indicate considerable differences compared to my main analyses.

Explorative analyses that tested the hypotheses separately for European post-Communist countries and for countries without a Communist history indicated some remarkable results. In post-Communist countries I found no support for the socialization-based approach as country-level secularization did not directly affect tolerance towards transgender people. These findings may possibly be explained by the presence of outlier Czech Republic within the sample. Furthermore, no support was found for the social order approach and the ceiling effects approach, as no educational divide in tolerance towards transgender people existed across countries. The moral community hypothesis was supported, as the religious divide was smaller in more secularized countries, but remarkably I found that both non-religious and religious individuals were less tolerant in more secularized countries. This remarkable finding did not align with previous research (Halman & Van Ingen, 2015) which concluded that citizens in more religious post-Communist countries held less tolerant moral attitudes. Future research should try to explain these conflicting findings.

I found opposite patterns in countries without a Communist history: The socialization-based approach was supported, as citizens in more secularized countries were more tolerant towards transgender people. Moreover, the findings support the ceiling effect approach as the educational divide in tolerance towards transgender people was smaller in more secularized countries. I did not find support for the reasoning based on the religious polarization thesis

and the moral community hypothesis, as the religious divide was similar across countries with differing secularization levels (analogous to research in the US by Bolzendahl & Brooks, 2005). Whilst the explorative analyses indicate that future secularization research should indeed study post-Communist countries separately from countries without a Communist history, my findings raise the question why I found opposite patterns in tolerance towards transgender people between post-Communist countries and countries without a Communist history. To the best of my knowledge, no research has focused on cross-country patterns explaining tolerance towards transgender people in different political historical parts of Europe; future research should aim to explain why differing patterns may emerge. Furthermore, the findings should be interpreted with caution as each part of the explorative analyses could only be applied to a limited number of countries.

The findings of this study may implicate similar general patterns in tolerance towards other sexual minorities such as intersex individuals, born with sexual characteristics outside the binary sex characteristics (Roen, 2015), and non-binary individuals, who's gender identity does not conform to the gender binary (Richards et al., 2016). Following the research findings and the recent theorizing on cultural value orientation and attitudes towards transgender people (Beijeman, 2022) it could be that religious or less-educated individuals are less tolerant towards all individuals who do not conform to the binary conception of either being a male or a female; including intersex and non-binary individuals. Future research should indicate whether religious and educational divides in tolerance towards intersex and non-binary individuals exist, and whether these divides are affected by country-level secularization.

Moreover, the research findings may have implications within the political domain on party positioning and competition across Europe. Literature (Bornschier, 2010), argued that the rise of New Left parties in 1970s, countered by New Right parties in the 1980s, led to a

new cultural value divide in West-European countries, wherein less-educated authoritarians stand against more-educated libertarians. In my explorative analyses the countries without a Communist history were mostly comprised of West-European countries. Within these countries a religious divide and an educational divide in tolerance towards transgender people existed. Whilst the religious divide remained equal across countries, the educational divide was smaller in more secularized countries. These findings may suggest that New Left and New Right parties stand against each other and emphasize their stances on issues related to transgender people especially in more religious West-European countries, such as France, Italy, and Ireland. Another pattern may emerge for parties in post-Communist countries. In these countries a religious divide existed that was smaller in more secularized countries, whilst an educational divide was absent across countries. These findings may suggest that non-religious and religious parties stand against each other and emphasize their stances on issues related to transgender people especially in more religious post-Communist countries, such as Poland, Slovakia, and Croatia. To the best of my knowledge, no research has studied which political parties, in which parts of Europe, take position most strongly on issues related to transgender people and how secularization shapes this party positioning.

This research calls for future research into multiple other directions. Previous research has indicated that the social attitudes of religious individuals are guided by their religious denomination and their religiosity (i.e., their religious involvement; for an overview see Adamczyk & Liao, 2019). Here religious individuals who are Muslim or Christian are generally least tolerant towards sexual minorities (Campbell et al., 2019; Van den Akker et al., 2013) and highly religious individuals are generally least tolerant towards transgender people (Norton & Herek, 2013). Future research could therefore delve into the possibly differing role of secularization in tolerance towards transgender people for religious individuals with different denominations and different degrees of religiosity. Furthermore, as

this research focused on the role of secularization in cross-national differences in tolerance towards transgender people, the experiences of transgender individuals themselves remain unassessed. Previous research has studied the experiences of transgender people in Europe (FRA, 2019) and studied the role of religion in the lives of transgender people (Rodriquez & Follins, 2012). However, to the best of my knowledge, it has not yet been studied how secularization across European countries may shape the experiences of transgender people. Future research could employ a similar multi-level research design to study the experiences of transgender people.

Future research could also build on this study whilst accounting for two limitations. First, future research could study the within and between effects of secularization on tolerance towards transgender people. As the items to measure tolerance towards transgender people were not formulated in a similar fashion across previous waves (i.e., Eurobarometer 77.4 (2012), Eurobarometer 83. 4 (2015), and Eurobarometer 91.4 (2019); European Commission Brussels 2015, 2018, 2020), it was not possible to measure within effects (i.e., trends over time within countries) in this current research. Studying such effects would become possible when the Eurobarometer publishes another wave of the special thematic survey 'Discrimination in the European Union' wherein items are formulated similar as in a previous wave. Second, as the Eurobarometer only studies countries that are part of the European Union, only a limited number of countries were included in the separate explorative analyses. Both secularization literature (Norris & Inglehart, 2004) and my explorative analyses indicate that post-Communist countries should be studied separately from countries without a Communist history. Future research with more European countries is needed to validate my findings in the explorative analyses.

While research on tolerance towards transgender people predominantly focuses on individual-level determinants, my study highlights the importance of country-level

secularization to explain tolerance towards transgender people. Generally, this research shows that citizens in more secularized countries are more tolerant towards transgender people and, in line with the moral community hypothesis, this is especially the case for religious individuals. When post-Communist countries are separated from countries without a Communist history, different patterns emerge which is for future research to explain. In terms of the societal relevance, my general findings indicate that it may be best for (supra)national policymakers to formulate policies that are especially targeted at increasing the tolerance towards transgender people of religious individuals in most religious countries. In doing so, (supra)national policymakers should simultaneously acknowledge and consider possible different patterns that explain tolerance towards transgender people across political historical different regions of Europe.

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Appendix

Table A1. Descriptive statistics.

	n	Mean	SD	Min	Max
Dependent Variable					
Tolerance towards transgender people	17,489	0.00	0.80	-1.67	1.22
Main country-level variable					
Secularization	24	0.00	0.94	-1.72	2.34
Main individual-level variables					
Religion	22,003	0.79	0.41	0	1
Education	17,489	0.00	3.02	-8.57	9.19
Individual-level control variables					
Age	17,489	0.00	16.21	-43.51	46.44
Gender	23,440	0.55	0.50	0	1
Marital Status	23,399	0.57	0.50	0	1
Sexual Minority	23,440	0.01	0.12	0	1
Country-level control variable					
General education level	24	0.00	1.00	-2.12	2.42

Sources: Eurobarometer 91.4 (2019; European Commission Brussels, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; NSD, 2020) (own calculations).

Table A2. Spearman rho correlations of all individual-level variables.

		1	2	3	4	5	6	7
1	Tolerance towards transgender people	—						
2	Religion	-.20**	—					
3	Education	.12**	-.08**	—				
4	Age	-.13**	.14**	-.30**	—			
5	Gender	.03**	.09**	.00	.00	—		
6	Marital Status	-.06**	.13**	.04**	.09**	-.06**	—	
7	Sexual Minority	.05**	-.03**	.03**	-.06**	-.01	-.03**	—

Sources: Eurobarometer 91.4 (2019; European Commission Brussels, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; NSD, 2020) (own calculations).
Note: * $p < .01$. ** $p < .001$. n ranges from 17,489 to 23,440.

Table A3. Details of all Individual-level item measures.

Items and response categories	Factor Loadings
Tolerance towards transgender people	
Using a scale from 1 to 10, please tell me how you would feel about having a person from each of the following groups in the highest elected political position in [your country]. '1' means that you would feel "not at all comfortable" and '10' that you would feel "totally comfortable": A transgender person. [Range answer from (1) *Not at all comfortable* to (10) *Totally comfortable*]	0.87
Regardless of whether you are actually working or not, please tell me, using a scale from 1 to 10, how comfortable you would feel, if a colleague at work with whom you are in daily contact, belonged to each of the following groups? '1' means that you would feel "not at all comfortable" and '10' that you would feel "totally comfortable": A transgender person. [Range answer from (1) *Not at all comfortable* to (10) *Totally comfortable*]	0.86
Regardless of whether you have children or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your children was in a love relationship with a person from one of the following groups. '1' means that you would feel "not at all comfortable" and '10' that you would feel "totally comfortable": A transgender person. [Range answer from (1) *Not at all comfortable* to (10) *Totally comfortable*]	0.83
To what extent do you agree or disagree with each of the following statements? School lessons and material should include information about diversity in terms of: Being transgender. [Range answer from (1) *Totally agree* to (4) *Totally disagree*]	0.65
Eigenvalue	2.61
R^2	0.65
Cronbach's α	0.82

Religion
Do you consider yourself to be...? [Answer options: (1) *Catholic*, (2) *Orthodox Christian*, (3) *Protestant*, (4) *Other Christian*, (5) *Jewish*, (6) *Muslim – Shia*, (7) *Muslim – Sunni*, (8) *Other Muslim*, (9) *Sikh*, (10) *Buddhist*, (11) *Hindu*, (12) *Atheist*, (13) *Non believer or agnostic*, (14) *Other*, (15) *Refusal*, or (16) *DK*]

Education
How old were you when you stopped full-time education? [Open question]

Source: Eurobarometer 91.4 (2019; European Commission Brussels, 2020).

Table A4. Linear multi-level regression models for tolerance towards transgender people (explorative analyses for countries with a Communist history).

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual level						
Religion		-0.23***	-0.26***	-0.26***	-0.26***	-0.26***
		(0.02)	(0.05)	(0.04)	(0.05)	(0.04)
Education		0.02***	0.02***	0.02**	0.02**	0.02**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country level						
Secularization		-0.05	-0.10	-0.11	-0.10	-0.11
		(0.08)	(0.09)	(0.09)	(0.09)	(0.09)
Interactions						
Secularization x Religion				0.09*		0.10*
				(0.03)		(0.03)
Secularization x Education					0.00	0.00
					(0.00)	(0.00)
Control variables						
Age		0.00***	0.00***	0.00***	0.00***	0.00***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender		0.12***	0.12***	0.12***	0.12***	0.12***
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Marital Status		-0.04*	-0.03*	-0.03*	-0.03*	-0.03*
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Sexual Minority		0.21**	0.21**	0.21**	0.21**	0.21**
		(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Intercept	-0.36**	-0.23*	-0.20	-0.19	-0.20	-0.20
	(0.08)	(0.08)	(0.10)	(0.09)	(0.10)	(0.09)
Variance (Individual level)	0.53***	0.51***	0.51***	0.51***	0.51***	0.51***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Variance (Country level)	0.06*	0.07*	0.09	0.08	0.09	0.08
	(0.03)	(0.03)	(0.05)	(0.04)	(0.05)	(0.04)
Slope (religion)			0.02	0.01	0.02	0.01
			(0.01)	(0.01)	(0.01)	(0.01)
Slope (education)			0.00	0.00	0.00	0.00
			(0.00)	(0.00)	(0.00)	(0.00)
n (individual level)	7,567	7,567	7,567	7,567	7,567	7,567
n (country level)	10	10	10	10	10	10

Sources: Eurobarometer 91.4 (2019; European Commission Brussels, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; NSD, 2020) (own calculations).

Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-sided). Unstandardized coefficients with the standard errors in parentheses; estimation: Restricted maximum likelihood.

Table A5. Linear multi-level regression models for tolerance towards transgender people (explorative analyses for countries without a Communist history).

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual level						
Religion		-0.17***	-0.18***	-0.19***	-0.18***	-0.19***
		(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Education		0.03***	0.03***	0.03***	0.03***	0.03***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country level						
Secularization		0.27***	0.25**	0.22**	0.25**	0.23**
		(0.06)	(0.07)	(0.07)	(0.07)	(0.07)
Interactions						
Secularization x Religion				0.06		0.06
				(0.04)		(0.04)
Secularization x Education					-0.01**	-0.01**
					(0.00)	(0.00)
Control variables						
Age		0.00***	0.00***	0.00***	0.00***	0.00***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender		0.11***	0.11***	0.11***	0.11***	0.11***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Marital Status		-0.01	-0.01	-0.01	-0.01	-0.01
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sexual Minority		0.19***	0.19***	0.19***	0.19***	0.19***
		(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Intercept	0.27**	0.32***	0.33***	0.34***	0.33***	0.34***
	(0.08)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
Variance (Individual level)	0.43***	0.40***	0.40***	0.40***	0.40***	0.40***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Variance (Country level)	0.09*	0.03*	0.04*	0.04*	0.04*	0.04*
	(0.04)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Slope (religion)			0.01	0.01	0.01	0.01
			(0.00)	(0.00)	(0.00)	(0.00)
Slope (education)			0.00	0.00	0.00	0.00
			(0.00)	(0.00)	(0.00)	(0.00)
n (individual level)	9,922	9,922	9,922	9,922	9,922	9,922
n (country level)	14	14	14	14	14	14

Sources: Eurobarometer 91.4 (2019; European Commission Brussels, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; NSD, 2020) (own calculations).

Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-sided). Unstandardized coefficients with the standard errors in parentheses; estimation: Restricted maximum likelihood.

Table A6. Linear multi-level regression models for tolerance towards transgender people (robustness check 1).

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual level						
Religion		-0.19***	-0.21***	-0.22***	-0.21***	-0.22***
		(0.01)	(0.03)	(0.02)	(0.03)	(0.02)
Education		0.03***	0.02***	0.02***	0.02***	0.02***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country level						
Secularization		0.12	0.07	0.05	0.07	0.05
		(0.09)	(0.10)	(0.10)	(0.10)	(0.10)
Interactions						
Secularization x Religion				0.09**		0.09**
				(0.03)		(0.03)
Secularization x Education					0.00	0.00
					(0.00)	(0.00)
Individual level control variables						
Age		0.00***	0.00***	0.00***	0.00***	0.00***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender		0.11***	0.11***	0.12***	0.11***	0.12***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Marital Status		-0.02*	-0.02*	-0.02*	-0.02*	-0.02*
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sexual Minority		0.19***	0.19***	0.19***	0.19***	0.19***
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Country level control variables						
Education level		0.03	0.04	0.04	0.04	0.04
		(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Intercept	0.01	0.09	0.12	0.13	0.12	0.13
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Variance (Individual level)	0.47***	0.45***	0.45***	0.45***	0.45***	0.45***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Variance (Country level)	0.18***	0.17**	0.17**	0.17**	0.17**	0.17**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Slope (religion)			0.01*	0.01*	0.01*	0.01*
			(0.01)	(0.00)	(0.01)	(0.00)
Slope (education)			0.00*	0.00*	0.00*	0.00*
			(0.00)	(0.00)	(0.00)	(0.00)
n (individual level)	17,489	17,489	17,489	17,489	17,489	17,489
n (country level)	24	24	24	24	24	24

Sources: Eurobarometer 91.4 (2019; European Commission Brussels, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; NSD, 2020) (own calculations).

Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-sided). Unstandardized coefficients with the standard errors in parentheses; estimation: Restricted maximum likelihood.

Table A7. Linear multi-level regression models for tolerance towards transgender people (robustness check 2).

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual level						
Religion		-0.20***	-0.22***	-0.22***	-0.22***	-0.22***
		(0.01)	(0.03)	(0.02)	(0.03)	(0.02)
Education		0.02***	0.02***	0.02***	0.02***	0.02***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country level						
Secularization		0.24*	0.19	0.16	0.19	0.16
		(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Interactions						
Secularization x Religion				0.09**		0.09*
				(0.03)		(0.03)
Secularization x Education					0.00	0.00
					(0.00)	(0.00)
Control variables						
Age		0.00***	0.00***	0.00***	0.00***	0.00***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender		0.11***	0.11***	0.11***	0.11***	0.11***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Marital Status		-0.02*	-0.02	-0.02	-0.02	-0.02
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sexual Minority		0.19***	0.19***	0.19***	0.19***	0.19***
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Intercept	0.02	0.14	0.16	0.17*	0.16	0.17*
	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Variance (Individual level)	0.47***	0.45***	0.44***	0.44***	0.44***	0.44***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Variance (Country level)	0.18**	0.14**	0.14**	0.14**	0.14**	0.14**
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Slope (religion)			0.01*	0.01*	0.01*	0.01*
			(0.01)	(0.00)	(0.01)	(0.00)
Slope (education)			0.00*	0.00*	0.00	0.00
			(0.00)	(0.00)	(0.00)	(0.00)
n (individual level)	16,755	16,755	16,755	16,755	16,755	16,755
n (country level)	23	23	23	23	23	23

Sources: Eurobarometer 91.4 (2019; European Commission Brussels, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; NSD, 2020) (own calculations).

Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-sided). Unstandardized coefficients with the standard errors in parentheses; estimation: Restricted maximum likelihood.

Table A8. Linear multi-level regression models for tolerance towards transgender people (robustness check 3).

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual level						
Religion		-0.23***	-0.26***	-0.26***	-0.26***	-0.26***
		(0.02)	(0.05)	(0.04)	(0.05)	(0.04)
Education		0.02***	0.02**	0.02**	0.02**	0.02**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country level						
Secularization		-0.05	-0.10	-0.11	-0.10	-0.11
		(0.08)	(0.10)	(0.09)	(0.09)	(0.09)
Interactions						
Secularization x Religion				0.09*		0.10*
				(0.03)		(0.03)
Secularization x Education					0.00	0.00
					(0.00)	(0.00)
Control variables						
Age		0.00***	0.00***	0.00***	0.00***	0.00***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender		0.12***	0.12***	0.12***	0.12***	0.12***
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Marital Status		-0.04*	-0.03*	-0.03*	-0.03*	-0.03*
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Sexual Minority		0.21**	0.21**	0.21**	0.21**	0.21**
		(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Intercept	0.01	-0.23*	-0.20	-0.19	-0.20	-0.20
	(0.09)	(0.08)	(0.10)	(0.09)	(0.10)	(0.10)
Variance (Individual level)	0.47***	0.51***	0.51***	0.51***	0.51***	0.51***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Variance (Country level)	0.18***	0.07*	0.09	0.08	0.09	0.08
	(0.05)	(0.03)	(0.05)	(0.04)	(0.05)	(0.04)
Slope (religion)			0.02	0.01	0.02	0.01
			(0.01)	(0.01)	(0.01)	(0.01)
Slope (education)			0.00	0.00	0.00	0.00
			(0.00)	(0.00)	(0.00)	(0.00)
n (individual level)	17,489	17,489	17,489	17,489	17,489	17,489
n (country level)	24	24	24	24	24	24

Sources: Eurobarometer 91.4 (2019; European Commission Brussels, 2020); QoG Standard Dataset (2023; Teorell et al., 2023; NSD, 2020) (own calculations).
Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-sided). Unstandardized coefficients with the standard errors in parentheses; estimation: Restricted maximum likelihood.

CHECKLIST ETHICAL AND PRIVACY ASPECTS OF RESEARCH

INSTRUCTION

This checklist should be completed for every research study that is conducted at the Department of Public Administration and Sociology (DPAS). This checklist should be completed *before* commencing with data collection or approaching participants. Students can complete this checklist with help of their supervisor.

This checklist is a mandatory part of the empirical master's thesis and has to be uploaded along with the research proposal.

The guideline for ethical aspects of research of the Dutch Sociological Association (NSV) can be found on their website (http://www.nsv-sociologie.nl/?page_id=17). If you have doubts about ethical or privacy aspects of your research study, discuss and resolve the matter with your EUR supervisor. If needed and if advised to do so by your supervisor, you can also consult Dr. Bonnie French, coordinator of the Sociology Master's Thesis program.

PART I: GENERAL INFORMATION

Project title: How does Secularization shape Tolerance towards Transgender People in Europe? A Cross-National Assessment

Name, email of student: Annamijn Beijeman, 658079ab@student.eur.nl

Name, email of supervisor: Jeroen van der Waal, vanderwaal@essb.eur.nl

Start date and duration: 13-02-2023, duration of approximately 5 months

Is the research study conducted within DPAS   YES - ~~NO~~

If 'NO': at or for what institute or organization will the study be conducted?
(e.g. internship organization)

PART II: HUMAN SUBJECTS

1.   Does your research involve human participants.   YES - ~~NO~~

     If 'NO': skip to part V.

     If 'YES': does the study involve medical or physical research?   ~~YES~~ - NO
     Research that falls under the Medical Research Involving Human Subjects Act ([WMO](#)) must first be submitted to [an accredited medical research ethics committee](#) or the Central Committee on Research Involving Human Subjects ([CCMO](#)).

2.   Does your research involve field observations without manipulations
     that will not involve identification of participants.   ~~YES~~ - NO

     If 'YES': skip to part IV.

3.   Research involving completely anonymous data files (secondary
     data that has been anonymized by someone else).   YES - ~~NO~~

     If 'YES': skip to part IV.

PART III: PARTICIPANTS

1. Will information about the nature of the study and about what
    participants can expect during the study be withheld from them? YES - NO

2. Will any of the participants not be asked for verbal or written
    'informed consent,' whereby they agree to participate in the study? YES - NO

3. Will information about the possibility to discontinue the participation
    at any time be withheld from participants? YES - NO

4. Will the study involve actively deceiving the participants? YES - NO
    *Note: almost all research studies involve some kind of deception of participants. Try to
    think about what types of deception are ethical or non-ethical (e.g. purpose of the study
    is not told, coercion is exerted on participants, giving participants the feeling that they
    harm other people by making certain decisions, etc.).*

5. Does the study involve the risk of causing psychological stress or
    negative emotions beyond those normally encountered by
    participants?   ` YES - NO

6. Will information be collected about special categories of data, as
    defined by the GDPR (e.g. racial or ethnic origin, political opinions,
    religious or philosophical beliefs, trade union membership, genetic
    data, biometric data for the purpose of uniquely identifying a person,
    data concerning mental or physical health, data concerning a person's
    sex life or sexual orientation)? YES - NO

7. Will the study involve the participation of minors (<18 years old) or
    other groups that cannot give consent? YES - NO

8. Is the health and/or safety of participants at risk during the study? YES - NO

9. Can participants be identified by the study results or can the
    confidentiality of the participants' identity not be ensured? YES - NO

10. Are there any other possible ethical issues with regard to this study? YES - NO

If you have answered 'YES' to any of the previous questions, please indicate below why
this issue is unavoidable in this study.

_____
_____
_____
_____

What safeguards are taken to relieve possible adverse consequences of these issues
(e.g., informing participants about the study afterwards, extra safety regulations, etc.).

_____
_____
_____
_____

Are there any unintended circumstances in the study that can cause harm or have negative (emotional) consequences to the participants? Indicate what possible circumstances this could be.

_____
_____
_____
_____

Please attach your informed consent form in Appendix I, if applicable.

Continue to part IV.

PART IV: SAMPLE

Where will you collect or obtain your data?

Data from the ZA7575 Eurobarometer 91.4 (2019) will be collected from gesis – Leibniz Institute for the Social Sciences (https://search.gesis.org/research_data/ZA7575).

Data from the QoG Standard Dataset 2023 will be collected from The QoG Institute of the University of Gothenburg (https://www.gu.se/en/quality-government/qog-data/data-downloads/standard-dataset).

Note: indicate for separate data sources.

What is the (anticipated) size of your sample?

The anticipated size of the sample in my research is 24,372. Participants that believe in a polytheistic religion need to be excluded from this sample size.

The abovementioned sample size is based on the following data sources (with their sample sizes):
The ZA7575 Eurobarometer 91.4 (2019) contains a sample of 27,438 participants.
The QoG Standard Dataset 2023 contains data of 202 countries or regions.

Note: indicate for separate data sources.

What is the size of the population from which you will sample?

The population of 24 European countries in 2019 was approximately 482,988,000.
(24 European countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, and United Kingdom)

The abovementioned population is based on the following data sources:
The European population in 2019 from which the ZA7575 Eurobarometer 91.4 (2019) sampled was approximately 513,500,000.
The worldwide population in 2018 from which was sampled in several surveys and whereof the QoG Standard Dataset 2023 reported the aggregated data was approximately 7,662,000,000.

Note: indicate for separate data sources.

Continue to part V.

Part V: Data storage and backup

Where and when will you store your data in the short term, after acquisition?

<u>I will store the data on my encrypted personal computer and drive.</u>

Note: indicate for separate data sources, for instance for paper-and pencil test data, and for digital data files.

Who is responsible for the immediate day-to-day management, storage and backup of the data arising from your research?

<u>I am.</u>

How (frequently) will you back-up your research data for short-term data security?

<u>I will back-up the data on my personal computer and drive every time I open the data file.</u>

In case of collecting personal data how will you anonymize the data?

_____
_____
_____
_____

Note: It is advisable to keep directly identifying personal details separated from the rest of the data. Personal details are then replaced by a key/ code. Only the code is part of the database with data and the list of respondents/research subjects is kept separate.

PART VI: SIGNATURE

Please note that it is your responsibility to follow the ethical guidelines in the conduct of your study. This includes providing information to participants about the study and ensuring confidentiality in storage and use of personal data. Treat participants respectfully, be on time at appointments, call participants when they have signed up for your study and fulfil promises made to participants.

Furthermore, it is your responsibility that data are authentic, of high quality and properly stored. The principle is always that the supervisor (or strictly speaking the Erasmus University Rotterdam) remains owner of the data, and that the student should therefore hand over all data to the supervisor.
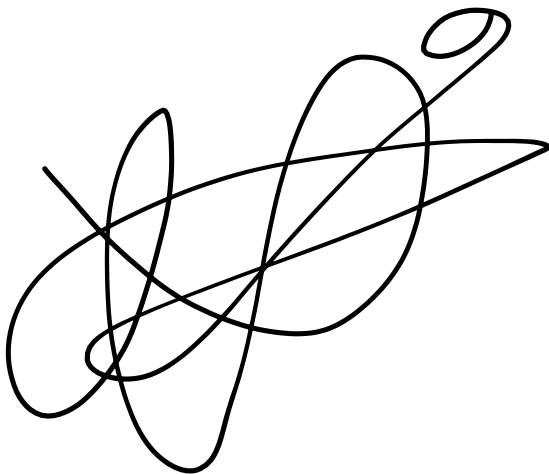
Hereby I declare that the study will be conducted in accordance with the ethical guidelines of the Department of Public Administration and Sociology at Erasmus University Rotterdam. I have answered the questions truthfully.

Name student: Annamijn Beijeman   Name (EUR) supervisor: Jeroen van der Waal

Date: 23-03-2023   Date: 23-03-2023