# Attitudes Towards Assisted Reproductive Technology (ART) and Abortion

## *Evidence from Europe*

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# Abstract

This thesis explores attitudes towards different forms of reproductive rights in Europe, both variation in such attitudes and what factors can help us explain this variation. The gender and politics literature has begun disaggregating women's issues into sub-categories. Due to the varied nature of the reproductive issues, I argue this important sub-category needs to be disaggregated further. One important reproductive issue is abortion, and the relevant factors for explaining variation in individual attitudes are well-established. In comparison, much less is known about what explains variation in attitudes toward assisted reproductive technology (ART), which is an emerging issue in the field of reproductive rights.

Drawing on explanations identified for abortion attitudes, I rely on party explanations and cultural and religious explanations to explain individual attitudes towards ART. Employing the most comprehensive survey data available (European Values Study), I test what country-level explanations account for variation in aggregated attitudes toward assisted insemination (AI) and in vitro fertilization (IVF) compared to abortion in Europe. I find that political orientation has a relatively little explanatory power for AI/IVF and abortion attitudes, while religiosity is a substantial predictor of negative attitudes towards AI/IVF and abortion. I draw on data from the EVS as well as the Norwegian National Election Study (NNES), which includes variables on both surrogacy and abortion attitudes, to disaggregate attitudes towards reproductive rights further. The results suggest Christian Democratic Party support and religiosity are strong predictors of negative attitudes toward AI/IVF, surrogacy and abortion. My findings point to the importance of disaggregating the sub-category of reproductive issues even further, as the explanatory power of political orientation and religiosity differ between AI/IVF and abortion attitudes, as well as AI/IVF and surrogacy attitudes.

**Key words:** attitudes; assisted reproductive technology; ART; abortion; gender and politics; reproductive rights; reproductive issues.

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Replication files (data and R-scripts) are available on request. All remaining errors and inaccuracies are my own.

# Table of Contents

# List of Tables

# List of Figures

# 1   Introduction

To provide more nuanced explanations about how gendered issues are politicized and dealt with by the state, the gender and politics literature has begun disaggregating women's issues into sub-categories (Htun & Weldon, 2018). An important sub-category is reproductive issues. In this thesis, I argue that reproductive issues can be disaggregated even further, and I demonstrate the importance of doing so when we seek to understand public opinion on different reproductive issues. All reproductive issues do not raise the same concerns for either individuals or political actors. Thus, the relevant factors when explaining variation in attitudes are not necessarily the same for all reproductive issues either.

Reproductive policies include the legal ability to decide when and if you have a child, as well as improving access to reproductive and health services (Htun & Weldon, 2018, p. 201). When it comes to the role of the state in reproductive issues, one of the most prominent issues on the agenda is abortion. Abortion has been an important political issue since the 1960s (Engeli et al., 2013, p. 335). Legislating women's access to abortion is a central question when examining reproductive issues. The abortion debate concerns the question of whether a woman should have the right to choose to terminate her pregnancy. Opinions about the morality of abortion vary dramatically, which largely depend on how the link between embryos and personhood is conceptualized (Luker, 1984).

Another reproductive issue that is gaining increasing practical and political importance is assisted reproductive technology (ART), such as assisted insemination (AI), in-vitro fertilization (IVF) and surrogacy. ART opens up questions about what techniques are appropriate to achieve the goal of family formation, as well as who should have access to these technologies. The rapid development of ART has both resulted in new treatments for infertility and opened up the possibility for new forms of parenthood. Importantly, this begs the question of what role should the state play in facilitating and funding such fertility treatments. In European countries, where there has been little public debate, regulating ART has often been largely left to the medical community (Engeli & Allison, 2016, p. 93). While an increasing number of couples and single individuals utilize these new technologies to fulfill their desires to become parents, few studies have examined public opinion towards ART. Yet, understanding this is important as ART is becoming a more salient issue on the political agenda, especially as an increasing number

of individuals and couples seeks fertility treatment worldwide.

While public debate surrounding ART has not elicited the same graphic protests as those for abortion, where imagery of unborn fetuses are used to emphasize the immoral nature of abortion. Nevertheless, some of the critical arguments against ART are reminiscent of those used against abortion, which emphasize the value of the human embryo and traditional family values. For instance, in 2020, the Norwegian parliament passed substantial changes to the existing biotechnology law. These changes included allowing assisted insemination for single women and egg donation for couples. Those opposing the liberalization of access to ART emphasized the value of human life from conception and the right to know one's biological origin. Others linked these legal changes to the notion that "Eugenics are right around the corner" (own translation, Eidsvig et al., 2020). In France, the extension of IVF rights to lesbians and single women was passed by the French parliament in 2021, despite opposition from the right-wing and far-right parties. Here, arguments emphasizing the value of traditional, heterosexual family formations were fronted by politicians, such as the Republican parliamentary member Patrick Hetzel, who stated with extending fertility treatments "[y]ou will produce children that have been deprived of a father" (Agence France-Presse in Paris, 2021).

Are these attitudes widely held or just the opinion of a few political actors involved in the legislative problem? Establishing what attitudes the public holds is necessary to evaluate whether parliamentary decisions reflect the values held by the public. Arzheimer identifies that in the case of genetic testing related to IVF, the German public is more permissive than German laws (Arzheimer, 2020b). Thus, there may be a disparity between public opinion and legislative decisions in some countries.

As this discussion suggests, ART can be considered an emerging issue. *Emerging issues* are issues which have an element of newness, for instance resulting from technological development, new scales of impact or a heightened level of awareness (United Nations, 2016, p. 78). As an emerging issue, research has yet to establish what explains variation in attitudes towards ART. Existing studies largely focus on examining attitudes for specific sub-categories of a population (e.g., Fortin & Abele, 2016; Johnson & Simon, 2012; Sigillo et al., 2012), or utilize datasets that are limited in their geographical scope and/or the scope of their variables (e.g., Fauser et al., 2019; Yamamoto et al., 2018).[1] On

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[1]One notable exception is Szalma and Djundeva (2019), who employ the 2008 European Values Study

the other had, abortion is an established issue within the women and politics literature, which has outlined clear explanations for both individual- and country-level variation in abortion attitudes. As both ART and abortion are reproductive issues, employing existing literature on abortion is useful when seeking to understand what factors may explain variation in ART attitudes. However, these explanation may differ somewhat, as ART and abortion have different outcome. While ART aims facilitate pregnancy, abortion facilitates the termination of pregnancy. In turn, this thesis seeks to answer the question:

*What explains variation in attitudes toward assisted reproductive technology (ART) compared to abortion in Europe?*

In this thesis I particularly rely on party explanations and cultural and religious explanations for variation in reproductive attitudes at both the country-level and the individual-level. I employ the following definition of attitudes: "[a]n attitude is a predisposition to respond in a favorable or unfavorable manner with respect to a given attitude object" (Oskamp & Schultz, 2005, p. 9). With regards to party explanations, I particularly engage with work that categorizes reproductive issues as morality issues (Engeli et al., 2012). As morality issues concern what is morally "right" or "wrong", politicizing such issues is not always beneficial. To understand whether morality issues become politically salient at the party-level, Engeli et al. (2012) develop the "two worlds" typology. They hold that for morality issues to be politicized there must be religious and secular conflict in the party system, often represented by a significant Christian Democratic Party. In other words, religion has to be a part of the party system. When reproductive issues are politicized, literature on abortion attitudes (Huang et al., 2016), as well as limited studies on IVF attitudes (Fortin & Abele, 2016; Szalma & Djundeva, 2019), find that conservative ideology is linked to being less supportive of such issues. On the other hand, left-wing parties are associated with more "women-friendly" policies in general (Htun, 2005; Huber & Stephens, 2000; Iversen & Rosenbluth, 2010; Kittilson, 2006; Lovenduski & Norris, 1993; Paxton & Kunovich, 2003).

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(EVS) to explore what explains individual attitudes towards AI/IVF in Europe. However, contrary to what I do in this thesis, they do not examine over-arching country-level theories, nor the relationship between political orientation and attitudes.

Turning to the cultural and religious explanations, I focus on how religious traditions and individual religiosity both influence attitudes. In a revised version of modernization theory, Inglehart and Welzel outline how a country's religious tradition influences how values in the population change over time (Inglehart & Welzel, 2005). As such, countries are grouped into geographical cultural clusters based on to what extent the population holds secular and self-expressive values. In turn, these cultural clusters may also help predict individual attitudes. At the individual-level, religiosity has been identified as important for explaining individual attitudes toward abortion (Adamczyk, 2013; Jelen, 2014; Jelen & Wilcox, 2003; Lewis & Kashyap, 2013; Luker, 1984; Norrander & Wilcox, 2002).

Literature on abortion attitudes provides a starting-point, from which we can make predictions based on existing explanations related to party and religion. To analyze what explains variation in ART attitudes compared to abortion, I draw on the most extensive survey data that is currently available on attitudes towards these issues from the European Values Study (EVS). Such data is only accessible in Europe, i.e., it is not available for the World Values Study. In general, surveys including information on different reproductive rights are generally not available. In the EVS, respondents are asked about their attitudes about assisted insemination (AI) and in-vitro fertilization (IVF), as well as abortion. In addition, I employ the Norwegian National Election Study (NNES), which asks respondents about their attitudes towards both surrogacy and abortion. Thus, I am able to disaggregate ART attitudes into two different types (AI/IVF and surrogacy), which I compare to abortion attitudes.

This thesis makes contributes to the literature by illuminating both country-level and individual-level explanations for explaining variation in attitudes towards ART, as well as in what ways these explanations differ from those of abortion. Firstly, ART is categorized as a morality issue by the morality politics literature, as it calls into question what is morally right with regards to reproduction. More conservative moral attitudes are closely tied to religion. As such, religiosity is associated with less positive attitudes toward both ART and abortion. However, religion is a weaker predictor for ART attitudes compared to abortion attitudes, indicating that ART may not be related to moral traditionalism to the same degree as abortion. Secondly, I contribute to the understudied area of attitudes toward ART by illuminating the predictive power of political orientation and religiosity

as explanatory variables. I show that party affiliation and religiosity are both associated with ART attitudes, however, religiosity is a stronger predictor of attitudes than political orientation. Lastly, to provide more nuanced explanations of patterns and mechanisms, the women and politics literature has begun disaggregating women's issues into sub-categories, such as reproductive issues. I contribute to this literature by showing that some women's issues must be disaggregated even further to be able to accurately account for variation in the particular outcome variables of interest, as different patterns emerge when exploring AI/IVF and surrogacy attitudes in Norway.

## 1.1 Outline of Thesis

The thesis proceeds as follows. In Chapter 2, I provide an overview of the legislative context in which attitudes on ART have developed, as I discuss how there is no convergence on how to legislate reproductive rights. Then in Chapter 3, I outline the literature and theoretical framework of this thesis focusing on party explanation and cultural and religious explanations. The empirical approach of this thesis is presented in Chapter 4, where I discuss the data, method and operationalizations of variables, as well as validity of the empirical approach. The methods and model choice for each of the analyses are discussed in the empirical chapters in which they appear. In the first empirical chapter (Chapter 5), I test which country-level frameworks appear to be most relevant for explaining variation in attitudes towards ART, which motivates my choice of cultural clusters as a country-level variable (level-2) in the following chapter. The second empirical chapter (Chapter 6) explores whether party explanations and cultural and religious explanations hold the same explanatory power for AI/IVF attitudes as for abortion attitudes. Then, the third empirical chapter (Chapter 7) disaggregates reproductive issues even further, employing both EVS and Norwegian National Election Study (NNES) data, I test whether the same findings for AI/IVF and abortion attitudes apply to surrogacy attitudes. Finally, in Chapter 8, I summarize the findings of this thesis and discuss the conclusions and implications of these findings, before I discuss potential avenues for future research.

# 2 Legislative Context: No Convergence on Reproductive Rights

In this section, I first define key concepts pertaining to reproductive rights employed throughout this thesis, before I provide a brief overview of the current state of ART legislation. Existing legislation is relevant, as this is the context in which public opinion has had the opportunity to form. Over the past century, an increasing number of states have introduced legislation and practices that promote equality and autonomy for men and women. Previously controversial women's issues, such as suffrage and protection from domestic violence, "are now widely accepted around the world" (Boyle et al., 2015, p. 883). To explain the increasing acceptance of women's rights, world society theorists highlight the existence of global scripts. Global scripts are narratives and sentiments which are incorporated within international organizations and other international actors. As a result, nation-states involved in these organizations adopt very similar policies. For instance, Pierotti finds that global cultural diffusion has contributed to individuals increasingly rejecting intimate partner violence across the globe (Pierotti, 2013). However, Boyle et al. finds that no single global script has emerged in the case of abortion (Boyle et al., 2015, p. 883). Despite 50 years of mobilization for abortion liberalization, significant opposition persists toward self-determined abortions worldwide.

## 2.1 Definitions of Key Concepts

In this section, I define the key concepts used throughout this thesis related to reproductive rights.

**Reproductive health.** The World Health Organization (WHO) (World Health Organization, n.d.) defines reproductive health as "a state of complete physical, mental and well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so", which is taken from the UN 1995 Report of the International Conference on Population and Development (United Nations, 1995, p. 40).

**Reproductive rights.** Reproductive rights "rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health" (United Nations, 1995, p. 43).

**Abortion.** Abortion is a procedure to terminate a pregnancy by the removal or expulsion of an embryo or fetus. The term abortion in this thesis refers to induced abortion, when deliberate steps are taken to terminate a pregnancy.

**Assisted reproductive technology (ART).** The WHO defines assisted reproductive technology (ART) as: "all treatments or procedures that include the in vitro handling of both human oocytes and sperm, or embryos, for the purpose of establishing a pregnancy" (Zegers-Hochschild et al., 2009, p. 2685). ART includes treatments such as assisted insemination (AI), in vitro fertilization (IVF) and surrogacy.

**Assisted insemination (AI).** A procedure where sperm is deliberately introduced into the uterus or the oviduct to achieve pregnancy.

**In vitro fertilization (IVF).** A procedure where egg cells are removed from a woman, and then are fertilized with sperm outside the body. The fertilized egg(s) is then inserted into the uterus of the woman who provided the egg(s) or another woman.

**Surrogacy.** Surrogacy refers to an arrangement, where a woman agrees to carry and deliver a child for another individual or couple, who will become the child's parent(s) after the child's birth. Gestational surrogacy refers to when the surrogate mother is genetically unrelated to the child produced by the arrangement, while traditional surrogacy refers to when the surrogate mother's own egg cell is fertilized to produce the child (IFFS, 2019, pp. 113–115).

## 2.2   Legislating Reproduction

Legislation and practices pertaining to reproduction continue to evoke controversy, as reproductive rights and access to reproductive and sexual health services still vary across countries (Htun & Weldon, 2018, p. 201). Though improving such services is linked "to the health of women, the well-being of children and families, economic development, and a reduction of government expenditure on health care, sanitation, and education" (Htun & Weldon, 2018, p. 201). However, religious and conservative politicians, social movements, interest groups and organizations continue to oppose liberalizing access to reproductive and sexual health services. While many countries are liberalizing their reproductive legislation, significant forces are mobilizing and succeeding to roll back access to reproductive health services. The restriction and prohibition of abortion exemplifying this most prominently in the public discourse.

Though abortion legislation also varies throughout Europe and political contention around the issue persists, abortion is only illegal or severely restricted in Poland and four smaller states (Malta, Andorra, Vatican City, and Liechtenstein). In other words, although opposition to liberal abortion laws persists, there has largely been a convergence towards more permissive or intermediate abortion laws in the European context (Studlar & Burns, 2015, p. 283). With regards to ART, there is ART legislation in all but five European countries. However, there is significant variation in what is permitted and who has access to these technologies. In other words, despite what world society theorists' might expect, there is no consensus on how to legislate reproductive rights.

While all countries have abortion legislation, a significant number of countries do not legislate ART altogether. Where legislation does exist, the ART laws vary greatly in both their scope and permissiveness. Contrary to abortion, ART has not been politicized in all European countries. Instead, the medical community has largely retained decision-making capabilities for regulating ART in the absence of public controversy. In countries where ART has become an issue of public controversy, Engeli and Allison find that the medical community's influence has been moderated, due to obligations to compromise with other powerful actors, e.g. women's movements and religious, pro-life movements (Engeli & Allison, 2016).

133 countries offered ART services in 2021. Of the 97 countries offering ART services, ART is regulated in 84 countries. However, ART is only legislated by the state in 72 of these countries, as shown in Figure 2.1.[2] Comparatively, abortion is legislated by the state in all 195 countries. This reflects that ART is still an emerging phenomenon. As ART services are unavailable altogether in some countries (IFFS, 2019, p. 6), legislating such practices has not been necessary either.

Figure 2.1: Countries with ART State Legislation



ART legislation
No legislation / information
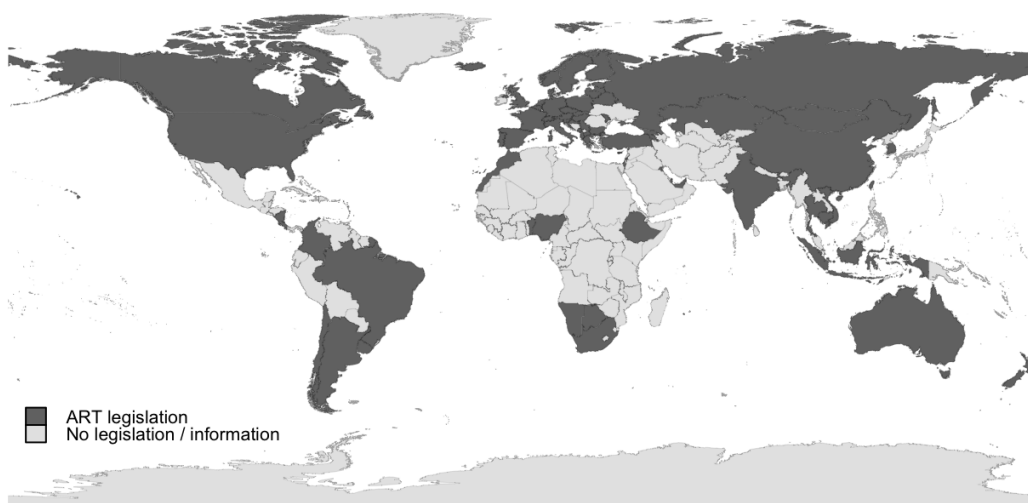
Source: Baltzersen et al. 2022

## 2.3 Legislating ART in Europe

Evidently, there is significant variation worldwide in both what ART services are available and how they are regulated by the state. In Europe, while all countries offer some form of

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[2]The data reported in this section are retrieved from a dataset, which details the current ART legislation and practices worldwide. The dataset was constructed by myself, Catarina Barbieri, Mala Htun and Francesca R. Jensenius, as a part of a project on the governance of kinship and reproduction. See Baltzersen et al. (2022) for further details about how these data were collected.

ART treatments, five countries do not have laws governing ART.[3] Furthermore, there is significant variation in who these treatments are available to, as well as what treatments receive funding and which individuals are eligible for this funding in Europe.

Figure 2.2: Access to IVF for Single Women in Europe



Source: Baltzersen et al 2022

A specific type of ART may be available in a country without this necessitating equal access for all residents. Often state legislation specifies that individuals seeking treatment must be in a couple, and even more specifically a heterosexual couple. Figure 2.2 shows in which European countries IVF (with sperm donation) is available to single women. If single women are given access, this facilitates the opportunity for less "traditional" family formations, e.g., female same-sex couples can access IVF. Single women have access to IVF treatment in 28 European countries.

While IVF has become increasingly common to treat infertility in many countries, gestational surrogacy remains less common. As a consequence, gestational surrogacy is not legislated by the state in many countries. This has facilitated an unregulated surrogacy industry attracting cross-border couples and individuals, as surrogacy is forbidden in many countries (Piersanti et al., 2021). 13 European countries have state legislation regulating gestational surrogacy in place (see Figure 2.3). The remaining European

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[3]Albania, Bulgaria, Ireland, Romania, and Ukraine.

countries either have no such regulations, or there is no information about whether they
do.

Figure 2.3: European Countries with State Regulation for Surrogacy



Source: Baltzersen et al 2022

As this discussion suggests, ART can be considered an emerging phenomenon. Whereas
the technological developments and possibilities of ART continue to develop, "debate has
subsided in the past decade after an initial period of controversy and policy differentia-
tion" in Western democracies (Studlar & Burns, 2015, p. 283). In Europe, the political
debate on ART has produced a variety of legislative outcomes (Studlar & Burns, 2015,
p. 283). Contrasting this, there has been a convergence toward permissive or intermediate
abortion laws in the face of continued political contention in Europe.

Engeli and Allison pose that ART is best understood through examining three an-
alytical dimensions: "the autonomy granted to the medical community, the constraints
imposed upon patients' access to ARTs, and the availability of healthcare coverage for
ART treatments" (Engeli & Allison, 2016, p. 97). The first analytical dimension, the
autonomy of the medical community, is the most relevant to consider for this thesis.
When decision-making has been kept in the hands of the medical community, Engeli and
Allison argue that the resulting policies have been restricted to ART as a medical issue
only (Engeli & Allison, 2016, p. 93). In other words, political parties have not needed to

take a stance on the issue. ART has neither faced the same sustained political debate as abortion, nor been politicized to the same extent in many European countries.

This chapter has illustrated that ART is an emerging issue, for which the scope and permissiveness of legislation varies greatly both globally and in Europe. A country's legislative context is also the context in which public opinion forms. Therefore, the varied nature of legislation in European countries makes Europe an interesting context in which to examine ART attitudes. In the following chapter, I outline what explanations, including existing literature on abortion attitudes, may be relevant when seeking to understand what accounts for variation in ART attitudes at the country-level and the individual-level. Further, I discuss how explanations for ART attitudes might differ from those identified for abortion attitudes.

# 3 Literature and Theoretical Framework

This section provides an overview of literature relevant for understanding variation in attitudes towards reproductive issues related to both party explanations and cultural and religious explanations. I discuss the explanations related to party politics and culture/religion in two separate sections. In each section, I first outline the relevant literature, before summarizing the theoretical framework from which I formulate my empirical expectations (hypotheses).

## 3.1 Party Explanations

In this section, I first outline the role of parties for individual attitudes, in particular attitudes towards emerging issues. I discuss morality issues and Engeli et al.'s (2012) "two worlds" typology. Lastly, I discuss how the left-right of political parties relates to women's issues, as well as whether different ARTs can be framed as women's issues in the same way. Based on this literature view, I formulate one country-level hypothesis and two individual-level hypotheses related to party explanations for explaining variation in ART and abortion attitudes.

### 3.1.1 Political Parties, Emerging issues and the "Two Worlds" theory

Partisanship has been identified as playing an important role in shaping individual attitudes. Since Campbell described the political party as "as an opinion-forming agency of great importance" (Campbell et al., 1960, p. 128), researchers have investigated the relationship between party affiliation and citizens' opinions on various issues. With regards to emerging issues, Dalton argues that partisanship is "an even more powerful heuristic than social group cues" (Dalton, 2014, p. 30). Partisanship can shape evaluations of new political issues, when citizens lack the ability or the motivation to learn policy details (Slothuus & Bisgaard, 2021, p. 897). The position one's party takes may suggest where one's own interests lie (Dalton, 2014, p. 30). In other words, parties provide a reference structure through which to evaluate new political stimuli (Dalton, 2014, p. 186). However, if there is little to gain politically from politicizing an emerging issue, political parties may not choose to clearly articulate their position on the issue.

The politicization of an issue refers to the relative attention that an issue receives from

political parties. The political agenda is hierarchical with regards to how much attention different issues receive. Thus, parties have to choose which issues to prioritize. When deciding what issues to emphasize in the political arena, the choices that political parties make are constrained by existing politically salient issues, as well as issues that other important parties focus on (Green-Pedersen, 2010). To understand how parties evaluate emerging issues, one must consider how the issue fits into the existing conflict lines in the party system (Green-Pedersen, 2010). The left-right conflict is generally considered the central conflict line in Europe (cf. Lipset & Rokkan, 1967).

With regards to the politicization of emerging issues, Green-Pedersen posits that political parties will avoid the politicization of issues where party positions dissolve the overall left-right structure and where taking particular positions on the issue place parties together with parties that are not their usual coalition partners (Green-Pedersen, 2010, p. 12). A category of issues, which may facilitate such disruptions of the left-right structure and coalition blocs, are issues related to reproduction. Reproductive issues often incite "public controversies that cut across political cleavages and internally divide political parties" (Engeli & Allison, 2016, p. 95). Burns argues that as non-win issues, reproductive political issues do not attract the attention of political parties (Burns, 2005). However, reproductive issues do in some cases get politicized, and morality politics scholars may be able to account for when this is the case (Engeli et al., 2012).

### 3.1.2 "Two Worlds"

Morality politics scholars focus on morality issues, as a category of political issues that do not easily fit into the left-right structure. Both ART and abortion are framed as morality issues by morality politics scholars. Morality issues are about what is "right" and "wrong" in society (Mooney, 2001). Different scholars have different understandings of what specific issues they consider morality issues. Engeli et al. frame morality issues as matters pertaining to reproduction, life, and death (Engeli et al., 2012). These issues can be described as "atypical", as they do not fit the classical left-right conflict (Engeli et al., 2012, p. 1). Political parties and their voters are frequently internally divided on morality issues. In many cases parties have little to gain from politicizing morality issues (Budde et al., 2018, p. 428).

While morality issues become prominent on the political agenda in some countries,

in other countries they are "often considered non-political 'ethical' issues that have no place in ordinary politics" (Engeli et al., 2012, p. 1). To explain when morality issues become politicized in Western Europe, Engeli et al. emphasize whether or not there is a religious-secular conflict in the political sphere. The presence of a significant Christian Democratic Party is characteristic of countries with a religious-secular conflict. As such, they formulate the "two worlds" typology. In the "religious" world, in response to the declining role of religion, Christian Democratic Parties have a need to formulate a modern "unsecular" project, which incentivizes competing parties to politicize morality issues in opposition to the Christian Democratic Party (Engeli et al., 2012, p. 16).

On the other hand, in the "secular world", there is a lack of conflict between religious and secular positions in the party system. Here, parties are less likely to draw attention to morality issues, as these issues are not related to a significant conflict line in the party system (Engeli et al., 2012, pp. 20–21). Engeli et al. (2012) note that due to public opinion becoming more permissive over time on morality issues, policies on morality issues are likely to become more permissive also in the religious world. The question is then whether individual attitudes are more likely to be shaped by party affiliation in countries where Engeli et al. expect morality issues have been politicized due to the presence of a religious and secular conflict ("religious world").

The "two worlds" typology, as first discussed by Engeli et al. (2012), focuses on party politicization and legislative outcomes. However, some scholars have investigated whether the "two worlds" theory also holds at the level of individual attitudes. Studlar and Burns assert that the "mass public is generally more conservative on morality issues" than elites with regards to legislation (Studlar & Burns, 2015, p. 278). Contrary to Studlar and Burns, Arzheimer finds that the German public attitudes are more permissive than the legislation for Preimplantation Genetic Diagnosis (PGD), which is a test falling under the ART domain.[4] Further, Arzheimer calls for a closer investigation of ART as a policy domain, as his findings contrast the notion that elites are generally more permissive than the population (Arzheimer, 2020b, p. 16).

Engeli et al. 2012 specifically categorize ART as a morality issue. In particular, they discuss the link between ART and infertility, as well as how ART facilitates new forms of

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[4]PGD is "an umbrella term for tests that can be performed on early embryos (blastocysts) created by IVF before they are implanted in the uterus" (Arzheimer, 2020b, p. 1).

parenthood (Engeli et al., 2012, pp. 28–29). Arzheimer shows that the "two worlds" typology holds at the individual-level in terms of religious/secular orientations (Arzheimer, 2020a). However, he finds that ART is hardly party-politicized in Germany, which is classified as a religious country in the "two worlds" typology (Arzheimer, 2020a, p. 6). Indicating that the "two worlds" typology may not be as relevant for these issues. With regards to PGD testing, Arzheimer posits that other non-partisan actors may have a more important role in the ethical debates on ART (Arzheimer, 2020a, p. 6), as German parties act in a more consensual manner than the "two worlds" model predicts (Arzheimer, 2020b, p. 16), which is reflected in that "these specific issues are also not party-politicized in the electorate" (Arzheimer, 2020b, p. 16). These findings provide an indicator that the "two worlds" typology may not be able to anticipate how party-politicized ART is in a country. Consequently, this may entail that the "two worlds" typology is not as appropriate explaining whether the explanatory power of political orientation for ART attitudes differs between the European countries.

### 3.1.3 The Christian Democrats, the Left, and the Right

The Christian Democratic Party plays a key role in Engeli et al.'s "two worlds" theory. Today, Christian Democratic parties in Europe take on an "unsecular" profile to appeal to an increasingly secularized European electorate, where religion has been redefined into "a nebulous humanitarian and moral concept that allow[s] them to be simultaneously Christian and secular" (Kalyvas & van Kersbergen, 2010, p. 188). Christian Democratic parties also differ to what extent they reference religion, though some present a discourse on ethical and moral values, which target postmodern issues, such as conception (Kalyvas & van Kersbergen, 2010, p. 203). Religion is an important unifying factor for party members and voters, and Christian Democratic party members usually prefer restrictive regulations on morality policy questions (Euchner & Preidel, 2016, pp. 467–468). However, in the cases where Christian Democratic parties act as catch-all parties, restrictive stances may cause internal conflict with secular supporters (Euchner & Preidel, 2016, p. 468)

Turning to the women and politics literature, individuals party affiliation is linked with holding particular attitudes towards reproductive issues. When abortion is politicized, partisanship is consistently found to be one of the key predictors of abortion atti-

tudes (Hout, 1999; Osborne & Davies, 2012; Prusaczyk & Hodson, 2018; Zucker, 1999). Particularly, both conservative ideology and conservative party affiliation are associated with negative attitudes toward abortion compared to those who support left-wing and liberal parties (Hess & Rueb, 2005; Huang et al., 2016; Osborne et al., 2022; Strickler & Danigelis, 2002; Yen & Zampelli, 2017). In the US, research finds that Democrats are more likely to support both abortion and IVF than Republicans (Fortin & Abele, 2016; Shreffler et al., 2010; Sigillo et al., 2012).

Left-wing political parties are often cited as more "women-friendly" than more right-wing political parties. Literature suggests that "[t]he gradual feminization of politics owes much to the promotion of women's representation by left parties" (Keith & Verge, 2018, p. 397), as left ideology promotes egalitarianism and left parties usually have stronger connections to the feminist movement and women's agency (Huber & Stephens, 2000; Iversen & Rosenbluth, 2010; Kittilson, 2006; Paxton & Kunovich, 2003). Left-wing parties have a propensity for acting as a platform for previously excluded groups, including women (Htun, 2005). Regarding issues on women's agenda, left-wing parties often take more progressive stances, including on reproductive issues, such as abortion. As left-wing parties have traditionally emphasized social justice, this has encouraged such parties to be supportive of "women-friendly" policies (Lovenduski & Norris, 1993).

### 3.1.4 Disaggregating Reproductive Rights and Party Affiliation

ART and abortion concern the legislation of reproductive choice. Framed as morality issues, legislating ART and abortion is about deciding what is "right" and "wrong" with regards to reproduction (Engeli, 2009; Mooney, 2001). As morality issues, it is important to recognize that ART and abortion are completely different issues. Abortion facilitates the choice to not carry a pregnancy to term if it is unwanted or otherwise not feasible. On the other hand, ART is intended to facilitate reproduction and it comprises many different procedures. Some of these procedures are relatively non-invasive (e.g., artificial insemination (AI) or in-vitro fertilization (IVF)). Others require more invasive procedures and, in some cases, the involvement of one or more third party individuals (e.g. gamete donation and surrogacy). Hence, some ARTs require greater reflection upon the possibilities of new technology and exploitation of women than others. Overall, legislating ART requires the consideration of a wide range of ART.

Consequently, all reproductive issues may not interact with the left-right divide in the same way. While abortion has clearly been framed as a women's issue, ART have a more complicated relationship with the women's movement. Some parts of the women's movement were initially skeptical to ART, as they called into question whether this upheld the ideal of the women as a mother and transformed women into merely wombs (Mottier, 2013, p. 228). However, today the debate on ART are on less hostile terms, as the most antitechnology and antinatalist stances have faded (Mottier, 2013, p. 230) While IVF has gained greater acceptance over time, surrogacy taps into conflicts related to the commodification of the human body, and women in particular (Federici, 2020, pp. 63–68). This discussion highlights that the direction of the relationship between political orientation and ART may depend on the ART treatments at hand.

### 3.1.5 Summary and Hypotheses

Both ART and abortion can be described as morality issues, for which attitudes may cut across party lines, if the issue has not been politicized in the party system. According to the "two worlds" theory, the presence of significant Christian Democratic party is a key driver of whether morality issues are politicized in that country, i.e., a "religious" country, indicating that party should be a clearer predictor of attitudes. Taken that parties may affect an individual's stance on issues, the importance of parties for individual attitudes should be moderated by the extent to which the issue is politicized. Following Engeli et al. (2012), the presence of a Christian Democratic party in the party system is expected to increase the likelihood of reproductive issues being politicized in a country. Thus, the "two worlds" theory anticipates that both ART and abortion are more likely to be politicized in religious countries than in secular countries.

However, studies looking at how ART is politicized in "religious" countries, such as Germany (Arzheimer, 2020a, 2020b), indicate that ART may not be party-politicized the way the "two worlds" typology suggests. For instance, this is reflected in how ART is not party-politicized in the German electorate (Arzheimer, 2020b, p. 16). Arzheimer, as well as Hurka et al. (2018), emphasizes how such findings suggest that the "two worlds" theory might need to be modified for countries where the population is becoming increasingly secular. However, another interpretation of these findings is that the "two worlds" typology does not have the same explanatory power when we move from the issue of

abortion to the issue of ART. I expect the "two worlds" typology to only be a predictor for between-party variance and within-party agreement for abortion attitudes and not for ART attitudes.

**H1:** *Being a "religious" country in the "two worlds" typology is associated with greater between-party variance and within-party agreement for abortion attitudes, but not for ART attitudes.*

Based on previous findings, I expect that there is a relationship between party affiliation and abortion and ART attitudes. Left-wing parties are associated with more "women-friendly" policies, as well as attitudes. On the other side of the political spectrum, research finds that conservative ideology is associated with more restrictive abortion attitudes. Likewise previous research has also identified a negative relationship between conservative attitudes and supporting IVF. Therefore, I anticipate that more left-leaning individuals hold more supportive attitudes towards both abortion and ART. However, I expect that this explanatory power of political orientation is weaker for ART attitudes, as abortion has been defined more clearly as a political issue.

**H2:** *Left-leaning individuals are more positive towards both ART and abortion than right-leaning individuals, but political orientation is a stronger predictor for abortion.*

Due to the varied nature of the ART procedures and techniques, the stances that political actors hold may vary. As ART is an emerging political issue, the standpoints that political parties take may be a particularly important heuristic for individuals when formulating their own opinions on the issue. Individuals supporting a Christian Democratic Party should be more negative to both abortion and ARTs due to the party's religious ties. As established earlier, religion is intimately linked to moral traditionalism: Both ART and abortion are described as morality issues, as they pertain to life, death and reproduction. On the other hand, while left-wing parties should be positive towards abortion, how they view ART may be dependent on the procedure at hand. Left-wing parties are traditionally more "women-friendly", and some reproductive issues have been framed as women's interests. However, the use of surrogate mothers has been described

as exploitative, racist and classist (Federici, 2020, pp. 63–68), which suggests surrogacy is not a women's issue in the same way as abortion and AI/IVF.

In conclusion, abortion and ARTs are not treated equally in the political landscape. Further, this should also be reflected at the individual-level, as individuals take cues from their political parties especially on emerging issues, which include AI/IVF and surrogacy. To this end, I anticipate that those who support Christian Democratic Party should be less likely to support AI/IVF, abortion and surrogacy than those who support other parties. Moreover, I expect that those who support left-wing parties to be less likely to support surrogacy than those who support other parties.

*H3a: Supporting the Christian Democratic Party is strong predictor of negative abortion and AI/IVF attitudes.*

*H3b: Supporting leftist parties is a strong predictor of negative surrogacy attitudes.*

## 3.2 Religious and Cultural Explanations

In this section, I outline cultural and religious explanations that are relevant when seeking to understand variation in attitudes towards reproductive issues. First, I discuss cultural clusters and Inglehart and Welzel's 2010 revised version of modernization theory. I then turn to how reproduction is understood in religious traditions, before I outline the relationship between religiosity and both morality and reproductive issues. Finally, I formulate one country-level hypothesis and two individual-level hypotheses based on this literature.

### 3.2.1 Modernization Theory, Cultural Clusters and Value Change

Popularized in the late 1950s and 1960s by researchers such as Lipset (1959), modernization theory emphasizes the effects of socioeconomic development on democracy. In turn, Inglehart and Welzel propose a revised version of modernization theory, which links the values people hold to the democratic transformation of societies (Inglehart & Welzel, 2005). Particularly, they emphasize the importance of self-expression values, which among other things reflect a more gender-equal society. However, empirical evidence indicates that there is no causal relationship between self-expression values and

democracy (Dahlum & Knutsen, 2017). Dahlum and Knutsen argue that it is more likely that observed self-expression values in democracies reflect democracy's effect on popular values (Dahlum & Knutsen, 2017, p. 439).

Despite the highlighted short-comings of modernization theory for explaining a causal relationship between values and democratic transition, I argue that Inglehart and Welzel's revised version of modernization theory may still be relevant when seeking to examine variation in attitudes towards reproductive issues. Importantly, Inglehart and Welzel argue that "[t]he diversity of basic cultural values" help explain why the shift towards a emphasis on self-expression values is not happening in the same way across the world (Inglehart & Welzel, 2005, p. 4). In other words, expectations about increasingly converging value systems do not follow from the arguments of modernization theory. Linking value change specifically to gender, Inglehart and Norris argue that "cultural change is a necessary condition for gender equality" (Inglehart & Norris, 2003, p. 9). Moreover, while the over-arching direction of value change is predictable, the pace of this change is mediated by a society's cultural legacy and institutional structure (Inglehart & Norris, 2003, p. 10).

To explain the variation in values that persists among countries that have experienced the shift from industrial to postindustrial society, Inglehart and Welzel highlight the prevailing influence of cultural and religious traditions (Inglehart & Welzel, 2005). For the purposes of this thesis, I focus on religious traditions. Today, the impact of religious traditions is transmitted through nationwide institutions, such as educational system and mass media, while "given religious traditions have historically shaped the national culture of given societies" (Inglehart & Welzel, 2005, p. 68). Beyond economic development, other factors appear to influence attitudes toward gender equality, "such as the historical role of the state under Communist regimes and the religious legacy that predominates in certain areas of the world" (Inglehart & Norris, 2003, p. 34). Economic development is associated with a shift away from traditional value systems. However, traditional values appear to persist, even in the face of decline of institutionalized religion. Modernization theorists may be right in their assertion that the transformation from industrial to postindustrial societies is coupled with a shift toward postindustrial values. Distinctive value systems endure giving rise to specific cultural zones after controlling for the effects of economic development (Inglehart & Baker, 2000, p. 49).

A society's religious traditions and values leave a lasting impact on the values people hold. As such, Inglehart and Welzel argue that culture is path dependent (Inglehart & Welzel, 2010, p. 553). Inglehart and Welzel have employed World Value Study (WVS) data to create cultural cluster maps, which indicate a country's position on both the traditional versus secular-rational values scale, as well as the survival versus self-expression values scale. The shift from societies emphasizing traditional values to secular-rational values reflects the difference between societies in which religion is important and those in which it is not. Societies that emphasize traditional values, typically uphold traditional family values and reject practices such as abortion. In contrast, societies with rational-secular values hold the opposite set of preferences. The difference between societies on either end of the survival versus self-expression scale reflects a shift from "an overwhelming emphasis on economic and physical security toward an increasing emphasis on subjective well-being" (Inglehart & Welzel, 2010, p. 564). On this scale, societies with survival values hold materialist values to a greater extent. Societies with a greater emphasis on self-expression values are also more supportive of postmaterialist values.

Inglehart and Welzel identify two systematic historical factors for grouping countries into clusters: the societies' religious tradition and their colonial histories. The European religious traditions separate the countries into three main clusters: Protestant Europe, Catholic Europe, and Orthodox Europe. Moreover, apart from Greece, the Orthodox European countries form a cluster within the broader former communist societies zone. Importantly, these three cultural clusters "display distinctive values today mainly because of the historical impact their respective churches have had on society, rather than through the contemporary influence of the church on given individual" (Inglehart & Welzel, 2005, p. 69). The cultural maps show that Orthodox cluster countries have score the lowest on both the traditional versus secular-rational values scale, as well as the survival versus self-expression values scale. Countries in Catholic cluster fall in the middle, while countries in the Protestant cluster score the highest on both scales (World Values Study, n.d.).

### 3.2.2 Reproduction in Religious Traditions

In the previous section, I discussed the importance of religious traditions for value change at the macro-level. Following this discussion, I will outline how reproduction is conceptualized in Christian religious traditions, as Christianity has been the most influential

religion in Europe in more recent history (Rietbergen, 2015). Most religions provide teachings and moral guidelines pertaining to reproduction, which have been extended to provide prescriptions about abortion and ART in the modern age. Family formation is a central tenet in many of the largest religions in the world. Dutney contends that the two main points of concern all religions have with ART are the sanctity of the marital relationship and the sanctity of the embryo (Dutney, 2007, p. 174). As ART is new technology, the original religious texts evidently do not provide prescriptions pertaining to ART. Rather, religious actors have drawn the religious teachings pertaining to reproduction and kinship when constructing their prescriptions on ART. This section will largely focus on how Christianity and its different branches view reproduction, and in particular ART.

The different Christian traditions do not all hold the same views on ART. The three main divisions of Christianity are the Catholic Church, the Protestant Churches, and the Orthodox Catholic Church. The Catholic Church has the most strict stance on ART. The Vatican first issued a statement on assisted reproduction in 1956, when Pope Pius XII declared that "attempts at artificial human fecundation *in vitro* must be rejected as immoral and absolutely unlawful" (J. G. Schenker, 2005, p. 315). The three main principles which underlie this position are "(1) the protection of the human being from the moment of its conception, (2) that the child is the fruit of marriage, as God commends husband and wife to have children, and (3) that integrity and dignity norms must be taken into consideration in all these matters" (J. G. Schenker, 2005, p. 311). This follows from Catholicism's emphasis on "the absolute value of human life, the sanctity of the marriage bond, and the procreative purpose of the 'marital act', or sexual intercourse" (Htun & Weldon, 2018, p. 205).

In contrast, both the Eastern Orthodox Church and the Protestant Churches have relatively liberal views on ART as treatment for infertility. The Eastern Orthodox Church does not reject IVF and other ARTs, but gamete donation is opposed as constitutes an adulterous act (J. G. Schenker, 2005, p. 315). There is not one set of ethical guidelines within the Protestant Churches, there are some limitations such as restricting IVF to married couples (Sallam & Sallam, 2016, p. 37), as well as opposition to IVF with donated gametes and surrogacy (J. G. Schenker, 2005, p. 315).

To sum up, when discussing ART as a religious issue, one must disaggregate the

religious traditions, as well as different aspects of ART. Though both the Orthodox Church and the Protestant Churches have a relatively liberal view of ART compared to the Catholic Church, they still present some reservations with regards to what ARTs are appropriate and for whom. This discussion of how religious traditions view reproduction has focused on Christian religious traditions. Christianity has historically been the most prominent religion in Europe, which is the region this thesis focuses on. However, similar arguments could also be made for other religions prominent in other regions (Htun & Weldon, 2018; Sallam & Sallam, 2016; J. G. Schenker, 2005).

I briefly discuss the positions of Christian denominations on abortion. In the traditional Christian view, while deserving of respect, the embryo was not considered a human being until about six weeks after conception (J. Schenker, 2000, p. 86). More recently the views on abortion in Protestantism have become more varied, reflecting in part the different churches within the Protestant tradition. While they still underline the seriousness of terminating pregnancy, mainstream Protestant denominations emphasize a woman's right to follow her own conscience regarding abortion (G. H. Albrecht, 2003, p. 94). In Roman Catholic Church, as sexual activity had to be open to procreation, intervening in reproduction has been a crime. When the distinction between the ensouled and unensouled fetus was discarded in 1869, "abortion was a crime starting from the moment of conception" (Htun & Weldon, 2018, p. 204). Then in 1995 Pope John Paul II warned all Catholics of the rise of a "culture of death", condemning abortion as a crime which no human law can claim to legitimize (J. Schenker, 2000, p. 86). In the Eastern Orthodox Church, abortion is also considered murder. Abortion is only reluctantly accepted if the mother will die unless the embryo or fetus is aborted (Koios, 2009, p. 361). Overall, the Christian traditions are critical against both ART and abortion.

### 3.2.3 Individual Religiosity

Following the discussion of religious traditions and their views on reproduction, it is pertinent also to outline how individual religiosity may affect both ART and abortion attitudes. Research finds that both individuals' political values and attitudes are affected by religion (Duriez et al., 2002; Knutsen, 2018, p. 249). Moreover, studies show that religious individuals are more socially conservative on issues such as sexual norms, gender and family relations, and matters of life or death. Notably, these issues are often

viewed as closely linked to religious values (Engeli et al., 2012; Lachat, 2012; Nicolet & Tresch, 2009). This links back to morality issues, as discussed in the previous section. De Koster and van der Waal discuss how traditional stances on issues pertaining to moral traditionalism are directly inspired by the Christianity and through socialization in Christian institutions (De Koster & Van Der Waal, 2007). They view Christian religiosity as "naturally" tied to moral traditionalism (De Koster & Van Der Waal, 2007, p. 453).

Existing literature generally finds that individual religious views and practices are influential in shaping abortion attitudes, where more devout individuals are more likely to hold negative attitudes toward abortion (Jelen, 2014; Jelen & Wilcox, 2003; Lizotte, 2015; Luker, 1984; Norrander & Wilcox, 2002). Further, the link between higher levels of religiosity and more restrictive attitudes toward abortion are found across different religious denominations (Adamczyk et al., 2013; Lewis & Kashyap, 2013). Some research has identified the same relationship between religiosity and support for ART. For instance, Fortin and Abele find an association among women between religiosity, operationalized as attendance at religious services, and more negative attitudes toward IVF (Fortin & Abele, 2016, p. 362). Contrary to their expectations, they also find that Catholics are more positive toward IVF than non-Catholic Christian women (Fortin & Abele, 2016, p. 362). Lastly, even without practicing its faith actively, belonging to a certain religious group "may socialize individuals to certain political and partisan preferences" (Kotler-Berkowitz, 2001, p. 525). Even so, Kotler-Berkowitz argues that practicing the faith actively in organized religious environments is likely to reinforce these socialized preferences to a greater extent than merely being a passive denominational member (Kotler-Berkowitz, 2001, p. 525). Thus, religious affiliation appears to be an important factor shaping individual attitudes toward both abortion and ART.

### 3.2.4 Summary and Hypotheses

This discussion of cultural and religious explanations suggests that on the country-level, Europe can be divided into Inglehart and Welzel's cultural maps. The cultural maps indicate a country's position on both the traditional versus secular-rational values scale, as well as the survival versus self-expression values scale. Europe is divided into three main clusters based on the countries' religious traditions: Protestant Europe, Catholic Europe and Orthodox Europe. The aggregated scores of the countries belonging to both

the Catholic Europe cluster and the Orthodox Europe cluster place these countries further towards the traditional end of the traditional/secular-rational scale, as well as towards the survival end of the survival versus self-expression scale. It follows that individuals in the Catholic Europe and Orthodox Europe clusters should hold more negative attitudes toward abortion than individuals in the Protestant Europe cluster.

While the Catholic Church has actively voiced its rejection all forms of ART, the Orthodox Church and the Protestant Church also have reservations towards certain forms of ART and particular individuals and couples utilizing them. As an emerging issue and less politicized issue, the historical influence on self-expressive and secular values may be more important for ART attitudes than the contemporary influence of the church on different individuals (Inglehart & Welzel, 2005, p. 69). I expect explanatory power of cultural clusters to be greater for abortion attitudes, as the church has been such an important actor in the continued politicization of abortion in Europe (Hesová, 2021). Overall, I expect residing in Orthodox Europe to be associated with less positive attitudes toward ART and abortion, but that this association is stronger for abortion attitudes.

**H4:** *Residing in the Catholic and Protestant clusters is associated with more positive attitudes compared to the Orthodox cluster, but Catholic and Protestant clusters are a stronger predictor of abortion attitudes than ART attitudes.*

Previous research has established that there is a negative relationship between religiosity and attitudes toward abortion (Jelen, 2014; Jelen & Wilcox, 2003; Lizotte, 2015; Luker, 1984; Norrander & Wilcox, 2002), as well as towards issues related to moral traditionalism in general (Duriez et al., 2002; Knutsen, 2018). Furthermore, the association between religiosity and more restrictive abortion attitudes is shared across different religious denominations (Adamczyk, 2013; Lewis & Kashyap, 2013).

**H5a:** *Individual religiosity is associated with less positive attitudes toward both ART and abortion.*

Active denominational members are socialized into the religious organization, in turn norms, to a greater extent than passive members (De Koster & Van Der Waal, 2007).

Therefore, I expect the explanatory power of religiosity to be greater for those who actively participate in religious services compared to those who are largely denominational or cultural members of a religious group.

**_H5b:_** _Being an active denominational member is a stronger predictor of ART and abortion attitudes than being a passive denominational member._

I now turn to how religiosity matters for different types of ART. As outlined in section 3.2, I anticipate that religiosity is a stronger predictor for abortion attitudes than ART attitudes, as abortion has received the most attention from religious actors. While Christian religious institutions have clearly established their negative positions on abortion, more variation exists in their positioning towards ART. Hence, I expect the association between religiosity and negative attitudes greater for abortion than ART. When differentiating ARTs further, I expect the strength of the relationship between religion and individual attitudes to vary between different procedures and techniques. As with IVF, surrogacy goes against the sanctity of the conjugal bond. Religiosity is likely the most important for abortion attitudes, due to the vocal opposition of religious institutions to abortion. Turning to ART, I anticipate that religiosity is less important for AI/IVF and surrogacy for two different reasons. Religious actors have voiced their restrictive opinion on AI/IVF, while surrogacy is more controversial in general. Therefore, I expect religiosity to be more important for predicting AI/IVF attitudes compared to surrogacy attitudes.

**_H6:_** _Religiosity has the greatest explanatory power for predicting negative abortion attitudes followed by AI/IVF attitudes and the least explanatory power for negative surrogacy attitudes._

# 4  Empirical Approach

This chapter provides an overview of the empirical approach taken in this thesis. First, I outline the selection of the data and the two data sources employed: the European Values Study (EVS and the Norwegian National Election Study (NNES). Then, I describe the variables included in the empirical analyses. I discuss the country-level and individual-level variables in turn. Following the variable descriptions, I account for missingness in the data and its potential implications and the remedies I implement. Lastly, I consider the validity of the empirical approach, before I problematize the potential issues of measurement validity with regards to the use of survey data.

## 4.1  Data Selection

As the main dependent variables in this thesis are attitudes, employing survey data is the most logical choice of data. Specifically, I am interested in attitudes toward assisted reproductive technology (ART) and abortion. To examine what explains variation in attitudes towards ART *compared to* abortion, the surveys I utilize must include variables that measure attitudes towards both. Surveys measuring ART attitudes are not accessible for the whole world. The most comprehensive survey, which includes variables for both ART and abortion attitudes is the European Values Study (EVS), which includes respondents from European countries. The EVS has included a question about artificial insemination (AI) and in-vitro fertilization (IVF) in the last two survey rounds: EVS Survey 2008 and EVS Survey 2017. These two survey rounds also include a question about abortion. Due to the emerging nature of ART, I choose to run my analyses on the most recent survey round from 2017, as it provides the most updated large-scale, cross-country data available.

In order to explore whether the relevant explanatory factors vary between different types of ART, I employ the Norwegian National Election Study (NNES) from 2017. The NNES includes questions on both surrogacy and abortion. Respondents in the NNES are a random sample from the Norwegian population, while other survey data on surrogacy is often limited to specific, non-probability samples. As the EVS also includes Norwegian respondents, I can compare results across the two surveys (NNES and EVS). Though these data are collected from Europe and Norway, the findings should at least to a certain

degree be applicable outside this context. However, it is important to note that context does matter for what attitude individuals have towards reproductive issues (Inglehart & Welzel, 2005).[5]

The **European Values Study (EVS) (EVS, 2020a)** dataset is an extensive, cross-national and longitudinal survey program, which measures European attitudes and moral orientations. The 2017 EVS dataset includes responses from 56491 citizens from 31 European countries. The interviews were conducted face-to-face with respondents for approximately an hour. However, six countries (Switzerland, Netherlands, Iceland, Germany, Denmark, and Finland) chose a mixed-mode of data collection. This entails that these countries developed a self-administered Web survey, which was employed concurrently with the face-to-face surveys.

The **Norwegian National Election Study (NNES) (Statistisk sentralbyrå, 2019)** has been conducted following the Norwegian parliamentary election since 1957 by the Election Research Program ("Valgforskningsprogrammet"). The survey includes questions about electoral participation, political orientation and attitudes towards political issues, where respondents are Norwegian eligible voters. I employ the 2017 NNES, which includes 3200 individuals between 18 and 79 years old. Half of the respondents are new, drawn from the Norwegian Population Register, while the other half were also respondents in the 2013 NNES. The collection methods included both face-to-face interviews, telephone interviews and a web survey. The 2017 survey had a response rate of 61.8% (net sample: 1966 respondents).

## 4.2    Dependent Variables

This section discusses the dependent variables in this thesis, which are all based on individual attitudes. I first discuss the country-level dependent variables, which are employed in the analysis in Chapter 5: country mean, between-party variance, and within-party agreement. Then, I detail the individual-level dependent variables, which are AI/IVF attitudes (Chapter 6 and Chapter 7), surrogacy attitudes (Chapter 7) and abortion attitudes (Chapter 6 and Chapter 7).

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[5]See Section 4.6.1 for further discussion of external validity.

### 4.2.1 Country-Level Variables

To test whether the "two worlds" typology and cultural clusters are helpful for explaining variation in the relationship between party affiliation and individual attitudes in Europe, I create three aggregated measures from individual attitudes based on the EVS 2017 Survey. These three measures are between-party variance, within-party agreement and country mean. For every country, I create two versions of each measure: one for AI/IVF (ART) attitudes and one for abortion attitudes.

Between-party variance and within-party agreement are used to test the "two worlds" typology, as this typology asserts that morality issues should be more party-politicized in countries with a significant religious-secular conflict (religious world) compared to those that do not (secular world).[6] If there is a relationship between political orientation and attitudes, there should be greater between-party variance and within-party agreement. In other words, individuals should hold the most similar attitudes to those with the same party affiliation as themselves. This motivates the operationalization of political orientation as party affiliation for the country-level analysis in Chapter 5. Country mean is used to test whether cultural clusters can account for differences in attitudes between countries. If cultural clusters do account for variation in attitudes, countries in the three different clusters should be significantly different from one another.

**Between-party variance.** This variable is a measure of the between-group variance for attitudes toward ART (AI/IVF) and abortion. The group of interest are political parties. The variable measures how much the party means vary from the overall country mean.

The between-party variance is calculated for both AI/IVF and abortion attitudes. To calculate the between-party variance for AI/IVF and abortion, I first find mean response value for each political party ($x_p$). Then the overall country mean ($\overline{x}$) is subtracted from each party mean ($x_p$) to account for the different size of parties, and this sum is multiplied

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[6]To create these two dependent variables, I first group the EVS respondents within their preferred national political parties. In the EVS survey, respondents are asked "which political party appeals to you the most?" (v174_cs) (EVS, 2020b, p. 517). This is a standardized country-specific variable, which contains country-specific categories that detail the national political parties. Then, I employ the EVS variables which ask to what extent respondents justify specific items, including assisted insemination (AI)/in vitro fertilization (IVF). Respondents are asked to what extent they justify AI/IVF (v161) and abortion (v154) on a scale from "never" (1) to "always" (10).

by the number of respondents in that political party ($n_p$). Lastly, the resulting values for each party are added together, and the sum is divided the score by the number of parties minus 1 ($p - 1$). I include the equation below:

$$\frac{n_1 \left(\overline{x}_1 - \overline{x}\right)^2 + n_2 \left(\overline{x}_2 - \overline{x}\right)^2 \ldots n_p \left(\overline{x}_p - \overline{x}\right)^2}{p - 1}$$

A higher value for between-party variance indicates that the mean value for each political parties differs more within a country compared to a country with a lower value. Put differently, respondents from different political parties are on average more similar in countries with lower between-party variance values. For instance the country with the least between-party variance for abortion attitudes is Russia with a value of 7.8, while Iceland has the least between-party variance for AI/IVF attitudes with a value of 6.5. On the other end of the spectrum, the country with the most between-party variance for abortion attitudes is the Netherlands with a value of 238.3, while Poland has the most between-party variance for AI/IVF attitudes with a value of 354.2.

Table 4.1: Dependent Variable: Between-Party Variance (AI/IVF)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Between-party variance* | Value calculated for each country. Measure of how much each party's mean varies from the overall mean. | 6.47 | 354.17 | 54.09 | 63.91 | 31 |

\* Indicating less between-party variance in the country, i.e., respondents from different parties are on average more similar. \*\* Indicating more between-party variance in the country, i.e., respondents from different parties are on average less similar.

Table 4.2: Dependent Variable: Between-Party Variance (Abortion)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Between-party variance* | Value calculated for each country. Measure of how much each party's mean varies from the overall mean. | 7.83 | 238.26 | 83.79 | 62.88 | 31 |

\* Indicating less between-party variance in the country, i.e., respondents from different parties are on average more similar. \*\* Indicating more between-party variance in the country, i.e., respondents from different parties are on average less similar.

**Within-party agreement.** To measure the degree of politicization within parties, I employ the Eijk's measure of agreement (2001). In order to ascertain whether the "two worlds" theory can explain different levels of within-party agreement between countries, I examine the degree of consensus aggregated from the national parties in each country. Both EVS and NNES employ ordered rating scales to measure AI/IVF (ART) and abortion attitudes. For survey questions using ordered rating scales, respondents are asked to choose their self-placement within a limited number of ordered categories. The ordered rating scales capture whether different respondents have the same perceptions of the item at hand (perceptual agreement) (Van Der Eijk, 2001, p. 326). Eijk is critical of standard measures, such as standard deviation and its transformations, utilized to measure the degree of agreement between respondents. Instead of only reflecting dispersion, standard deviation also reflects skewedness, which makes it inappropriate as a measure of dispersion (Van Der Eijk, 2001, p. 328). In other words, it is also inappropriate for the inverse of dispersion, agreement, which I am examining in this country-level analysis.

To rectify these issues, Eijk proposes an alternative measure, A, which "consists of decomposing empirical distributions into constituent parts that are of an ideal-type form for which the degree of agreement can be defined in an intuitive and unambiguous way" (Van Der Eijk, 2001, p. 328). I employ Ruedin's R package "agrmt" to calculate the agreement for the ordered rating scales. Agreement scores vary from -1 to 1 (Ruedin, 2021, 4). In turn, there are three ideal positions:

- **-1 (polarization):** half of the respondents are in one extreme category, while the other half are in the opposite extreme category.

- **0 (no agreement):** the respondents are evenly distributed between the categories.

- **1 (agreement):** all the respondents are in the same category.

This variable is an aggregated measure of within-party agreement in a country for attitudes toward ART (AI/IVF) and abortion. The degree of agreement among respondents within each political party in a country is calculated using the R-package "argmt" (Ruedin, 2021). To find the level of within-party agreement in each country, I calculate the mean of political party agreement. There is greater within-party agreement on average in countries with an agreement value closer to 1. In countries with agreement values

closer to or below 0, there is on average less consensus within each political party.

Table 4.3: Dependent Variable: Within-Party Agreement (AI/IVF)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Within-party agreement* | Value calculated for each country. Mean of the degree of consensus within each party. | -0.32 | 0.86 | 0.33 | 0.22 | 31 |

* Indicating less within-party agreement in the country, i.e., less consensus within parties on average.** Indicating more within-party agreement in the country, i.e., greater consensus within parties on average.

Table 4.4: Dependent Variable: Within-Party Agreement (Abortion)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Within-party agreement* | Value calculated for each country. Mean of the degree of consensus within each party. | 0.09 | 0.63 | 0.27 | 0.16 | 31 |

* Indicating less within-party agreement in the country, i.e., less consensus within parties on average. ** Indicating more within-party agreement in the country, i.e., greater consensus within parties on average.

**Country mean.** This variable indicates the mean attitudes in a country. The variable is calculated separately for AI/IVF and abortion attitudes. If a country has a mean closer to 10, this indicates that the respondents in that country are more positive towards AI/IVF or abortion, while countries with values closer to 1 are overall more negative towards AI/IVF or abortion.

Table 4.5: Dependent Variable: Country Mean (AI/IVF)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Country mean* | Value calculated for each country. Mean attitudes towards AI/IVF. | 5.17 | 8.98 | 7.20 | 0.85 | 31 |

*Indicating the country is less positive towards AI/IVF.

** Indicating the country is more positive towards AI/IVF.

Table 4.6: Dependent Variable: Country Mean (Abortion)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Country mean* | Value calculated for each country. Mean attitudes towards abortion. | 2.85 | 8.39 | 5.46 | 1.50 | 31 |

*Indicating the country is less positive towards abortion.

** Indicating the country is more positive towards abortion.

### 4.2.2  Individual-Level Variables

In this section, I discuss the two dependent variables that measure individual-level attitudes. These variables measure expressed attitudes toward two main attitude objects: abortion and AI/IVF (ART). I discuss these in detail and provide descriptive statistics below.

**AI/IVF attitudes.** In the EVS survey, respondents are asked to indicate how justifiable they think artificial insemination and in-vitro fertilization are. Therefore, AI and IVF are grouped together as one attitude object. ART attitudes are, thus, operationalized as AI/IVF attitudes. Specifically, the EVS survey asks respondents whether they think AI/IVF can "always be justified, never be justified, or something in between" (EVS, 2020b, p. 485). Respondents indicate the level of justification on a scale from 1 ("never") to 10 ("always") (EVS, 2020b, p. 485)). For the multilevel analysis in Chapter 6, I normalize this variable from 0 to 1.

Table 4.7: Dependent Variable: AI/IVF Attitudes (EVS)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Untransformed* | Ordinal rating scale from 1 ("never") to 10 ("always") | 1 | 10 | 7.23 | 2.97 | 48928 |
| *Normalized* | Normalized variable between 0 and 1. | 0 | 1 | 0.69 | 0.33 | 48928 |

Then for the analysis in Chapter 7, I recode the variable into a binary variable. As this chapter is a case-study of Norwegian respondents, I subset the EVS to only include Norwegian respondent (N = 1122). To make the variable binary, I assign those who responded 10 ("always") with the value 1, while all others are given the value 0.

Table 4.8: Dependent Variable: AI/IVF Attitudes (Norwegian EVS Sample)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Untransformed* | Ordinal rating scale from 1 ("never") to 10 ("always") | 1 | 10 | 7.97 | 2.33 | 1112 |
| *Binary* | Recoded to binary variable. 0 = 1-9; 1 = 10 | 0 | 1 | 0.39 | 0.49 | 1112 |

**Surrogacy attitudes.** In the NNES survey, respondents are asked about their attitudes towards the use of surrogate mothers in Norway. The question about surrogacy is framed as a statement (or a Likert item). The respondents are asked to indicate to what degree they agree with the statement: "It should become permitted to use a surrogate mother to bear a child in Norway". Their responses are recorded on a scale from 1 ("Completely agree") to 5 ("Completely disagree").

This variable is employed as a dependent variable in Chapter 7. I recode the variable into a binary variable, as I run logistic regressions in this chapter. In this analysis, I wish to differentiate between respondents that unequivocally support surrogacy and those who express reservations. Respondents which indicate that they "Completely agree" with statement about permitting surrogate mothers in Norway are given the value 1. All other respondents are given the value 0, as their responses signal varying degrees of reservations against permitting surrogacy in Norway.

Table 4.9: Dependent Variable: Surrogacy (NNES)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Untransformed* | Spm5f: Permitting surrogate mothers in Norway Ordinal rating scale from 1 ("Completely disagree") to 5 ("Completely agree") | 1 | 5 | 2.17 | 1.45 | 1890 |
| *Binary* | Recoded variable to binary responses. 0 = 1 ("Completely disagree") - 4 ("Agree") 1 = 5 ("Completely agree") | 0 | 1 | 0.25 | 0.43 | 1890 |

**Abortion attitudes.** In the EVS survey, attitudes towards abortion are measured

by asking if respondents think abortion can "always be justified, never be justified, or something in between" (EVS, 2020b, p. 464). Respondents indicate their response on a scale from 1 ("never") to 10 ("always"). For the multilevel analysis in Chapter 6, I normalize this variable from 0 to 1.

Table 4.10: Dependent Variable: Abortion Attitudes (EVS)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Untransformed* | Ordinal rating scale from 1 ("never") to 10 ("always") | 1 | 10 | 5.65 | 3.23 | 49256 |
| *Normalized* | Normalized variable between 0 and 1. | 0 | 1 | 0.52 | 0.36 | 49256 |

As this variable is employed as dependent variable in a logistic regression in Chapter 7, I transform the variable to a binary variable. First, I restrict the sample to the Norwegian respondents. To make the variable binary, I assign those who responded 10 ("always") with the value 1, while all others are given the value 0.

Table 4.11: Dependent Variable: Abortion Attitudes (Norwegian EVS Sample)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Untransformed* | Ordinal rating scale from 1 ("never") to 10 ("always") | 1 | 10 | 7.61 | 2.77 | 1114 |
| *Binary* | Recoded to binary variable. 0 = 1-9; 1 = 10 | 0 | 1 | 0.41 | 0.49 | 1114 |

In the NNES, the respondents are asked to consider four statements about abortion and to then choose the one which best suits their personal opinion. The four statements are: "Abortion should never be permitted" (1); "Abortion should only be permitted if the women's life or health is in danger" (2); "Abortion should be permitted if the women due to personal circumstances has a very difficult time taking care of a child" (3); and "Self-determined abortion. Each woman must be able to decide whether she wants to birth her child" (4) (own translation, Statistisk sentralbyrå, 2019, p. 33).

This variable is a dependent variable in the logistic regression analysis in Chapter 7, thus, I recode the variable into a binary variable. I wish to distinguish those who support permitting abortion without any contingencies from those who either partially or completely oppose abortion. Respondents, who state that their personal opinion about

abortion is closest to supporting "self-determined abortion" (4), are given the value 1. Respondents who indicate that their personal opinion corresponds to statement 1-3 express reservations against self-determined abortion and they are given the value 0.

Table 4.12: Dependent Variable: Abortion Attitudes (NNES)

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Untransformed* | Ordinal rating scale from 1 ("never") to 4 ("self-determined abortion") | 1 | 4 | 3.16 | 0.76 | 1900 |
| *Binary* | Recoded to binary variable. 0 = 1 ("never"), 2 ("life/health in danger"), 3 ("personal reasons") 1 = 4 ("self-determined abortion") | 0 | 1 | 0.77 | 0.42 | 1900 |

### 4.2.3 Comparing the Dependent Variables

The research question I answer in this thesis requires a comparison of results from analyses with different dependent variables. I attempt to identify whether the relationship between the explanatory variables and the dependent differs for AI/IVF, surrogacy and abortion. Therefore, it is important that the survey questions I use to construct the dependent variables measure the same thing.[7] In Chapter 6 examining the whole of Europe, I examine what explanatory factors explain variation in individual attitudes toward AI/IVF compared to abortion. In this analysis, the two dependent variables are from on the EVS dataset, which includes questions about AI/IVF and abortion. The questions about AI/IVF and abortion are asked in exactly the same way, as respondents are asked to what extent they believe the attitude object is justifiable.

In Chapter 7 examining Norway, I compare AI/IVF, surrogacy and abortion. To do so, I employ a subset containing only the Norwegian respondents from the EVS dataset and the respondents in the NNES dataset. The questions about surrogacy and abortion in the NNES survey are not measured in the same manner, as AI/IVF and abortion in the EVS survey. Therefore, to make the variables measuring AI/IVF, surrogacy and

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[7]For the exact wording of the survey questions for each variable in the two datasets, see the discussion of that respective variable in the previous Section 4.2.2: Individual-Level Variables.

abortion attitudes comparable across the datasets, I make these variables binary. This entails that I have to choose a cut-off for the EVS variables for attitudes toward AI/IVF and abortion. As previously mentioned, respondents are asked when they believe AI/IVF and abortion are justifiable on a scale from 1 = "never" to 10 = "always". I use 10 as the cut-off, as this then captures individuals that "always" believe AI/IVF and abortion can be justified, which is similar to those who choose the most positive responses to the questions about surrogacy and abortion in the NNES. However, this results in a smaller proportion of the sample being coded as supporting abortion in the Norwegian EVS sample compared to the NNES sample. Thus, I also perform a robustness test, where I use the median response for abortion, as well as AI/IVF, as the cut-off (see Chapter 7).

Importantly, I include the abortion variables from both surveys in the Norwegian individual analysis, as a robustness test. By doing so, I can see whether there are similar findings for the measures of abortion attitudes in the two different datasets with different respondents. For the analysis at hand, the two variables need to measure abortion attitudes in a similar manner, in order to ensure that they are measuring the same concept (measurement validity) (Adcock & Collier, 2001). Respondents in EVS are asked to when they believe abortion can be justified on a scale from 1 ("never") to 10 ("always"). The NNES respondents similarly indicate when abortion should be permitted, but they are given four concrete alternative to choose from.[8] Although the variables measuring abortion attitudes in the EVS and the NNES are not on the same scale, they both capture whether an individual believes that abortion is always justified. In other words, they both capture to what extent individuals believe that women should be able to have self-determined abortions.

## 4.3   Explanatory Variables

In this section, I provide descriptions for the main explanatory variables used in the empirical analyses. These explanatory variables follow from my theoretical framework and the hypotheses I seek to test. As such, the main explanatory variables are related to

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[8] "Abortion should never be permitted" (1); "Abortion should only be permitted if the women's life or health is in danger" (2); "Abortion should be permitted if the women due to personal circumstances has a very difficult time taking care of a child" (3); and "Self-determined abortion. Each woman must be able to decide whether she wants to birth her child" (4) (own translation, NNES, 2019, 33).

political orientation and religion on both the country-level and the individual-level.

### 4.3.1 Country-Level Variables

**"Two worlds" typology.** Countries are classified as belonging to either the religious or the secular world. Engeli et al. (2012) only categorize and discuss the Western European countries in their work. In my country-level analysis, I extend the coding of this variable to Central and Eastern European countries, as these countries also are a part of the EVS 2017 Survey.[9] Table 4.13 below outlines the placement of all the countries included in this analysis within the "two worlds" typology.

Table 4.13: Classification of Countries in "Two Worlds" Framework

| Religious World | Secular World |
|---|---|
| Austria, Bosnia and Herzegovina, Croatia, Estonia, Germany, Hungary, Italy, Lithuania, Netherlands, Portugal, Spain, Switzerland | Albania, Belarus, Bulgaria, Czech Republic, Denmark, Finland, France, Iceland, Montenegro, North Macedonia, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Sweden, United Kingdom |

**Cultural clusters.** This categorical variable indicates the cultural cluster that a country belongs to (see Table 4.14). As this variable is at the country level, it is a level-2 variable. Based on the EVS 2017 Survey results, Inglehart and Welzel identify three European cultural clusters (World Values Study, n.d.). These clusters are Orthodox Europe, Catholic Europe, and Protestant Europe. Countries within each cluster have similar values on the traditional versus secular-rational values scale, as well as the survival versus self-expression scale. As indicated by their names, the cultural clusters also largely overlap with three main religious traditions that the European countries have belonged to (i.e., Protestantism, Catholicism and Orthodox Church).

### 4.3.2 Individual-Level Variables

This section discusses the two main explanatory variables at the individual-level, political orientation and religiosity, and how they are operationalized in the two analyses. First,

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[9]see Appendix B.9 an explanation of how Central and Eastern European countries are classified within this framework

Table 4.14: European Religious Clusters

| Protestant Europe | Catholic Europe | Orthodox Europe |
| --- | --- | --- |
| Denmark, Finland, Germany, Iceland, Netherlands, Norway, Sweden, Switzerland, United Kingdom | Austria, Croatia, Czech Republic, Estonia, France, Hungary, Italy Lithuania, Poland, Portugal, Slovakia, Slovenia, Spain | Belarus, Bosnia-Herzegovina, Bulgaria, Greece, Montenegro, North Macedonia, Romania, Russia, Serbia |

I discuss potential issues when measuring political orientation, as well as how I operationalize political orientation. Then, I explain the reasoning behind how religiosity is operationalized. I provide descriptive statistics for the political orientation and religiosity measures in their respective sub-sections.

### 4.3.3   Measuring Political Orientation

For the individual-level analyses in Chapters 6 and 7, I employ two different measures for political orientation. These measures are employed to test H2: "Left-leaning individuals are more positive towards both ART and abortion than right-leaning individuals, but political orientation is a stronger predictor for abortion." To measure political orientation, both the EVS and the NNES surveys have questions about about party affiliation and left-right self-placement. After considering the data and its limitations, I choose to operationalize political orientation as left-right self-placement for the European multilevel analysis in Chapter 6 and as party group affiliation for the Norwegian logistic regression analysis in Chapter 7.

In Chapter 6, I run multilevel models with all the European countries in the EVS dataset. The EVS survey employs a 10-point left-right scale to measure political orientation. When comparing different response formats for measuring left-right data, Kroh finds that 10-point scales produce highly valid data and reliable data (Kroh, 2007). An alternative measure would be employing the harmonized variable (v174_cs) that indicates which national party respondents identify with. The harmonized variable places each country's national party on a left-right scale, where 1 = "left" and 10 = "right" (EVS, 2020b, p. 514). For many of the countries, the whole scale is not utilized, as many of national political parties are given the same values. Additionally, the left-right scale

for the political parties is not necessarily accurate for some of the countries.[10]

The left-right dimension embodies a common form of social cognition in the political context, as such left-right scales has been commonly used in public opinion research (Kroh, 2007, p. 205). Therefore, I argue that employing the left-right self-placement variable is more appropriate as a measure of political orientation, than the left-right party variable for this analysis. However, it is important to note that how the left-right scale is understood may vary for respondents from different countries, as the concept of "left" and "right" are highly context-dependent (Bauer et al., 2017; Esposito & Theuerkauf, 2021).

In Chapter 7, I only look at Norwegian individuals from the EVS and NNES datasets. As both surveys have questions about left-right self-placement, I could employ the same variable for this analysis. However, for this single-country analysis, I argue that it is more informative to employ the party affiliation variable for two main reasons. Firstly, there is a little variation on the left-right self-placement variable, as a large proportion of the respondents place themselves toward the middle of the scale.[11] Secondly, it is more informative to look at party effects, as I have an understanding of where the parties are placed on the left-right scale. When I run the models, I group the parties into leftist parties, right-wing parties, other parties and the Christian Democratic Party. Consequently, I am still able to capture the left-right dimension of political orientation, though the variable is operationalized differently than in Chapter 6.

**Left/Right Self-Placement.** This ordinal variable indicates the respondent's self-placement on the left/right scale. In the EVS Survey, respondents are asked how they would place their views on the left-right scale, generally speaking (v102). The scale goes from 1 (left) to 10 (right) (EVS, 2020b, p. 303). This scale is normalized to be a scale from 0 to 1.

**Party Groups.** This categorical variable assigns the respondents to one of four party groups. These party groups are constructed based on the value characteristics of the Norwegian political parties. The political parties are divided into "leftist parties", "right-wing parties", "other parties" and the Christian Democratic party. The leftist parties are

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[10]For instance, the Liberal Party (right-wing party) and the Socialist-Party (left-wing party) in Norway are given the same score on this scale.

[11]see Table A.1 in the Appendix.

Table 4.15: Explanatory Variables: Left-Right Self-Placement

| Variable | Coding description | Min.* | Max.** | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Untransformed* | Ordinal scale variable. 1 ("left") - 10 ("right") | 1 | 10 | 5.41 | 2.28 | 41436 |
| *Normalized* | | 0 | 1 | 0.49 | 0.25 | 41436 |

parties that are known to emphasize women's issues and promote women's equality: the Labor Party, the Socialist Left Party, and the Red Party. The right-wing parties consist of more conservative and liberal parties: the Conservative Party, the Progress Party, and the Liberal Party. The other parties consist of the Green Party and the Center Party, which are both at the center of the political spectrum in Norway. Lastly, the Christian Democratic Party is in it's own category, as this is the only party with clear religious influence.

Table 4.16: Party Groups: Norwegian EVS Sample

| Party Group | Count | % |
|---|---|---|
| Christian Democratic Party | 47 | 4.7 |
| Leftist parties | 394 | 39.2 |
| Right-wing parties | 418 | 41.6 |
| Other parties | 146 | 14.5 |

Table 4.17: Party Groups: NNES

| Party Group | Count | % |
|---|---|---|
| Christian Democratic Party | 72 | 4.5 |
| Leftist parties | 581 | 14.0 |
| Right-wing parties | 722 | 36.4 |
| Other parties | 223 | 45.2 |

### 4.3.4 Measuring Religion

To test hypotheses H5 and H6, which outline empirical expectations for the relationship between individual religiosity and attitudes, I include religiosity as variable in the em-

pirical analyses in Chapters 6 and 7. Religion can both be understood and measured in different ways. Either denominational affiliation or frequency of attending religious services are commonly used. Religious denomination does not necessarily indicate an individual's level of religious commitment, as denomination may be used purely nominally or as a cultural identifier (McAndrew & Voas, 2011, p. 2). As such, attending religious services is often employed as a measure for religiosity. Here, it is important to note that different religious orientations require different frequencies of religious attendance, and some prioritize personal practice at home. As previously mentioned, Inglehart and Norris identify religious participation, religious values and religious beliefs as core measures of secularization (Norris & Inglehart, 2011, p. 40).

In line with previous literature (Goldberg, 2020; Lachat, 2012; Tilley, 2015), I operationalize religiosity through a measure which employs both religious denomination and frequency of religious attendance. More precisely, I distinguish between non-affiliated, passive denomination members and active denomination members. I follow Langsæther's classification, in which passive denomination members are those expressing that they only attend religious services on special occasions, once a year or less, and active denomination members attend religious services at least once a month (Langsæther, 2019, p. 3). Non-affiliated individuals are those that respondent that they do not belong to any religious denomination.

**Religiosity** This categorical variable measures an individual's religiosity by indicating whether they are a non-affiliated individual, a passive religious member or an active religious member. The variable is created based on the individual's coding for "Religious Denomination" and "Religious Attendance".[12]. Individuals that are coded as not belonging to a religious denomination are coded as "Non-affiliated". Individuals coded as belonging to a religious denomination that attend religious services "Only on special holidays" or less often are coded as "Passive member", while denominational individuals that attend religious services "Once a month" or more are coded as "Active member".

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[12]See Appendix B: Coding of Variables for more details.

Table 4.18: Religiosity: EVS

| Religiosity | Count | % |
|---|---|---|
| Non-affiliated | 16551 | 32.7 |
| Passive member | 22781 | 45.0 |
| Active member | 11281 | 22.3 |

Table 4.19: Religiosity: Norwegian EVS Sample

| Religiosity | Count | % |
|---|---|---|
| Non-affiliated | 400 | 35.7 |
| Passive member | 593 | 52.9 |
| Active member | 128 | 11.4 |

Table 4.20: Religiosity: NNES

| Religiosity | Count | % |
|---|---|---|
| Non-affiliated | 788 | 42.8 |
| Passive member | 143 | 49.4 |
| Active member | 910 | 7.8 |

## 4.4   Control Variables

In this section, I outline the control variables I include in my empirical analyses, as well as the reasoning behind including them. Control variables are included in empirical analyses to avoid omitted variable bias. This bias occurs when one or more relevant explanatory variables are excluded from a model, which then can cause the coefficients to be biased. For descriptive statistics for the control variables see Appendix A: Descriptive Statistics.

### 4.4.1   Country-Level

**GDP per capita.** This numeric variable indicates the gross domestic product on a per capita basis. The values for this variable are retrieved from the variable "e_midgppc" in the V-Dem dataset (V-Dem, 2021). Modernization theory holds that socioeconomic development is linked to more liberal attitudes among the public (Inglehart & Welzel, 2005). GDP per capita is one indicator of a country's level of socioeconomic development.

Thus, this variable controls for whether a country's level of socioeconomic development is related to ART and abortion attitudes in that country.

### 4.4.2 Individual-Level

**Country.** This variable specifies the country name. The 31 countries included in this analysis are Albania, Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Italy, Lithuania, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom. These countries are the countries in which the individual respondents reside, and they provide the context in which they form their attitudes towards ART and abortion.

**Gender.** An individual's gender is operationalized as a binary variable. Men are given the value 0, while women are given the value 1.

Gender is found to be political orientation (Inglehart & Norris, 2000) and religiosity (Pew Research Center, 2016), as well as abortion (Osborne et al., 2022) and ART attitudes (Fortin & Abele, 2016). To get a better estimate of the correlation between political orientation and ART and abortion attitudes, I control for gender.

**Age.** This variable measures the respondent's age at the time that the survey was conducted. In the EVS survey, the age of the respondents ranges from 18 years to 82 years, while it ranges from 18 years to 79 years in the NNES survey. The variable is normalized to range from 0 to 1.

I control for age to get a better estimate of the main explanatory variables, as age is found to be related to political orientation and religiosity (Argue et al., 1999), as well as abortion (Osborne et al., 2022) and ART attitudes (Szalma & Djundeva, 2019).

**Education.** This categorical variable measures the respondents' educational attainment. Educational attainment is divided into three levels. First, respondents who have no education to primary education as their highest level of completed education are given the value 1 ("Less than high school"). Second, those with high school education as their highest level of completed education are given the value 2 ("High school education").

Lastly, those with a university degree as their highest level of completed education are given the value 3 ("Higher education"). In the NNES, the respondents have already been divided into these three categories. For the EVS respondents, the variable v243_edulvlb_2 is used to separate the respondents into three educational attainment categories. This variable is a harmonized variable for the highest educational level achieved (EVS, 2020b, p. 748).

In the Norwegian EVS sample 47.6% of the respondents have a university degree (3), while 40.3% of the Norwegian Election Study respondents are in this category. Both the percentages of respondents with primary education (1) or high school education (2) as their highest level of completed education is larger in the Norwegian Election Study sample compared to the Norwegian EVS sample.

I include this variable as educational attainment has been shown to be associated with both political orientation (Hastie, 2007) and religiosity (S. L. Albrecht & Heaton, 1984), as well as abortion attitudes (Osborne et al., 2022).

**Marital status.** This is a binary variable which indicates whether an individual is in a partnership or not. The variable is coded so that respondents who are married or in a registered partnership are given the value 1, while all other respondents are coded as 0.

For the EVS survey respondents, the variable is constructed using the EVS variable "v234", which asks what the respondents current legal status is (EVS, 2020b, p. 721). This entails that respondents with the value 1 ("married") and 2 ("registered partnership") are given the value 1, while all other respondents are given the value 0. The variable "Bak1" is used to construct the variable for the NNES survey respondents. Respondents with the value 1 ("married/registered partnership") retain the value 1, while all other respondents are given the value 0.

I control for marital status, as it has been associated with being more supportive of ART and less supportive of abortion (Mohamed, 2018).

## 4.5   Missingness

In this section I discuss the missing data on the variables I employ in this thesis and how I deal with this missingness in my analyses. All respondents will rarely have information on all variables in a survey. If the missing data is not accounted for, most analysis methods

will then only include respondents with complete data ("complete case analysis"). If the missing values are systematic, the data is not representative. While if they are missing data are random, the data is still representative (Christophersen, 2018, p. 80).

Out of the variables I use from both the EVS dataset and the NNES dataset, the variables with the most missingness are those related to political affiliation.[13] When constructing the country-level variables, I use the EVS variable where individuals report which political party they support (v174_cs), which has 20.8% missingness (Table C.10). For the subset of the EVS dataset that I use (30 countries), the left-right self-placement variable (v102) has 18.7% missingness. Similarly, the political party affiliation variable (Spm50) in the NNES dataset has 18.7% missingness. The other explanatory variables, dependent variables and control variables included in the three analyses have missing values on less than 6% of the observations.[14] There is no established cut-off for what is an acceptable amount of missingness in the data for valid statistical inferences. However, some suggestions are that less than 5% missingness is inconsequential (Schafer, 1999) or that more than 10% missingness results in bias in the statistical analysis (Bennett, 2001). More important, however, are the mechanisms behind the missingness in the data (Tabachnick & Fidell, 2019).

In this discussion I focus on the mechanisms of missingness for political orientation in the NNES and EVS data, as these are the only predictor variables with more than 10% missing values. The missing values for political orientation in the EVS and the NNES dataset appear to be Missing at Random ("MAR"). If respondents with certain political orientations are less likely to report their political orientation, the process is still MAR if political orientation is "a question to which at least some people respond" (King et al., 2001, p. 51). Moreover, the missingness may be "related to the observed data but not to the (unknown) value of the missing response itself" (Leeuw & Hox, 2008, p. 468). For the assumption of MAR is to hold the fact that individuals with these characteristics are less likely to report their political orientation must not be related to their attitudes towards AI/IVF, surrogacy or abortion.[15] Allison argues that when dealing with missingness on a predictor variable listwise deletion may be less biased than multiple imputation or maximum likelihood (ML) (Allison, 2002, pp. 6–7).

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[13]See Appendix C: Missingness for an overview of missingness on the variables included in the analyses.
[14]See Appendix C: Missingness.
[15]See Appendix C: Missingness for missingness analyses.

Considering I mostly have an issue with missingness on my predictor variable for political orientation and this missingness appears to be MAR, I choose listwise deletion to deal with the missing values in my data. In this approach, all cases with any missing observation are dropped from the analysis and the analysis is then based on the remaining data. As the missing data are MAR, the parameter estimates are still unbiased. The only issue is a loss of statistical power (Howell, 2007, p. 221). When analyzing the results, they should be interpreted with this in mind.

## 4.6   Validity of Empirical Approach

In this section I discuss the validity of the empirical approach. First, I will discuss the overall internal and external validity. Second, I go into depth about measurement validity, as this is important to consider when employing (cross-national) survey data. The discussion details measurement validity as it pertains to measuring attitudes, political orientation and religion.

### 4.6.1   Internal and External Validity

Here, I will discuss the internal and external validity of the results. The internal validity of the results is partly dependent on the strength of the associations, as well as whether these are significant at the conventional 5%-level in the social sciences. When estimates reach the 5%-level of statistical significance, this signifies that there is a 5% change that type-1 errors have occurred. Type-1 errors refer to instances where the null hypothesis has been falsely rejected: that is to say that the associations identified are in fact random, despite the model reporting statistical significance. In this thesis, other threats to internal validity of the results include the choice of models and the operationalization of the variables. The model choices, as well as how the variables are operationalized, are discussed in detail in each analysis chapter (see Chapters 5-7). As robustness checks for the operationalization of the dependent variables, I re-run the models employing NNES data in Chapter 7 with alternative cut-off points for the binary variables. The results remain robust when doing so. Further, in Chapter 7 I also re-run the models with an alternative operationalization of the explanatory variable party groups. The results remain robust when running the models with this alternative specifications of political orientations, measured as party group affiliation.

I employ observational data and more precisely cross-sectional survey-data. The European Values Study (EVS) provides cross-country data, while the Norwegian National Election Study (NNES) presents national data for Norway only. As I seek to draw some conclusions from this data, it is important to consider the limitations of observational, survey data in terms of establishing causality. The cross-national surveys do not include panel data, thus, there is no comparative data to measure an individual's attitudes at more than one point in time. When employing cross-sectional survey data, researchers highlight the inability of survey data to answer causal questions (Morton & Williams, 2010, p. 13). In other words, as the data I employ is cross-sectional, I cannot draw causal inferences based on my results. However, I do find correlations that are consistent with my theoretical expectations. Thus, I believe I am able to draw valid descriptive inferences based on my empirical analyses of the data, given that the models are correctly specified.

External validity refers to what extent the conclusions drawn from the results can be generalized. Put differently, whether the findings are applicable to other similar units, situations and times. External validity depends on whether the representativeness of a sample for the population as a whole (Gerring, 2005, p. 183). In Chapter 5 and Chapter 6, I utilize the EVS dataset, from which I include 30 of 44 European countries. The findings should be valid when generalized to the remaining population of European countries. Whether the findings related to political orientation and religiosity as explanatory variables apply to countries in other continents, will depend on the specific political and religious context in which individuals form their attitudes. For instance, the findings pertaining to religion may be applicable depending on the religious context in the country at hand, as the theorizing in this thesis emphasizes the Christian religious traditions.

For Chapter 7, the results are based on two samples of the Norwegian population (EVS and NNES). The findings should apply to Norwegian population at large, as well as other similar countries with similar party systems and relevant parties. The party groups have been constructed based on knowledge about the Norwegian party landscape, so depending on the country at hand, formulating other empirical expectations may be necessary.

## 4.7 Measurement Validity

In this subsection, I outline possible issues in this thesis pertaining to measurement validity. After defining measurement validity, I first discuss measurement equivalence for cross-national surveys. Then I provide an overview of potential issues and remedies when seeking to measure attitudes, political orientation and religion in turn.

Measurement validity refers to what extent the "observations meaningfully capture the ideas contained in the concept in a study" (Adcock & Collier, 2001, p. 529). In other words, do the operationalized variables precisely measure the theoretical concepts? This section will discuss validity in term of measurement validity with regards to whether the main dependent variables and explanatory variables adequately reflect the concept they are intended to measure. This thesis employs cross-sectional survey data from the EVS dataset and the NNES dataset, both from 2017. As the results in Chapter 7 show similar patterns between the dependent variables and the explanatory variables for the Norwegian sample in the EVS dataset and the NNES dataset, this increases my confidence in the findings.

### 4.7.1 Measurement Equivalence for Cross-National Surveys

The cross-national nature of the survey data is a potential threat to the validity of the results. Höllinger and Eder argue that "[c]ross-cultural comparisons presuppose that the investigated theoretical concepts and item formulations have at least a similar meaning across the compared countries and cultural areas" (Höllinger & Eder, 2016, p. 2). However, this may not be the case due to linguistic formulations, as well as issues with the functional equivalence of latent constructs. Functional equivalence refers to whether the surveys actually provide measures of the same attributes across countries (Ariely & Davidov, 2012, p. 366). As such, the content validity of various measurements may be at risk (Höllinger & Eder, 2016, p. 3). The survey questions in both EVS and NNES are close-ended, which reduces the risk of coding bias. As a result, this increases the reliability of the study (Bryman, 2015, p. 156), as the measurement of the variables is consistent across individuals (EVS and NNES) and countries (EVS). Due to the nature of close-ended questions, this entails that the respondents across countries all must understand the questions in the same way and the way that the researcher intended them to do. Otherwise this may pose a threat to the internal validity.

In this thesis, the main variables for which this may be an issue are those pertaining to political orientation and religion. The respondents in the EVS dataset exist with the same European context. Countries in Europe are internally more similar to one another in terms of political systems and religious traditions compared to countries in other regions. However, the concern about functional equivalence should still be kept in mind when interpreting the results.

### 4.7.2 Measuring Attitudes

In order to study the expression of attitudes scientifically, one needs to be able to compare them in a systematic way. Thus, attitudes must be classified into two or more categories. Oskamp and Schultz argue that attitudes preferably should be measured on a quantitative scale, which expresses the degree of favorability or unfavorability (Oskamp & Schultz, 2005, p. 44). The EVS survey measures attitudes towards both AI/IVF and abortion on a quantitative scale, where respondents indicate when they believe the attitude object is justifiable. On the other hand, the NNES survey measures attitudes towards surrogacy and abortion in two different manners. Attitudes towards surrogacy are measured as a Likert scale from "Completely disagree" (1) to "Completely agree" (5). Thus, respondents express their degree of favorability or unfavorability they feel towards surrogacy. In contrast, attitudes toward abortion are measured by respondents choosing between four provided statements to indicate which one best suits their beliefs about access to abortion. Thus, attitudes are classified into four different categories, which measure how permissive the respondent's attitudes are towards access to abortion. In summary, though the measures of attitudes towards reproductive choice are constructed differently between the two surveys, they all classify attitudes into two or more categories.

Due to the nature of attitudes as subjective reactions to objects, measuring explicit attitudes relies on self-reporting by the respondent (Oskamp & Schultz, 2005, p. 44). Several problems may arise when respondents answer attitude questions, which may affect the validity of the resulting attitude scales. These problems may result from how the respondents interpret the attitude question, their retrieval of relevant feelings and beliefs, and their selection of a response based on these retrieved feelings and beliefs (Oskamp & Schultz, 2005, p. 57). Furthermore, respondents sometimes decide on a response without any prior consideration of the issue. Response sets may also pose an

issue. This entails that respondents answer the questions in a consistent way, but in a way that is irrelevant to the concept being measured. Two common examples are acquiescence (yay- or naysaying, as a way of satisficing behavior) or social desirability bias (Bryman, 2015, pp. 216–217). I am not able to discern to what extent these problems apply to the EVS and the NNES datasets.

# 5 Exploring Country-Level Explanations for AI/IVF and Abortion Attitudes

This section seeks to explore two different country-level explanations for variation in AI/IVF and abortion attitudes: Engeli et al.'s 2012 "two worlds" typology and Inglehart and Welzel's (2005) cultural clusters. In this analysis, European countries are the units of analysis, as individual attitudes are aggregated to the country level. When testing the "two worlds" typology, the dependent variables in the models are between-party variance and within-party agreement. Then to test the applicability of cultural clusters for cross-country variation in attitudes, overall country mean is the dependent variable. I run separate analyses for each dependent variable, as constructed from individual AI/IVF and abortion attitudes. Additionally, I control for GDP per capita. Firstly, the results indicate that the "two worlds" theory only explains country-level variation in abortion attitudes. In other words, I find support for H1: "Being a "religious" country in the "two worlds" typology is associated with greater between-party variance and within-party agreement for abortion attitudes, but not for ART attitudes." Secondly, they indicate that cultural clusters are relevant for explaining variation in mean attitudes toward both AI/IVF and abortion across European country. Thus, the results provide support for H4 pertaining to cultural clusters as predictors of variation in AI/IVF and abortion attitudes across Europe.

## 5.1 Modeling Choices

In this analysis section, I test H1, which states that "Being a "religious" country in the "two worlds" typology is associated with greater between-party variance and within-party agreement for abortion attitudes, but not for ART attitudes.". Then, I test H4, which states that "Residing in the Catholic and Protestant clusters is associated with more positive attitudes compared to the Orthodox cluster, but Catholic and Protestant clusters are a stronger predictor for abortion attitudes than ART attitudes.". To test these hypotheses, I conduct an ordinary least squares (OLS) regression analysis with the European countries as the units of analysis. The main dependent variables (calculated for attitudes toward ART and abortion separately) are between-party variance and within-party agreement for H1, as well as country mean for H4. In this section, I first describe

the reasoning behind the model choice, before evaluating the assumptions associated with OLS in light of my models.

### 5.1.1 Model Choice: Ordinary Least Squares Regression

As the units of analysis are European countries, the regression models each have a limited number of observations (31 countries). Therefore, it is recommended to limit the number of explanatory variables in the model (Christophersen, 2018, p. 80). The main explanatory variable is whether a country belongs to the religious world or the secular world (Engeli et al., 2012). Additionally, I add GDP per capita as control variable. Consequently, due to the limited number of degrees of freedom and the issue of potentially over-fitting the model, other relevant control variables cannot be included in the regression models.[16] Thus, the analysis section of this chapter is mainly explorative. However, the results can still provide an indication of whether the two worlds framework can explain some of the variation in the degree of alignment between parties and individuals for AI/IVF (ART) and abortion attitudes.

### 5.1.2 Assumptions: Ordinary Least Squares Regression

To estimate the parameters in a regression, the ordinary least squares (OLS) minimizes the sum of squared residuals. OLS is intended to reduce the sum of squared differences between the observed values of the dependent variable in a dataset and the values predicted by the linear function of the independent variables. For the coefficients of the OLS regression to be reliable and unbiased, the following assumptions must hold: a constant error variance, independent error terms, normal errors, no multicollinearity and exogeneity (Christophersen, 2018, p. 73).

The dependent variables, between-party variance, within-party agreement and country mean, are all continuous variables. The OLS model assumes that there is a linear relationship between the dependent and the independent variables. When examining the residuals by continuous variable (GDP per capita) plots for the full models, they indicate that there is a linear relationship between the dependent variable and continuous independent variable. As there is no discernible pattern in the residual plots, it is appropriate to assume linearity for GDP per capita (Finch et al., 2014, p. 19).

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[16]See Appendix D: Alternative Models for the models run with other control variables.

Moreover, whether there is homoscedastic variance (constant error variance) is established by examining the residual by fitted plot. This appears to be the case for all four models. To evaluate, whether the residuals follow a normal distribution, I employ QQ plots (quantile-quantile plots). The residuals appear to largely follow a normal distribution, as the plots all show straight lines indicating that the data conforms to the normal distribution (Finch et al., 2014, p. 20). Lastly, after examining the variance inflation factors (VIFs) for the independent variables, these indicate no multicollinearity in all four models, as they are all close to 1. However, it is important to note that I only include one independent variable and one control variable in each model. Many other factors may be relevant for explaining cross-country variation in attitudes, which increases the likelihood of omitted variable bias in the models.[17]

## 5.2   The "Two Worlds" Typology and Partisan Attitudes

Morality politics literature attempts to explain the politicization of morality issues based on the presence of a significant Christian Democratic party in a country's party system. In this section, I attempt to ascertain whether the "two worlds" typology is helpful when seeking to examine variation in ART attitudes compared to abortion. The "two worlds" typology predicts that parties are more likely to voice their stances on morality issues in the religious world. Both AI/IVF and abortion are considered morality issues. Thus, party affiliation should be a more important predictor of attitudes toward AI/IVF and abortion in the religious world than the secular world.

However, if the party-politicization of ART does not depend on whether a country is defined as "religious" or "secular", the prediction based on the "two worlds" typology will not hold. The aim of this chapter is to examine whether the "two worlds" theory can account for some of the variation in how politicized ART is across Europe. Thus, this section tests H1: "Being a "religious" country in the "two worlds" typology is associated with greater between-party variance and within-party agreement for abortion attitudes, but not for ART attitudes".

First to get an idea of the difference in attitudes between the religious world and the secular world, I create the bar charts showing the distribution of AI/IVF attitudes and

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[17]See Appendix B: Alternative Models, for the models run with gender index and European Union membership as alternative control variables.

abortion attitudes in the secular world compared to the religious world. The bar charts show that the proportion of respondents in the EVS survey that state that AI/IVF is "always" (10) justified is much greater than the proportion which answers it is "never" (1) justified. This is the case for both the secular world and the religious world, though a larger proportion are positive in the secular world. The distribution of responses of how often abortion is justified is more varied, as a large proportion of respondents also answer abortion is "never" (1) justified in both the secular and the religious world.

Figure 5.1: Distribution of AI/IVF Attitudes: Two Worlds
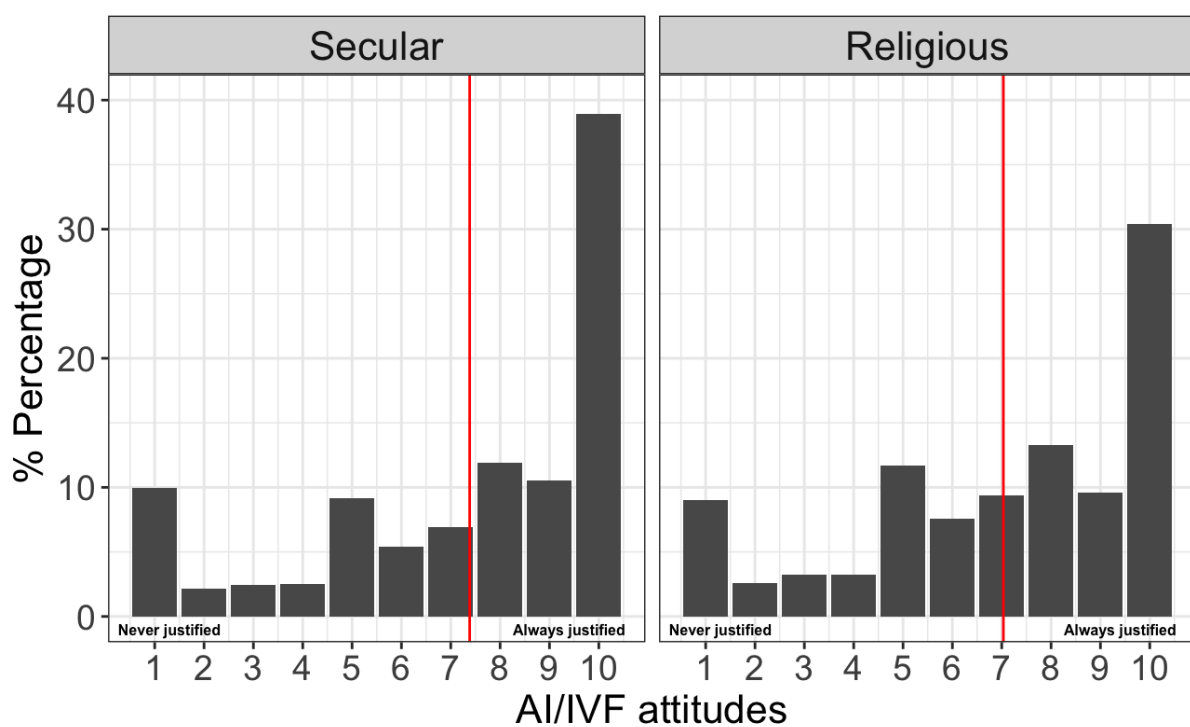


*Line indicates sample mean*

Figure 5.2: Distribution of Abortion Attitudes: Two Worlds



*Line indicates sample mean*
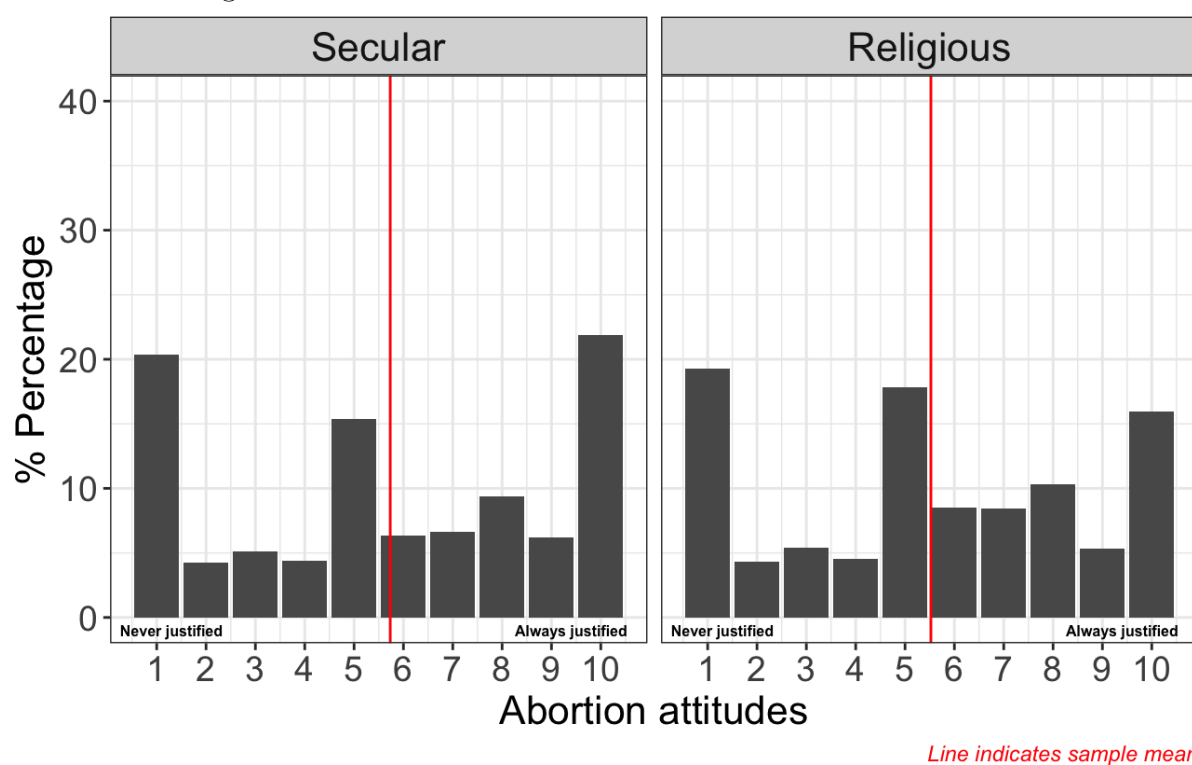
I estimate OLS regression models for the two dependent variables, as calculated for attitudes toward AI/IVF and attitudes toward abortion. Table 5.1 presents the results from the OLS models of the between-party variance regressed on whether a country belongs to the religious world or the secular world. This variable ("Religious world") is a dummy variable, where secular world is the reference category. None of the coefficients are statistically significant in the models for between-party variance in attitudes toward AI/IVF. For the models with between-party variance for attitudes toward abortion, the religious world coefficient is positive and statistically significant in Model 2a. Going from the secular world to the religious world increases between-group variance by 49.0 points. In Model 2b, when controlling for GDP per capita, both the religious world coefficient and GDP per capita are statistically significant and positive. A higher GDP per capita is associated with greater between-party variance in attitudes toward abortion. In this model, when controlling for GDP per capita, countries in the religious world have a between-party variance that is 45.5 points higher than those in the secular world.

Table 5.1: Between-Party Variation Given "Two Worlds" Classification

|  | Model 1a: AI/IVF | Model 1b: AI/IVF | Model 2a: Abortion | Model 2b: Abortion |
|---|---|---|---|---|
| Constant | 49.45 (18.73)* | 72.08 (31.75)* | 113.85 (17.03)*** | 68.21 (27.24)* |
| Religious world (ref: Secular) | −7.56 (23.93) | −5.81 (24.10) | 49.05 (21.75)* | 45.50 (20.67)* |
| GDP per capita |  | −0.00 (0.00) |  | 0.00 (0.00)* |
| $R^2$ | 0.00 | 0.03 | 0.15 | 0.26 |
| Adj. $R^2$ | −0.03 | −0.04 | 0.12 | 0.21 |
| Num. obs. | 31 | 31 | 31 | 31 |

OLS regression models with "Religious world" dummy (ref: Secular world) as the explanatory variable. GDP per capita is the only control variable. The dependent variable "within-party agreement" is calculated for AI/IVF and abortion attitudes. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Thus, the mean attitudes toward abortion vary more between political parties in the religious world than in the secular world. Put differently, the attitudes respondents hold towards abortion is less dependent on which political party they support in the secular world compared to the religious world. On the other hand, the results indicate that a country's level of between-party variation in AI/IVF attitudes is not associated with whether that country belongs to the secular or the religious world. According to the model results, the degree of politicization of AI/IVF attitudes, operationalized as between-party variance, does not depend on the presence of a significant Christian Democratic Party. As expected, there is greater between-party variation in the religious world than in the secular world. This suggests that individuals in the religious world are grouped in parties by their attitudes toward abortion to a greater extent than individuals in the secular world.

Next, I discuss the results from the OLS models of the within-party agreement regressed on whether a country belongs to the religious world or the secular world (Table 5.2). Again, the religious world variable is the only explanatory variable in Model 1a (AI/IVF) and Model 2a (abortion). The religious world coefficient is only statistically significant in Model 2a, for which within-party agreement for abortion is the dependent variable. The religious world dummy variable is negative (-0.13). Further, when including the GDP per capita as a control variable in the models, the religious world coefficient remains statistically significant and negative for the model with within-party agreement for abortion as the dependent variable (Model 2b). In countries belonging to the religious

Table 5.2: Within-Party Agreement Given "Two Worlds" Classification

|  | Model 1a: AI/IVF | Model 1b: AI/IVF | Model 2a: Abortion | Model 2b: Abortion |
|---|---|---|---|---|
| Constant | 0.29 (0.06)*** | 0.05 (0.09) | 0.19 (0.04)*** | 0.12 (0.07) |
| Religious world (ref: Secular) | −0.06 (0.08) | −0.08 (0.07) | −0.13 (0.05)* | −0.14 (0.05)* |
| GDP per capita |  | 0.00 (0.00)** |  | 0.00 (0.00) |
| $R^2$ | 0.02 | 0.28 | 0.17 | 0.22 |
| Adj. $R^2$ | −0.02 | 0.23 | 0.15 | 0.16 |
| Num. obs. | 31 | 31 | 31 | 31 |

OLS regression models with "Religious world" dummy (ref: Secular world) as the explanatory variable. GDP per capita is the only control variable. The dependent variable "within-party agreement" is calculated for AI/IVF and abortion attitudes. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

world, the average value of within-party agreement is 0.13 lower than for countries in the secular world. As the agreement measure ranges from -1 (polarization) to 0 (no agreement) to 1 (agreement), this entails that there is on average less consensus within parties in the religious world. This is contrary to H1, which anticipates that religious countries will have within-party agreement than secular countries. In Model 1b, the religious world coefficient is still not statistically significant for within-party agreement for AI/IVF, as expected by H1.

Thus, the "two worlds" theory only appears to be relevant for variation in the level of within-party agreement in abortion attitudes. While none of the control variables are significant in Model 2b, the coefficient for GDP per capita is positive and statistically significant in Model 1b. The model indicates that being a country with a higher GDP per capita is related to greater within-party agreement. Perhaps initially counter-intuitively, there is actually less within-party agreement in the religious world than in the secular world. The fact that there is less within-party agreement indicates that there is greater variation in attitudes towards abortion within each political party in religious countries than in secular countries. This may be a reflection of the fact that there are greater individual differences in attitudes towards abortion in religious countries.

The results partially support H1, as the "two worlds" typology is only a predictor for the relationship between party affiliation and individual abortion attitudes. There is greater between-party variance for abortion attitudes in religious countries, as expected

by H1. Contrary to H1, however, religious countries are associated with less within-party agreement. Most importantly for this thesis, after outlining the results, the theory does not appear to account for differences in the relationship between party affiliation and individual AI/IVF (ART) attitudes in Europe. The religious world coefficient is not significant in any of the models where the dependent variable is related to individual attitudes toward AI/IVF. In other words, when examining the variation in the relationship between party affiliation and individual attitudes, operationalized as between-party variance and within-party agreement, the "two worlds" typology does not appear to account for any of the between-country variation of AI/IVF (ART) attitudes in Europe.

## 5.3  Cultural Clusters and Variation in Attitudes

In this section, I examine whether cultural clusters may account for some of the between-country variation in attitudes towards AI/IVF and abortion. First, I show the distribution of mean country attitudes toward AI/IVF and abortion for the European countries included in the analysis, before I run OLS regressions to ascertain whether there is a relationship between cultural clusters and mean attitudes towards AI/IVF and abortion in Europe.

First, figure 5.3 shows the distribution of AI/IVF attitudes across the three cultural clusters. The bar plots show that the "always" (10) justifying AI/IVF is the value chosen most frequently by respondents in all three cultural clusters. A larger proportion of respondents have chosen "never" (1) justifying AI/IVF in the Catholic and Orthodox clusters compared to the Protestant cluster.

Turning to abortion attitudes in Figure 5.4, the three bar plots are more different to one another. For the Protestant cluster, the "always" (10) justifying abortion is the value chosen most by the respondents. Then for the Catholic cluster, the similar proportion of individuals have chosen 1 ("never"), 5 (mid-point), and 10 ("always") as their response to how often they justify abortion. Lastly, for the Orthodox cluster, the largest proportion of respondents have chosen 1 ("never") as their response to how often they justify abortion. Altogether, this indicates that there is variation across the cultural clusters, but attitudes are the most different across the clusters for abortion attitudes.

Figure 5.3: Distribution of AI/IVF Attitudes: Cultural Clusters
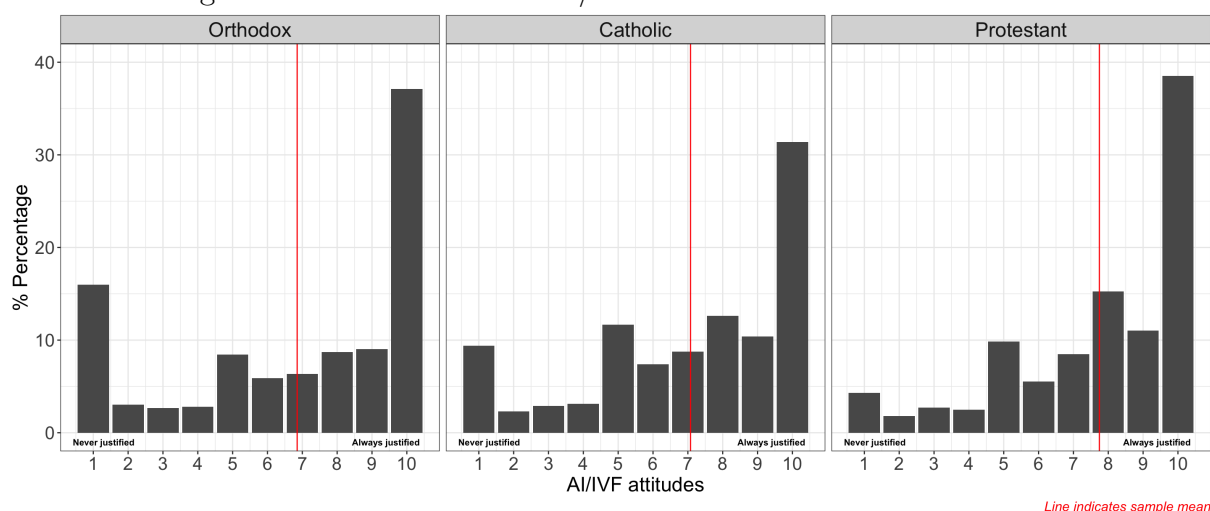


Figure 5.4: Distribution of Abortion Attitudes: Cultural Clusters
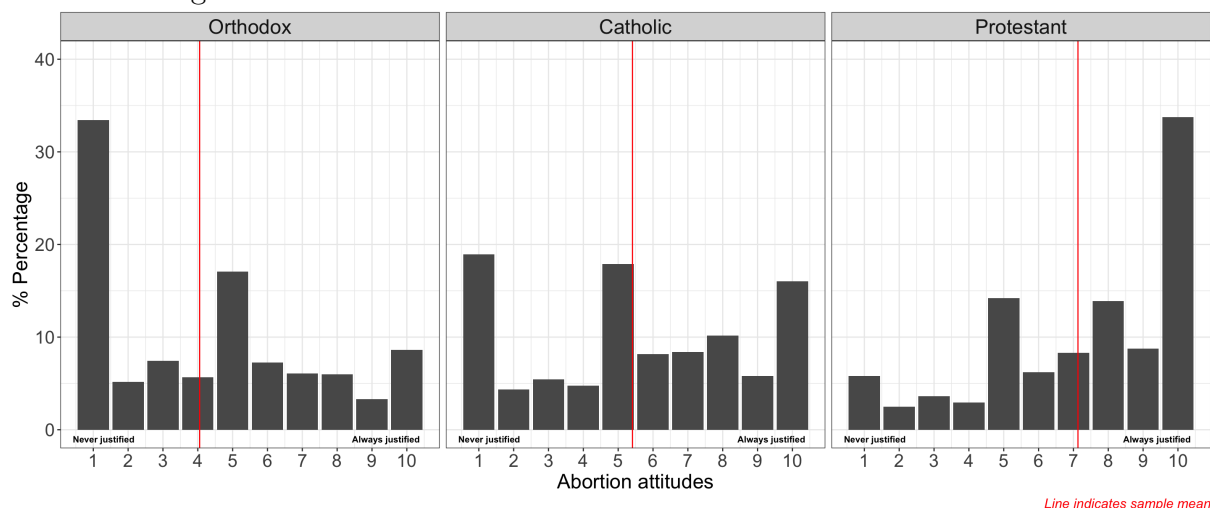


To test H4: "Residing in the Catholic and Protestant clusters is associated with more positive attitudes compared to the Orthodox cluster, but Catholic and Protestant clusters are a stronger predictor for abortion attitudes than ART attitudes." at the country-level, I run OLS regressions with cultural clusters as the explanatory variable: one with mean country AI/IVF attitudes as the dependent variable and one with mean country abortion attitudes as the dependent variable. In addition, I include GDP per capita as a control variable. Cultural clusters is a categorical variable, as the European countries are classified into three clusters: Protestant Europe, Catholic Europe and Orthodox Europe. Orthodox Europe is the reference category in the models.

The results in Table 5.3 show that the coefficients for Protestant Europe is positive and significant in Model 1a (1.05). When controlling for GDP per capita in Model 1b,

the Catholic cluster also becomes statistically significant and positive (1.04) and the Protestant Europe coefficient is larger (2.32) than in Model 1a. In both models with mean abortion attitudes as the dependent variable, both the Protestant and Catholic Europe coefficients are positive and statistically significant. However, the coefficients are smaller in Model 2b, when controlling for GDP per capita. For both AI/IVF and abortion, the coefficients for Protestant Europe are larger than those of Catholic Europe. Overall, when controlling for GDP per capita, the average attitudes towards AI/IVF and abortion are significantly more positive in countries in Protestant and Catholic Europe compared to countries in Orthodox Europe. This follows from the fact that Protestant Europe is situated higher on the traditional versus secular-rational scale and the survival versus self-expression scale, compared to both Catholic Europe and Orthodox Europe (World Values Study, n.d.). However, the explanatory power of cultural is greater for abortion attitudes than AI/IVF attitudes.

To sum up, the results from the models support H4 that "Residing in the Catholic and Protestant clusters is associated with more positive attitudes compared to the Orthodox cluster, but Catholic and Protestant clusters are a stronger predictor for abortion attitudes than ART attitudes".

Table 5.3: Mean Country Attitudes Given Cultural Cluster

|  | Model 1a: AI/IVF | Model 1b: AI/IVF | Model 2a Abortion | Model 2b: Abortion |
|---|---|---|---|---|
| Constant | 6.79 (0.27)*** | 3.58 (0.43)*** | 4.01 (0.30)*** | 3.58 (0.43)*** |
| *Cultural clusters* (ref: Orthodox Europe) |  |  |  |  |
| Protestant Europe | 1.05 (0.36)** | 2.32 (0.71)** | 3.13 (0.41)*** | 2.32 (0.71)** |
| Catholic Europe | 0.31 (0.34) | 1.04 (0.44)* | 1.36 (0.38)** | 1.04 (0.44)* |
| GDP per capita |  | 0.00 (0.00) |  | 0.00 (0.00) |
| $R^2$ | 0.25 | 0.71 | 0.68 | 0.71 |
| Adj. $R^2$ | 0.20 | 0.67 | 0.66 | 0.67 |
| Num. obs. | 30 | 30 | 30 | 30 |

OLS regression models with cultural clusters as the explanatory variable and GDP per capita as the control variable. The dependent variable "country mean" is calculated for AI/IVF and abortion attitudes. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

# 6 Explaining Individual Attitudes Toward AI/IVF Compared to Abortion

The previous chapter (Chapter 5) established that while the "two worlds" typology appears to be relevant for explaining the relationship between party affiliation and abortion attitudes across European countries, this typology is not helpful for explaining variation in assisted insemination (AI) and in-vitro fertilization (IVF) attitudes. On the other hand, the findings from Chapter 5 indicate that cultural clusters account for variation in attitudes between European countries. After establishing what country-level variables are relevant for individual attitudes, this chapter seeks to examine both what country-level and individual-level factors explain variation in individual attitudes toward AI/IVF (ART) compared to abortion.

To examine what explains the variation in these attitudes, I run multilevel models, where EVS respondents are the units of analysis. The two dependent variables in the models are AI/IVF (ART) attitudes and abortion attitudes, operationalized as to what extent respondents justify AI/IVF and abortion respectively. As I seek to identify the explanatory power of political orientation and religious explanations, the main variables at the individual-level (level-1) are left-right self-placement and religiosity. Motivated by the findings in Chapter 5, cultural clusters are included as an explanatory variable on the country-level (level-2). The results indicate that religiosity is a more important predictor for individual attitudes towards AI/IVF and abortion than left-right self-placement, and that the explanatory power of both individual religiosity and cultural clusters is greater for abortion attitudes than for AI/IVF attitudes.

## 6.1 Descriptive Statistics

This section presents descriptive statistics, which highlight the difference in the distribution of attitudes toward abortion and ART (AI/IVF) in the European Values Study (EVS) dataset. I present these descriptive statistics to illustrate why the same explanatory variables may not hold the same predictive power for AI/IVF and abortion attitudes, as European individuals are generally more supportive of AI/IVF than abortion.

Attitudes toward AI/IVF and abortion are measured on an ordered scale from 1 to 10. AI/IVF and abortion are both items in a section of the survey where individuals

are asked to indicate whether they think the items, including AI/IVF and abortion, can be "always justified, never be justified, or something in between" (EVS, 2020b). By answering 1 the respondent indicates that they believe the item can never be justified, while answering 10 indicates that respondents believe it can always be justified.

48,928 respondents answered the question about how often they believe AI/IVF can be justified (NAs: 2069). Comparatively, 49,256 respondents provided an answer about abortion (NAs: 1741). There is a substantial difference in the proportion of respondents that are unequivocally positive to ART compared to abortion. While 35.5% of the respondents stated that they believe AI/IVF always can be justified (10), 19.4% stated that they believe abortion always can be justified (10). On the other side of the ordered scale, a very similar proportion of respondents, 19.9%, indicated that they believe abortion never can be justified (1). In contrast, 9.6% of respondents stated they believe AI/IVF never can be justified (1). The scales for ART and abortion are both from 1 (never) to 10 (always). Thus, 5 can be considered the midpoint of this scale, which may represent a neutral answer to the question. The proportion of respondents choosing to answer 5 compared to either 1 (never) or 10 (always) is relatively larger for abortion than ART. 16.4% gave 5 as their response to abortion, while 10.2% did so for ART.

To visualize these differences in the distribution of attitudes between ART and abortion, I employ simple bar charts. For ART, the distribution of values is negatively skewed, as a majority of the values are found on the right-hand side of the graph (see Figure 6.1 below). The distribution of abortion attitudes is trimodal (see Figure 6.2 below), as there are three peaks divided by two antinodes. In other words, the EVS survey indicates that abortion attitudes are more polarized than ART attitudes in Europe.[18]

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[18]I include the distributions for each individual country in the Appendix, see Figure A.2 and Figure A.3.

Figure 6.1: Distribution of AI/IVF Attitudes



*Line indicates sample mean*
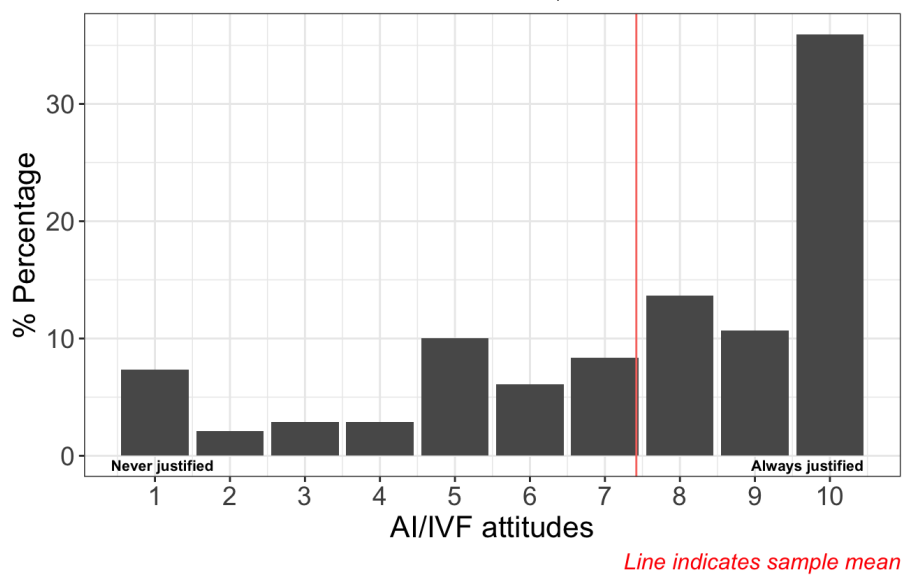
Figure 6.2: Distribution of Abortion Attitudes



*Line indicates sample mean*
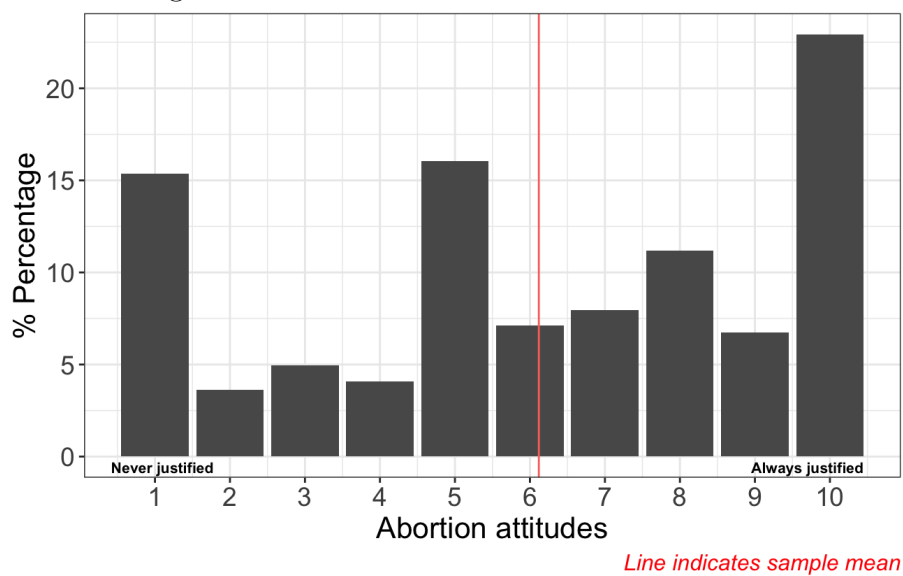
## 6.2 Modeling Choices

To examine what explains variation in ART attitudes compared to abortion attitudes, I utilize the EVS 2017 Survey. In this analysis, the survey respondents are the units of analysis. Due to the nested nature of the dataset, I estimate linear multilevel models (MLM). The respondents in the EVS can be identified by their country of residence. In other words, the respondents are nested in identifiable contexts, in which macro-political environments they form attitudes (Anderson & Singer, 2008, p. 566). As such, the lowest level of data is the individual respondent (level-1), while the highest level in the analysis is the respondent's country of residence (level-2). Thus, I can estimate regression models where the outcome variable (attitudes) is at level-1, which can be explained by variables at both level-1 (individual-level) and level-2 (country-level).

For ease of interpretation, the numeric variables are normalized from 0 to 1.[19] When interpreting the coefficients of the two numeric variables, left-right self-placement and age, the coefficients reflect the predicted effect of going from the minimum to the maximum value for that variable. In other words, going from 0 to 1 is the equivalent of going from left (1) to right (10) on the self-placement scale, and of going from the youngest respondent (18) to the oldest respondent (82).

EVS recommends the use of calibration weights (gweight) and population size weights (pweight) when for research with country comparison with combined statistics. To represent the countries and their populations most accurately, I use these two weights. The main purpose of calibration weights is adjusting for sociodemographic characteristics in the sample population in each country for "the potential reduction in an estimate's variance and the potential reduction in bias due to nonresponse/missing data" (6). Population size weights avoids the overrepresentation of small countries by "rescaling the weights to a shared denominator across all countries" (8).[20]

I run separate analyses for the two dependent variables: attitudes toward abortion and attitudes toward AI/IVF. By doing so, I aim to ascertain how the estimated explanatory power of the variables differs between the models with the two outcome variables.

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[19]As I have no assumptions that the differences in the dependent variable are due to relative differences within each country, I do not normalize the variables relative to the group mean (Hox, 2010, pp. 61–62).

[20]See Table D.24 for results without weights. These results are largely similar to those in the weighted analyses. Note that for the predicted values, I employ these models without weights, as the models with weights are not compatible with the usual R functions for calculating predicted values.

### 6.2.1   Model Choice: Multilevel Model

The EVS 2017 Survey data is hierarchical, as respondents are nested within countries. A hierarchical data structure should be modeled if there is interdependence between respondents in the level-2 contexts. Respondents residing in the same country are likely to be more similar to each other than respondents from different countries: observations in this dataset are not independent from one another (Christophersen, 2018, p. 108).

To examine whether correlation within countries is an issue in my sample, I calculate the intraclass correlation (ICC) for the two samples. The ICC estimate refers to the proportion of group-level variance compared to the total variance in the data. This estimate can be calculated by specifying null models, where only random intercepts are permitted. In other words, I calculate two ICCs which show the proportion of the total variation in abortion attitudes and AI/IVF attitudes that can be assigned to differences between countries. Christophersen states that multilevel models are preferable to single-level models if the higher-level units account for at least of 5% of the variation in the dependent variable (Christophersen, 2018, p. 111).

The ICC estimate for AI/IVF attitudes indicates that 8.1% of variation in AI/IVF attitudes can be attributed to country-level differences. In comparison, 21.7% of the variation in abortion attitudes can be attributed to country-level differences. Country-level differences appear to account for a greater proportion of individual attitudes toward abortion than AI/IVF. However, both ICC estimates are above the 5% threshold. A multilevel model specification should be preferred for both models, as respondents are not statistically independent from one another within countries.

### 6.2.2   Assumptions: Multilevel Model

MLM is a variation of the linear model, which entails that it has a common set of underlying assumptions with the general linear model (Field & Wilcox, 2017, p. 5). The two main assumptions of the linear model are (1) linearity and additivity, and (2) spherical residuals (Field & Wilcox, 2017, p. 5). The two dependent variables, AI/IVF attitudes and abortion attitudes, are treated as continuous, metrical variables. To meet the spherical errors assumption, residuals must be both independent and homoscedastic. The residuals must also be non-auto-correlated (Hox, 2010, p. 23).

When inspecting the residuals, the relationship between AI/IVF attitudes and abor-

tion attitudes and the continuous variables appear to be only linear (see plots in Appendix). The residuals for predicted AI/IVF attitudes appear to be slightly heteroscedastic and left-skewed. The distribution of observed AI/IVF attitudes varies greatly between countries, as such the model is not accurate when predicting either low or high values. As the skewness of the residuals indicates, the model particularly underpredicts for individuals that hold positive AI/IVF attitudes. The residuals for predicted abortion attitudes are also heteroscedastic, however they are normally distributed.

When running MLMs, the sample size at level-2 is important to consider. The number of level-2 units in my analysis is the limited by the number of countries that appear in the EVS dataset. While there is no absolute rule to how many level-2 units are necessary for a multilevel analysis, statistical limitations are greater when there are fewer level-2 units. Moreover, when there are relatively few level-2 units, caution is necessary when adding level-2 variables to the analysis. Strabac posits that every 10 level-2 units warrants the inclusion of an additional level-2 variable (Strabac, 2012, p. 186), while Stegmueller holds that 10-15 level-2 units are necessary (Stegmueller, 2013, p. 16). As I have 30 level-2 units in my analysis (European countries), I only include the cultural clusters variable as a level-2 variable .

## 6.3   Results and Discussion

To examine what factors are relevant for explaining variation in AI/IVF attitudes compared to abortion attitudes, I estimate linear multilevel models (MLMs) where the intercepts vary by country, in order to take into account that the respondents are nested in countries. Table 6.1 shows the output from the MLMs of individual attitudes toward AI/IVF and abortion regressed on both the individual characteristics (level-1) and world cultural clusters (level-2). The level-1 variables included are left/right self-placement, religiosity, gender, age, education and marital status. The categorical variable for world cultural clusters is the only level-2 variable included in the models. The models include random intercepts for each country, which are included in the appendix.[21]

In this results section, I focus on the two main explanatory variables for explaining how attitudes differ across two different reproductive issues: AI/IVF and abortion: left-right self-placement and religiosity. Furthermore, as I draw on Inglehart and Welzel's Cultural

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[21]See Appendix E: Evaluating Models.

Map theory, I examine how cultural clusters account for variation in individual attitudes toward AI/IVF and abortion. In Chapter 5 I identified that the presence of a Christian Democratic Party in the political system does not appear to account for variation in the politicization of AI/IVF attitudes in Europe, while cultural clusters (Protestant, Catholic and Orthodox) appear to be associated with the average attitudes towards both AI/IVF and abortion in a country.

Table 6.1: Attitudes Given Left-Right Self-Placement and Religiosity

|  | Model 1: IVF attitudes | Model 2: Abortion attitudes |
| --- | --- | --- |
| Constant | 0.74 (0.02)*** | 0.67 (0.03)*** |
| Left-right self-placement | −0.06 (0.02)*** | −0.10 (0.02)*** |
| *Religiosity (ref: Non-affiliated)* | | |
| Passive member | −0.01 (0.01) | −0.07 (0.01)*** |
| Active member | −0.12 (0.01)*** | −0.23 (0.02)*** |
| Gender (ref: Male) | 0.04 (0.00)*** | 0.02 (0.00)*** |
| Age | −0.11 (0.01)*** | −0.05 (0.02)*** |
| *Education (ref: Less than high school)* | | |
| High school | 0.05 (0.01)*** | 0.07 (0.01)*** |
| Higher education | 0.09 (0.01)*** | 0.13 (0.01)*** |
| Marital status (ref: Not married) | 0.01 (0.00)* | −0.02 (0.00)*** |
| *Cultural clusters (ref: Orthodox Europe)* | | |
| Protestant Europe | 0.07 (0.02)** | 0.21 (0.03)*** |
| Catholic Europe | 0.05 (0.02)* | 0.15 (0.03)*** |
| AIC | 15700.41 | 16408.31 |
| Log Likelihood | −7837.20 | −8191.16 |
| Num. obs. | 38407 | 38537 |
| Num. groups: Countries | 30 | 30 |

Linear multilevel regression models, where individuals are nested in countries. Random intercepts for each country. The numeric variables Left-right self-placement and Age are normalized from 0 to 1. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

### 6.3.1 Cultural Clusters

First, I discuss the results as they pertain to H4. Drawing on Inglehart and Welzel's revised version of modernization theory and their world cultural maps, this hypothesis anticipates that "Residing in the Catholic and Protestant clusters is associated with more positive attitudes compared to the Orthodox cluster, but Catholic and Protestant clusters are a stronger predictor for abortion attitudes than ART attitudes.". The reference category for the cultural clusters variable is "Orthodox Europe".

In the Model 1 with AI/IVF attitudes as the dependent variable, the "Catholic Europe" and the "Protestant Europe" coefficients are statistically significant and both coefficients are positive. As anticipated by the religious traditions, the "Protestant Europe" coefficient (0.07) is slightly larger than the "Catholic Europe" (0.05). Similarly, in Model 2 with abortion attitudes as the dependent variable, both the "Catholic Europe" and "Protestant Europe" coefficients are statistically significant and positive. The "Protestant Europe" coefficient (0.21) is larger than the Catholic Europe coefficient (0.15). Put differently, when controlling for individual level characteristics, residing in Orthodox countries is associated with less positive for AI/IVF and abortion attitudes compared to residing in Catholic or Protestant Europe. As anticipated by H4, the explanatory power of cultural clusters is greater for abortion attitudes than AI/IVF attitudes.

To illustrate the explanatory power of cultural clusters on individual attitudes, I will now briefly discuss the predicted AI/IVF and abortion attitudes for respondents in the three cultural clusters. To calculate the predicted values, I set the categorical variables to the sample mode and the continuous variables to their sample means. As respondents are nested into both countries and cultural clusters, I select a country within each cluster that the predicted value is calculated for.[22] Again, the normalized scale for attitudes goes from 0 to 1. For an individual in the Protestant cluster, the predicted value for AI/IVF attitudes is 0.84, while the predicted values for an individual in the Catholic and Orthodox clusters are 0.77 and 0.64, respectively. The predicted value for abortion attitudes in for an individual in the Protestant cluster is 0.77, while it is 0.61 and 0.43 for the Catholic and Orthodox clusters respectively. This illustrates that the differences between individuals across the clusters are larger for abortion than AI/IVF.

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[22]These are the countries I employ: Norway (Protestant cluster), Austria (Catholic cluster) and Romania (Orthodox cluster).

As anticipated by H4, the results indicate that what cultural clusters a respondent resides in, is a predictor of their attitudes towards AI/IVF and abortion. Residing in countries belonging to the Catholic and Protestant clusters is associated with more positive attitudes towards both AI/IVF and abortion attitudes. With regards to the actual teachings of the Christian churches, this may appear somewhat surprising, as the Catholic Church has been the most vocal about opposing IVF. However, countries in the Orthodox Europe cluster scores lower than both Catholic and Protestant countries on both the traditional versus secular values scale and the survival versus self-expression values scale. Thus, this perhaps provides an explanation of why individuals in Orthodox Europe also are less positive toward AI/IVF. AI/IVF opens up the possibility for both new, family formations and new technological approaches to overcoming infertility. In turn, individuals in countries with more traditional value systems may be more skeptical to IVF as an emerging issue. Moreover, as mentioned by Inglehart and Welzel, the Orthodox Europe cluster also comprises of many former communist countries. Especially in later years, there has been an opposition to the notion of gender and a move towards less permissive reproductive rights in Central and Eastern Europe (Hesová, 2021).

### 6.3.2 Left-Right Self-Placement

H2 anticipates that "Left-leaning individuals are more positive towards both ART and abortion than right-leaning individuals, but political orientation is a stronger predictor for abortion". This hypothesis holds for both the model with AI/IVF as the dependent variable and the one with abortion as the dependent variable. The left/right self-placement variable is statistically significant at the conventional level ($p<0.05$) and negative for all the models with AI/IVF attitudes as the dependent variable, as well as those with abortion attitudes as the dependent variable. This indicates that individuals further to the right-end of the political spectrum are more negative towards both AI/IVF and abortion than more left-leaning individuals in their country.

When holding the other variables constant, the explanatory power of left-right self-placement is substantially almost the same for AI/IVF and abortion attitudes. In the full model with AI/IVF attitudes as the dependent variable, one unit increase on the normalized left-right self-placement scale decreases the AI/IVF attitudes by -0.06. In other words, going from the furthest left end on the political spectrum (0) to the furthest

right end (1) reduces the attitudes to IVF by -0.06. Considering that the scale measuring attitudes also goes from 0 to 1, this does not represent a substantial decrease in support for AI/IVF.

In comparison, one unit increase on the normalized left-right self-placement scale decreases the predicted abortion attitudes by -0.10. Put plainly, going from the furthest left (0) to the furthest right (1) on the left-right self-placement scale reduces attitudes towards abortion by -0.10. Though the coefficients are similar in size for AI/IVF and abortion attitudes, the coefficient is marginally larger for abortion attitudes, as anticipated by H2.

To illustrate the correlation between political orientation and attitudes, I compare the effect of left-right self-placement on predicted values compared to that of age. The coefficients for age are of similar size to those of left-right self-placement, though the age coefficient is larger for AI/IVF attitudes (-0.11) than abortion attitudes (-0.05). Again, as the age coefficients are also normalized from 0 to 1, the age coefficients represent the predicted effect of going the youngest age in the sample (18 years old) to the oldest (82 years old). To visualize this, I include predicted values figures for varying values left-right self-placement compared to those for varying age below (Figure 6.3 and Figure 6.4). Here, either left-right self-placement or age is allowed to vary, while the other variables are kept constant. The categorical (dummy) variables are set to the sample mode, while the numeric variables are set to the sample mean.

Figure 6.3: Predicted AI/IVF Attitudes
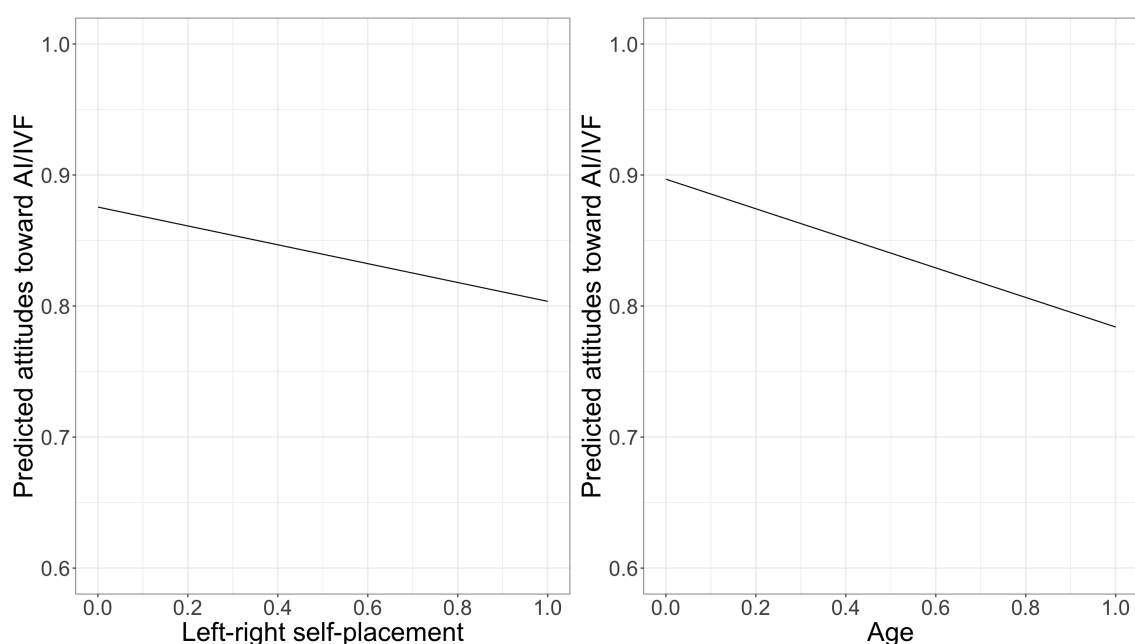
Figure 6.4: Predicted Abortion Attitudes
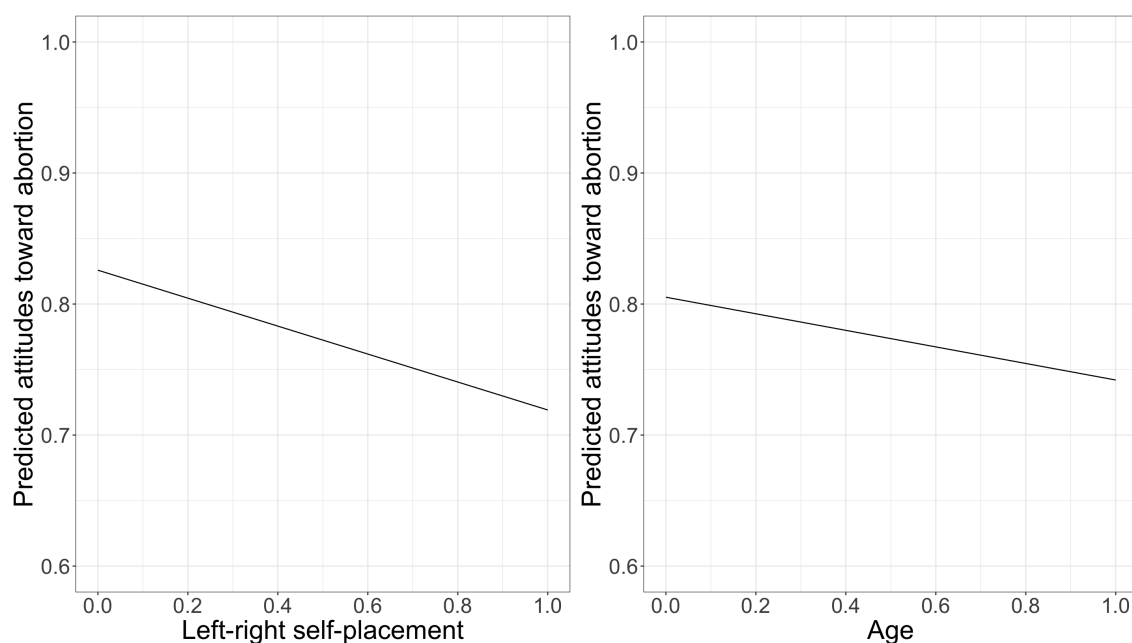


Overall, the results support previous findings in the literature for both IVF and abortion attitudes (Fortin & Abele, 2016; Huang et al., 2016; Shreffler et al., 2010; Sigillo et al., 2012), as being more left-wing is a predictor of more positive attitudes towards IVF and abortion. However, it is worth noting, that mean effect of political orientation, operationalized as left-right self-placement, is not particularly large. Though, the relationship between political orientation and attitudes is in the expected direction, other predictors have greater explanatory power for both AI/IVF and abortion attitudes. This is in line with existing research for abortion attitudes, which finds that religiosity, as discussed in the following section, is the strongest predictor of abortion attitudes compared to other demographics.

### 6.3.3 Religiosity

To assess the role of religiosity on AI/IVF and abortion attitudes, I differentiate between non-affiliated individuals, passive denominational members and active denominational members. Non-affiliated individuals are set as the reference category for this explanatory variable. While H4a anticipates that both the passive and active denominational membership is associated with less positive attitudes towards ART and abortion, only the active member coefficients are statistically significant and negative in both models (see Table 6.1). The passive member coefficient is only statistically significant in Model 2

(Abortion attitudes), where the coefficient is negative and smaller than the active member coefficient. In other words, being a passive member has less explanatory power for attitudes compared to being an active member in both models. This supports H5b, which anticipates that being an active denominational member is a stronger predictor of ART and abortion attitudes than being a passive denominational member.

In Model 1, which has AI/IVF attitudes as the dependent variable, the active member coefficient has a value of -0.12. In other words, individuals that are active denominational members are predicted to hold less positive attitudes towards AI/IVF than non-affiliated members. As all variables are normalized from 0 to 1, a decrease of -0.01 for active members compared to non-affiliated individuals is relatively small with regards to an individual's degree of justifying AI/IVF (0 = "never" to 10 = "always"). In Model 2, which has abortion attitudes as the dependent variable, the passive member coefficient has a value of -0.07. On the other hand, the active member coefficient has a value of -0.23. This is almost twice as large as the active member coefficient in the model for IVF attitudes. These results indicate that religiosity overall has less explanatory power for AI/IVF attitudes compared to abortion attitudes, which is also in line with H5a.

Previous research identifies religiosity as having an important impact on political values (Duriez et al., 2002; Knutsen, 2018), as well as toward abortion attitudes specifically (Jelen, 2014; Jelen & Wilcox, 2003; Lizotte, 2015; Luker, 1984; Norrander & Wilcox, 2002). The explanatory power of religiosity is also identified in the data, as being both passive and active denominational members is associated with being less supportive of both AI/IVF and abortion. However, religiosity has less explanatory power for AI/IVF attitudes in comparison to abortion attitudes. All Christian denominations stress the sanctity of life with some distinctions, such as the Catholic Church, even emphasizing that life begins at the moment of conception. Only the Catholic Church has spoken out against IVF at the official level. This may be a part of the explanation for why the relationship between religiosity and individual attitudes is weaker for AI/IVF compared to abortion.

### 6.3.4  Control Variables

All the control variables are statistically significant at conventional levels (p<0.05) in the full models for both AI/IVF and abortion attitudes (see Table 6.1). The results from both

full models indicate that women are more positive to AI/IVF and abortion than men. The relationship between age and both AI/IVF and abortion is negative: older individuals hold less positive attitudes to AI/IVF and abortion than younger individuals. On the other hand, having more education is associated with more positive AI/IVF and abortion attitudes. Individuals with either completed high school education or anything beyond a high school education are more positive to both AI/IVF and abortion. Lastly, being married increases an individual's support for AI/IVF, while it decreases an individual's support for abortion, when controlling for the other variables in the models.

# 7 Disaggregating ART: Attitudes Toward IVF and Surrogacy

In the previous chapter (Chapter 6) analyzing survey data from the European Values Study (EVS), the results indicate that political orientation, operationalized as left-right self-placement, is a less important predictor of both AI/IVF and abortion attitudes than religiosity. Importantly, the previous chapter only addressed attitudes towards one type of ART: AI/IVF. Thus, it remains to be explored whether the same predictors are relevant for explaining variation in attitudes when disaggregating ART further. In this section, I seek to remedy this by employing survey data from the 2017 Norwegian National Election Study (NNES), as well as survey data for the Norwegian respondents from the EVS 2017 Survey. In the NNES, respondents are asked about their attitudes toward both surrogacy and abortion. Thus, I am able to compare which explanatory variables are important for explaining attitudes toward an ART which requires the active participation of third-party, i.e., the surrogate mother, compared to AI/IVF, where the birth mother is the intended parent-to-be. In addition, I compare the relevant explanatory factors for attitudes towards both these forms of ARTs to those for abortion attitudes. The main explanatory variables in this chapter are political orientation measured as party group affiliation and religiosity.

## 7.1 A Note on the Norwegian Context

In Norway, how to legislate ARTs has become more prominent on the political agenda, and the Christian Democratic Party has been active in opposing any further liberalizations of the existing legislation. While Norway was the first country in the world that introduced a law legislating assisted insemination in 1987, Norway has had restrictive ART legislation until the changes implemented in 2020. The earlier version of the Biotechnology Act (2003) was described as "The world's strictest act on biotechnology", as it was supportive of traditional family values and particularly the heterosexual family (Spilker, 2016, p. 100). However, treatment with donor sperm has been available for many years, and access to treatments for female same-sex couples has been available since 2009 (Romundstad, 2019).

As mentioned earlier, significant changes to the Biotechnology Act were passed by

the Norwegian parliament in 2020, including assisted insemination for single women, the legalization of egg donation and access to Non-invasive prenatal test (NIPT) for all pregnant women (Grønli, 2020). These changes were facilitated by cooperation between the Labor Party, the Socialist Left Party and most of the Progressive Party representatives, as well as the Red Party and the Green Party. Some parliamentary representatives from the Liberal Party and the Conservative Party also voted in favor of the changes (Ruud et al., 2020). In other words, cooperation across the left-right political spectrum facilitated the introduction of this new legislation. Here, it is important to note that the Christian Democratic Party was the strongest opponent to expanding the access to ART in Norway (Bjerve & Falnes, 2020).

## 7.2   Modeling Choices

In this chapter, I employ and compare data from both the EVS 2017 Survey and the 2017 Norwegian Election Study.[23]  I restrict the EVS 2017 Survey to only contain the Norwegian respondents. In turn, there are three different dependent variables: AI/IVF, surrogacy and abortion attitudes.

Importantly, I choose to run models on the abortion variables from both datasets, as a robustness test of the results. If the results are relatively similar for the two datasets, this strengthens the reliability of the findings. However, the two surveys do not measure abortion attitudes in the same manner. The EVS abortion variable measures how justifiable respondents believe abortion is on a scale from 1 ("never") to 10 ("always"). On the other hand, the NNES asks respondents to choose one of four statements that aligns best with what they believe. To make these two measures more comparable, I transform both measures into binary variables. Consequently, to be able to compare the results for attitudes toward AI/IVF and surrogacy with the results from the models with abortion as the dependent variable, I also make the AI/IVF and surrogacy variables binary.

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[23]Note that in these models, I do not include weights, as the calibration weights for sociodemographic characteristics are different in the EVS and NNES datasets. Both include age, gender and education (Falnes-Dalheim & Bye, 2019, pp. 16–17), however, EVS also includes region in the computation of the weights (EVS, 2020b, p. 30). However, the results are largely the same when including weights. See Appendix D: Alternative Models for the models with weights.

### 7.2.1 Model Choice: Logistic Regression

The model choice follows from the binary nature of the dependent variables. As the dependent and explanatory variables have a nonlinear relationship, I estimate logistic regression models. Linear models assume that the probability of Y constantly approaches 0 and 1. However, for binary outcomes, the probability of Y gradually approaches 0 and 1. The logit function takes into account the S-formed relationship between the probability of being supportive of abortion/surrogacy and the independent variables (Skog, 2004, p. 380). The output from logistic regression analyses are reported in log-odds. This entails that negative coefficients are interpreted as a negative effect, conversely positive coefficients as a positive effect. To substantially interpret the coefficients, I construct scenarios from which I calculate predicted probabilities of supporting AI/IVF, surrogacy and abortion.

For greater ease of interpretation, I also calculate the predicted probabilities of being supportive of AI/IVF, surrogacy and abortion. The independent variables determine the change in the probability of Y=1. Thus, when presenting the results as predicted probabilities, I separately calculate the changes in probability of being supportive of AI/IVF, surrogacy and abortion, across the different values for the two main explanatory variables: party group affiliation and religiosity. When calculating the predicted probabilities I hold the other variables constant at their mode for the categorical variables and at their mean for the continuous variables, as they are observed across the two samples (i.e., the Norwegian sample of the EVS dataset and the NNES dataset).

### 7.2.2 Assumptions: Logistic Regression

The three main assumptions of logistic regression are (1) the logistic curve correctly describes the empirical relationship; (2) the individual observations are independent of one another; and (3) the model is correctly specified without confounding variables and the relationship is not fully or partially spurious (Skog, 2004, pp. 380–381).

While logistic regression does not require a linear relationship between the dependent and independent variables, the independent variables must be linearly related to the log-odds of the outcome (Skog, 2004, p. 381). The only continuous variable in the model is age, as both the explanatory variables and the other control variables are categorical or dummy variables. There is a linear relationship between the continuous control variable

age and the logit of the outcome in all four models is linear.[24]

Regarding the second assumption, independence of observations, this assumption is fulfilled, as both the EVS and NNES data is from a single, random sample of respondents (Christophersen, 2018, p. 144). None of the independent variables are highly correlated, which is important as multicollinearity reduces the precision of the estimated coefficients. For the four models, all the Variance Inflation Factor (VIF) values are less than 1.3. This indicates that the none of data employed in the models contains any highly correlated predictor variables.

## 7.3   Results and Discussion

In this section, I present the results from the empirical analysis of both the NNES data and the EVS data. As previously mentioned, I first report the coefficients as log-odds. Positive coefficients signal an increased likelihood of holding positive attitudes toward the attitude object, while negative coefficients signal a decreased likelihood in holding positive attitudes toward the attitude object. For greater ease of interpretation, I also calculate and present the predicted probabilities from the log-odds for the main explanatory variables: political orientation (party group affiliation) and religiosity. Political orientation is operationalized as the "party group" which a respondent supports. Respondents are assigned a party group based on the political party they stated they voted for at the last election. The four party groups are leftist parties, right-wing parties, other parties and the Christian Democratic Party. The right-wing parties are the reference category across all models. Religiosity is operationalized as whether a respondent is non-affiliated, a passive denominational member or an active denominational member. Table 7.1 shows the output from the logistic regression models of the respondent's attitudes toward AI/IVF, surrogacy and abortion regressed on the main explanatory variables, as well as the controls.

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[24]See Appendix D: Model Evaluation for plots.

Table 7.1: Likelihood of Positive Attitudes Given Party Affiliation and Religiosity

| | Model 1 | Model 2 | Model 3 | Model 4 |
| | Abortion (EVS) | Abortion (NNES) | AI/IVF (EVS) | Surrogacy (NNES) |
|---|---|---|---|---|
| Constant | 0.40 (0.07)*** | 0.78 (0.04)*** | 0.51 (0.07)*** | 0.55 (0.05)*** |
| *Party groups (ref: Right-wing parties)* | | | | |
| Christian Democratic Party | −0.19 (0.08)* | −0.25 (0.05)*** | −0.20 (0.08)* | −0.13 (0.06)* |
| Leftist parties | 0.01 (0.03) | 0.05 (0.02)* | −0.05 (0.03) | −0.06 (0.02)** |
| Other parties | −0.04 (0.05) | −0.05 (0.03) | −0.06 (0.05) | −0.09 (0.03)** |
| *Religiosity (ref: Non-affiliated)* | | | | |
| Passive member | −0.11 (0.03)** | −0.13 (0.02)*** | −0.02 (0.03) | −0.08 (0.02)*** |
| Active member | −0.29 (0.06)*** | −0.52 (0.04)*** | −0.19 (0.06)** | −0.17 (0.05)*** |
| Gender (ref: Male) | 0.09 (0.03)** | 0.05 (0.02)** | 0.12 (0.03)*** | 0.06 (0.02)** |
| Age | −0.00 (0.00) | 0.00 (0.00) | −0.00 (0.00)*** | −0.00 (0.00)*** |
| *Education (ref: Less than high school)* | | | | |
| High school | 0.11 (0.05)* | 0.09 (0.03)** | 0.10 (0.05)* | 0.03 (0.03) |
| Higher education | 0.16 (0.04)*** | 0.11 (0.03)*** | 0.08 (0.04) | −0.03 (0.03) |
| Marital status (ref: Not married) | 0.02 (0.03) | −0.04 (0.02)* | 0.05 (0.03) | −0.03 (0.02) |
| AIC | 1351.12 | 1372.38 | 1324.51 | 1630.19 |
| Log Likelihood | −663.56 | −674.19 | −650.26 | −803.10 |
| Deviance | 221.95 | 216.81 | 216.03 | 256.09 |
| Num. obs. | 984 | 1561 | 984 | 1514 |

Logistic regression models, where each model is has a different dependent variable. Coefficients are reported as log-odds. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$.

There is no established literature on whether the important explanatory variables for predicting attitudes differ between different types of ART. With the models run, I examine whether the significant explanatory variables differ for two types of ART: AI/IVF and surrogacy. I also compare the results with those from models run with abortion attitudes as the dependent variable. When explaining variation in attitudes toward abortion, AI/IVF and surrogacy in Norway, the results indicate that the relationship between some of the explanatory variables and the dependent variable are shared by AI/IVF, surrogacy and abortion (supporting the Christian Democratic Party, religiosity, and gender). However, other explanatory variables are only significant for some of the attitude objects. Importantly, there are differences between AI/IVF and surrogacy. This indicates that when seeking to explain attitudes toward ART, it is necessary to disaggregate ART into the different techniques and procedures falling under this umbrella term.

### 7.3.1 Party Groups

As anticipated by two hypotheses, party group affiliation is related to how individuals view both the two ARTs and abortion. H3a anticipates that support for the Christian Democratic Party is associated with holding more negative attitudes toward abortion, AI/IVF and surrogacy. Right-wing parties are the reference category for the party group affiliation variable. Both Model 1 (EVS) and Model 2 (NNES) indicate that support for the Christian Democratic Party decreases the likelihood of holding positive attitudes toward abortion. In the EVS model, the coefficient is -0.19, while in the NNES model the coefficient is -0.25. The results from Model 3 and Model 4 suggest that the same relationship between support for the Christian Democratic Party and negative attitudes is present for AI/IVF (-0.20) and surrogacy (-0.13). Further, H3b anticipates that supporting leftist parties is associated with not supporting surrogacy. The coefficient for leftist parties is negative and statistically significant in Model 4, where attitudes toward surrogacy is the dependent variable. However, supporting leftist parties has less explanatory power for surrogacy attitudes (-0.06) than supporting the Christian Democratic Party (-0.13)

To illustrate the correlation between party group affiliation and attitudes, I also calculate predicted probabilities for supporting AI/IVF, surrogacy and abortion depending on party group affiliation, while keeping the other variables constant with categorical variables at the sample mode and the numeric variable (age) at the sample mean. Table 7.2 below shows the predicted probabilities of supporting AI/IVF, surrogacy and abortion for the four different party groups. The main takeaway is that the predicted probability is the lowest for those who support the Christian Democratic Party for AI/IVF, surrogacy and abortion. It is also relevant to note that the predicted probability of supporting surrogacy is much larger for those who support right-wing parties compared to the other party groups.

Table 7.2: Predicted Probabilities: Party Group Affiliation

|  | Abortion (EVS) | Abortion (NNES) | AI/IVF | Surrogacy |
| --- | --- | --- | --- | --- |
| **Christian Democratic Party** | 41.9% | 67.6% | 34.3% | 20.2% |
| **Leftist Parties** | 61.4% | 97.6% | 49.0% | 26.5% |
| **Right Parties** | 60.6% | 92.4% | 53.9% | 32.9% |
| **Other Parties** | 56.7% | 87.0% | 47.4% | 23.5% |

Moreover, it is relevant to note that supporting leftist parties is also significant in Model 2, in which abortion is the dependent variable and the dataset employed is the NNES. Furthermore, the coefficient for supporting other parties (the Center Party and the Green Party) is also statistically significant and negative in the model with surrogacy as the dependent variable. I rerun the same models replacing "right-wing parties" with each of the other party groups as the reference category.[25] The results from these models largely correspond to those discussed in this section.

Norway is classified as a secular country in the two worlds framework (Engeli et al., 2012, pp. 188–189). However, the Christian Democratic Party has been an important actor in the political debate surrounding ART in Norway. The results from the regression analyses reflect the nature of politicization of ART in Norway, as those who support the Christian Democratic Party are less likely to be supportive of AI/IVF. When examining the descriptive statistics for AI/IVF, only 12.7% of respondents who supported the Christian Democratic Party stated they believed AI/IVF was always justified (10). When excluding those who supported the Christian Democratic Party, 39.6% of respondents stated that AI/IVF was always justified. Norway is a Protestant country, thus, the religious teachings on ART are quite liberal. The Christian Democratic Party has been one of the main opponents to liberalizing ART legislation in Norway. This debate has mainly pertained to various aspects of gamete donation and who is allowed to access the ART. As most individuals do not have personal experience with AI and IVF themselves, partisanship may largely shape evaluations of ART as a new political issue (Dalton, 2014).

Importantly, the Christian Democratic Party support has less explanatory power for surrogacy attitudes compared to abortion and AI/IVF. In contrast to AI and IVF, surrogacy has not been prominent in the debate on ART legislation, as there is little political desire or public demand for liberalizing surrogacy in Norway. In turn, both supporting leftist parties and other parties predicts that an individual is less likely to support surrogacy in Norway. As leftist parties are associated with promoting women's rights, they emphasize the framing of surrogacy as exploiting women. Of the two parties covered by "other parties", the Center Party largely espouses traditional values (Berg et al., 2021) and the Green Party emphasizes gender equality (Ravik Jupskås & Garvik, 2022),

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[25]See Appendix D: Alternative Models.

which may account for why supporting these parties is associated with being less likely to support surrogacy.

Opposition to both abortion and AI/IVF can be framed in morality issue terms, as only supporting the Christian Democratic Party is associated with a reduced likelihood of supporting the two. Otherwise, a majority of those who support the other political parties in Norway support both abortion and AI/IVF. In contrast, most individuals oppose surrogacy. As support for Christian Democratic Party, leftist parties and other parties decreases the likelihood of being in favor of surrogate mothers in Norway, this entails that the right-wing parties are more likely to hold more positive attitudes towards surrogacy.

### 7.3.2 Religiosity

H5a anticipates that both passive and active denominational members are less likely to hold positive attitudes toward AI/IVF, surrogacy and abortion, but that the correlation is stronger for abortion than ART (i.e., AI/IVF and surrogacy). As expected by the hypothesis, the coefficients for active denominational members are statistically significant at conventional levels and negative in all four models. The coefficient for passive denominational members is statistically significant in the two models with abortion attitudes as the dependent variable (Model 1 and Model 2), as well as in Model 4 with surrogacy as the dependent variable. Acknowledging this, I now turn to the predicted probabilities for the three categories of religiosity.

To better illustrate the relationship between religiosity and attitudes, I calculate the predicted probabilities of supporting AI/IVF, surrogacy and abortion based on which religiosity category a respondent falls into. The other variables are kept constant, where the categorical variables are set to the sample mode and the numeric variable (age) is set to the sample mean.

The explanatory power of being an active denominational member is the greatest in the two models with abortion attitudes as the dependent variables. For the model with the EVS data, passive denominational members are 10.6 percentage points less likely to support abortion than non-affiliated individuals. Non-affiliated individuals have a predicted probability of 61.4% for supporting abortion. Active denominational members are 29.4 percentage points less likely to support abortion than non-affiliated individuals and

18.8 percentage points less likely than passive denominational members. Turning to the model with NNES data, non-affiliated members have a predicted probability of supporting abortion of 97.6%. This probability is much higher than for the model with EVS data, which is likely due to that operationalization of unequivocal support is much lower, as the cut-off is responding "always" on a scale from 0 to 10. Passive denominational members are 13.3 percentage points less likely to support abortion than non-affiliated individuals. Active denominational members are 51.9 percentage points less likely to support abortion than non-affiliated individuals and 38.5 percentage points less likely than passive denominational members. Evidently, the differences are greater in the NNES dataset than the EVS dataset. This likely follows from the fact that a greater number of the NNES respondents fall under the passive denominational member group than for EVS respondents.

Turning to the two models where ART attitudes are the dependent variables, the differences in predicted probabilities between those who are non-affiliated, passive members and active members are significantly smaller than those for abortion. For AI/IVF attitudes (NNES), passive denominational members are 1.7 percentage points less likely to support AI/IVF than non-affiliated members. In comparison, active denominational members are 18.8 percentage points less likely to support AI/IVF than non-affiliated individuals, and 17.1 percentage points less likely than passive denominational members. In other words, non-affiliated individuals and passive denominational members are relatively similar, while active denominational are substantially less likely to support AI/IVF.

The predicted probabilities of supporting surrogacy do not differ much between the different religiosity categories, likely because the Norwegian population is on average less supportive of surrogacy than both AI/IVF and abortion. Non-affiliated individuals are 8.1 percentage points more likely than passive denominational members to support surrogacy, while they are 17.2 percentage points more likely than active denominational members. As such, the explanatory power of being a passive member compared to being a non-affiliated individual is greater for surrogacy attitudes than AI/IVF attitudes.

Though I observe the same negative relationship between religiosity and all three reproductive issues, the explanatory power is greater for abortion compared to IVF and surrogacy. This is in line with previous findings about abortion attitudes, as well as findings which link religious values to moral traditionalism on issues pertaining to gender

and family relations, as well as matters of life and death (Engeli et al., 2012; Lachat, 2012; Nicolet & Tresch, 2009).

### 7.3.3 Control Variables

I include four control variables in each model: gender, age, education and marital status. Gender is the only control variable that is statistically significant across all four models. Women are more likely than men to not hold any reservations towards AI/IVF, surrogacy or abortion. When controlling for the other explanatory variables, the correlation is the largest in the model with AI/IVF as the dependent variable. In this model, being a woman increases the likelihood of holding supportive attitudes toward AI/IVF by 14.5 percentage points.

The coefficient for age is statistically significant in the models with AI/IVF and surrogacy attitudes as the dependent variable, while it is not significant in the two models with abortion attitudes as the dependent variable. When holding the other variables constant, older individuals are less likely to hold positive attitudes toward both AI/IVF and surrogacy. The coefficient is the same for both AI/IVF and surrogacy (-0.005).

Education is operationalized as a categorical variable with three levels. Having less than high school education is the reference category. The coefficients for high school education and higher education are statistically significant and positive for both models with abortion as the dependent variable. Those with a high school education or higher education are more likely to support abortion. The larger proportion of individuals with higher education in the EVS dataset may account for the difference between these models. In Model 3 (AI/IVF), only higher education is statistically significant. In other words, only respondents with higher education are significantly different from those without completed high school education. Having a higher education increases the likelihood of holding positive attitudes toward AI/IVF. The models show that there is no relationship between the education and support for surrogacy.

Lastly, marital status is only statistically significant in the NNES model with abortion attitudes as the dependent variable. Here, being married decreases the likelihood of supporting abortion. Marital status is not significant at the conventional level in any of the other models.

## 7.4   Model Evaluations

To evaluate the logistic regression models, I first compare their predicted and observed values. Then I evaluate their respective Receiving Operator Curves (ROCs). Overall, I find that the two models using the Norwegian sample from EVS dataset are similar in how well they predict, and their degree of specificity and sensitivity are similar. Specificity refers to the ability of a model to identify negative values (0) correctly, while sensitivity refers to its ability to identify positive values (1) correctly. For the two models employing the NNES dataset, only the model with surrogacy attitudes as the dependent variable is better at predicting than the null model.[26] While the model with abortion attitudes has a higher level of specificity, the model with surrogacy attitudes has a higher level of sensitivity.

With regards to their ROCs, the models have area under the curve (AUC)-scores just below 0.70, apart from the model with the NNES and abortion attitudes as the dependent variable (AUC = 0.75). An AUC-score of 0.70 is a common cut-off for models with fair prediction (Hosmer et al., 2013, p. 177). Specifically, the AUC-score indicates how well the model is at discriminating between positive (1) and negative values (0).[27]

## 7.5   Robustness Test: Dependent Variable

To ascertain whether the results are robust, I re-run the models with different cut-offs for the binary dependent variables. As the variables used to construct the dependent variables for AI/IVF, surrogacy and abortion are on different scales, I chose to make them all binary. Abortion and surrogacy attitudes in the NNES dataset are recorded as categorical responses, where the unequivocally positive response is chosen to measure positive attitudes toward the items. In the EVS dataset, AI/IVF and abortion attitudes are measured on a scale of 1-10. In the main models, I chose 10 ("always") as the cut-off point. As a robustness test, I re-run the models for AI/IVF and abortion attitudes (EVS) with different cut-off points. The results are largely similar for the models with AI/IVF attitudes as the dependent variable. However, for the likelihood of positive AI/IVF attitudes the "High school" coefficient is no longer statistically significant when

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[26]The null model is the model with no explanatory variables, and just the constant (Christophersen, 2018, p. 139).

[27]See Appendix E: Evaluating Models figures and calculations related to the model evaluations.

the cut-off for positive attitudes is 9 (see Table 7.3).

Turning to the likelihood of positive abortion attitudes, all the same coefficients are statistically significant and they are in the same direction. In Model 2, where the cut-off for positive attitudes is 8 instead of 10 ("always"), the coefficients for Christian Democratic support and being an active denominational member are somewhat larger than in Model 1 (i.e., -0.19 and -0.29 compared to -0.29 and -0.39 respectively).

Table 7.3: Likelihood of Positive AI/IVF Attitudes: Different Cut-Offs

|  | Model 1 | Model 2 |
|---|---|---|
|  | Cut-Off = 10 ("always") | Cut-Off = 9 (Median) |
| Constant | 0.51 (0.07)*** | 0.68 (0.07)*** |
| *Party group (ref: Right-wing parties)* |  |  |
| Christian Democratic Party | −0.20 (0.08)* | −0.22 (0.08)* |
| Leftist parties | −0.05 (0.03) | −0.03 (0.03) |
| Other parties | −0.06 (0.05) | −0.08 (0.05) |
| *Religiosity (ref: Non-affiliated)* |  |  |
| Passive member | −0.02 (0.03) | −0.03 (0.03) |
| Active member | −0.19 (0.06)** | −0.21 (0.06)*** |
| Gender (ref: Male) | 0.12 (0.03)*** | 0.14 (0.03)*** |
| Age | −0.00 (0.00)*** | −0.01 (0.00)*** |
| *Education (ref: Less than high school)* |  |  |
| High school | 0.10 (0.05)* | 0.07 (0.05) |
| Higher education | 0.08 (0.04) | 0.09 (0.04) |
| Marital status (ref: Not married) | 0.05 (0.03) | 0.03 (0.03) |
| AIC | 1324.51 | 1359.10 |
| Log Likelihood | −650.26 | −667.55 |
| Deviance | 216.03 | 223.76 |
| Num. obs. | 984 | 984 |

Logistic regression models, where coefficients are reported as log-odds. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Table 7.4: Likelihood of Positive Abortion Attitudes: Different Cut-Offs

|  | Model 1 | Model 2 |
|---|---|---|
|  | Cut-Off = 10 ("always") | Cut-Off = 8 (Median) |
| Constant | 0.40 (0.07)*** | 0.65 (0.06)*** |
| *Party group (ref: Right-wing parties)* |  |  |
| Christian Democratic Party | −0.19 (0.08)* | −0.29 (0.08)*** |
| Leftist parties | 0.01 (0.03) | 0.01 (0.03) |
| Other parties | −0.04 (0.05) | −0.01 (0.04) |
| *Religiosity (ref: Non-affiliated)* |  |  |
| Passive member | −0.11 (0.03)** | −0.10 (0.03)** |
| Active member | −0.29 (0.06)*** | −0.39 (0.06)*** |
| Gender (ref: Male) | 0.09 (0.03)** | 0.08 (0.03)** |
| Age | −0.00 (0.00) | −0.00 (0.00) |
| *Education (ref: Less than high school)* |  |  |
| High school | 0.11 (0.05)* | 0.13 (0.04)** |
| Higher education | 0.16 (0.04)*** | 0.20 (0.04)*** |
| Marital status (ref: not married) | 0.02 (0.03) | 0.03 (0.03) |
| AIC | 1351.12 | 1202.76 |
| Log Likelihood | −663.56 | −589.38 |
| Deviance | 221.95 | 190.89 |
| Num. obs. | 984 | 984 |

Logistic regression models, where coefficients are reported as log-odds. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

# 8 Concluding Remarks

What explains variation in attitudes towards reproductive issues? Do these explanations differ depending on the specific reproductive issues at hand? Over the last century infertility has become an increasing issue for individuals and families globally. Concurrently the number of assisted reproductive technologies (ARTs) available to treat fertility issues have massively expanded and continue to be developed today. The treatments covered by the term ART vary massively, especially with regards to how invasive they are and to what extent they challenge common perceptions of what constitutes reproduction. However, all ARTs have in common that they seek to facilitate the creation of new life.

Another important reproductive issue is abortion. Abortion has been a controversial issue since the 1960s, which has garnered much research about what explains individual abortion attitudes. While ART and abortion are both important reproductive issues, they involve very different procedures. The explanatory variables identified for abortion attitudes are a relevant starting point for building theory and formulating empirical expectations for ART attitudes. However, the differing natures of ART and abortion appear to require a modification of the theories associated with abortion attitudes. To this end, this thesis has sought to answer the question:

*What explains variation in attitudes toward assisted reproductive technology (ART) compared to abortion in Europe?*

To do so, I have chosen to focus on two main explanations: party politics and religion. The party politics literature outlines how parties face constraints when choosing which political issues to emphasize. For issues that individuals have little knowledge about, parties provide a simple heuristic for what stance to take on new and emerging issues (Dalton, 2014). However, the field is divided with regards to whether parties should choose to politicize morality issues. Morality issues are issues that pertain to life, death and reproduction (Engeli et al., 2012), and what is morally "right" or "wrong" with regards to these issues (Mooney, 2001). While Burns (2004) argues that parties will avoid politicizing morality issues, Engeli et al. 2012 pose that whether morality issues are politicized in a political system depends on whether or not there is a significant

Christian Democratic party. Christian Democratic parties are often associated with moral traditionalism, which in turn is closely linked to Christian religious traditions. As such, on the individual-level, religion affects both political values and attitudes (Duriez et al., 2002; Knutsen, 2018).

The importance of political orientation and religion were the theoretical starting point for this thesis, as the analysis attempted to ascertain whether these explanations hold the same power for ART as for abortion. Compared to abortion, ART is both a newer political issue, which is less clearly politicized in many countries. As a reproductive issue, ART has a different objective than abortion, as different ARTs all seek to create new life. However, some ARTs are more extreme as they involve more intervention and involvement from other individuals than the wanting parents-to-be.

To account for the differences between ART attitudes and abortion, as well as between the two different types of ART, I apply different dependent variables dependent variable at the country-level and the individual-level. At the country-level, the dependent variables are between-party variance and within-party agreement. The three dependent variables employed at the individual-level are AI/IVF attitudes, surrogacy attitudes and abortion attitudes. Beyond contributing to new theoretical and empirical insights, I address methodological issues through appropriate variable operationalizations and modeling decisions. To ensure reliability and validity of the findings, I carried out additional tests (different measures of attitudes and additional codings of variables). With these considerations in mind, I provide the following findings in response to the research question.

## 8.1    Summary of Findings

The first analysis section (Chapter 5) investigated the relevance of the "two worlds" typology and cultural clusters for variation in attitudes at the country-level. First, I find that the "two worlds" theory is not relevant when seeking to explain variation how party-politicized ART attitudes are in Europe. However, I show that the "two worlds" typology is relevant for the party-politicization of abortion attitudes at the country-level. The results support H1, which anticipates that presence of a significant religious-secular conflict is not associated with how associated party affiliation and individual ART attitudes in a country (operationalized as between-party variance and within-party

agreement), but that it is associated with how associated they are for abortion attitudes. Second, I find that cultural clusters are related to aggregated country attitudes towards both AI/IVF and abortion, which support H4 and motivates the inclusion of cultural clusters as a level-2 variable in Chapter 6.

The second analysis section (Chapter 6) focused on explanatory factors account for variation in ART attitudes at the individual-level. First, the results indicate that cultural clusters account for country-level variation in attitudes towards AI/IVF and abortion. H4 anticipates that residing in Catholic and Protestant Europe is associated with more positive AI/IVF and abortion attitudes compared to residing in Orthodox Europe, but that this relationship is stronger for abortion attitudes than AI/IVF attitudes.

Further, I show that political orientation, operationalized as left-right self-placement, matters for whether an individual supports both ART and abortion. The explanatory power is marginally smaller for ART. The results support H2, which anticipates that left-leaning individuals are more positive towards ART and abortion than right-leaning individuals, but that political orientation is a stronger predictor for abortion attitudes. However, the explanatory power of political orientation is not much greater for abortion attitudes compared to AI/IVF attitudes. With regards to religiosity, being an active denominational member is associated with being less supportive towards both ART and abortion. Being a passive denominational member is only associated with holding less supportive attitudes towards abortion. Moreover, explanatory power of religiosity is greater for abortion attitudes than ART attitudes. This entails that the results are in-line with H5, which expects that individual religiosity is associated with less positive attitudes toward both ART and abortion, as well as H5b, which anticipates that being an active denominational member is a stronger predictor of ART attitudes than being a passive denominational member.

The third and final analysis section (Chapter 7) sought to identify whether the relevant explanatory variables for variation in attitudes differ between two different types of ART: AI/IVF and surrogacy. The varied nature of the procedures and techniques that fall under the umbrella term ART was motivation behind this analysis. The results indicate that different party groups are important as predictors for AI/IVF attitudes in comparison to surrogacy attitudes. As expected by H3a, voting for the Christian Democratic Party decreases the likelihood of holding positive attitudes towards AI/IVF. Further, voting

for leftist parties decreases the likelihood of positive surrogacy attitudes, which supports H3b. Regarding religion, as anticipated by H6, religiosity has greater explanatory power for predicting abortion attitudes than ART attitudes. In turn, religiosity is a more important predictor for AI/IVF than surrogacy. Otherwise, which control variables are statistically significant are the same for AI/IVF and surrogacy attitudes, but some of the significant control variables differ between the ARTs (AI/IVF and surrogacy) and abortion attitudes.

## 8.2   Implications of Findings

Political orientation and religion are identified by the women and politics literature as important factors for explaining what attitudes individuals hold toward abortion. However, how these explanatory factors are related to ART attitudes is not clearly established in existing literature. In this thesis, I have argued that while the abortion attitudes literature provide a pertinent starting point for outlining empirical expectations about ART attitudes, it is not given that the explanatory power of political orientation and religion are exactly the same between the two.

Both ART and abortion are defined as morality issues. However, my results highlight how the definition of ART as a morality issues does not entail that religiosity should be an equally strong predictor for all morality issues. I find that whether a country is defined as religious or secular according to Engeli et al.'s (2012) "two worlds" typology is not associated to the degree of alignment between party affiliation and individual ART attitudes at the country-level, measured by the aggregation of individual-level attitudes toward AI/IVF. However, Inglehart and Welzel's cultural clusters (Inglehart & Welzel, 2005) do account for variation in the mean attitudes towards both AI/IVF and abortion in Europe. Both AI/IVF and abortion are procedures related to reproduction, however, their objectives are different. While the objective of AI/IVF is to aid the creation new life, the objective of abortion is to terminate pregnancy through the destruction of embryos. Importantly, abortion has clearly been framed as a political issue in Europe and different actors have both previously and currently, including women's groups and religious organizations, been vocal in their support or opposition to the liberalization of abortion. In contrast, ART has not been as widely politicized, and in many countries the medical community has had the main responsibility for legislating ART (Engeli &

Allison, 2016).

Turning to the individual-level, the relationship between political orientation and attitudes reflect the differing degrees to which ART and abortion have been politicized in Europe. Left-right self-placement is a stronger predictor of abortion attitudes in comparison to AI/IVF attitudes. In the empirical analysis with the Norwegian data, those who support the Christian Democratic Party are less likely to be supportive of AI/IVF, surrogacy and abortion, as expected. Furthermore, supporters of leftist parties, as well as the Center Party and the Green Party, are less likely to support surrogacy than right-wing parties. This is in line with the previous findings in the women and politics literature, which finds that left-wing and green parties are more supportive of women-friendly policies. Compared to religiosity, political orientation is a weaker predictor of attitudes for both AI/IVF and abortion. In other words, while ART may have been politicized in some European countries, it does not appear that ART should be an important determinant for party choice, as reflected by the low degree of between-party variation in ART attitudes.

Religiosity is associated with socially conservative political value orientations on a range of issues, such as sexual norms and gender and family relations, as well as matters of life and death. Moral traditionalism appears to be tied to especially Christian religiosity. In the analysis of individual-level attitudes, religiosity has less explanatory power for ART attitudes compared to abortion attitudes. This indicates that attitudes towards ART may not be as closely related to moral traditionalism as abortion. This may follow from the differing aims of ART and abortion. While ART involves side-stepping the "marital act" emphasized by Christian denominations, the value imbued into the embryo from the moment of conception appears to evoke stronger resistance among active denominational members. Overall, respondents across Europe are more positive to ART than abortion. If these positive attitudes are not contingent on which family formations receive access to ART, more inclusive legislation may be in order in some countries for legislation to correspond with public opinion (Arzheimer, 2020b).

## 8.3 Future Research

In this section I briefly outline three avenues for future research. Firstly, I identify that ART attitudes are less related to religiosity both at the country-level and the individual-level compared to abortion. A possible alternative explanation is that ART attitudes

are more related to how individuals view new technology. Future research might consider whether attitudes towards technology are an explanatory factor for ART attitudes, which could not be investigated in this thesis due to the data available.

Second, the way that the survey questions measuring attitudes towards ART and abortion were formulated in broad terms. In the EVS survey, respondents were asked to what extent they justified AI/IVF and abortion. Fauser et al., study of six European countries have investigated beliefs about IVF, its funding and use by different family formations (e.g., single women and same-sex couples) (Fauser et al., 2019). However, they do not attempt to explain what accounts for the variation in these attitudes. An avenue for future research would be both providing a more nuanced breakdown of attitudes toward access to and funding of ART, as well as accounting for individual attributes and country characteristics.

Third, I was only able to examine cross-national data cross-sectionally due to the data at hand. Through my empirical approach, I control for country-level differences with the multilevel modeling. Additionally, I account for cultural and religious traditions by controlling for cultural clusters (level-2 variable). As discussed in Chapter 2, ART legislation varies greatly in its scope and contents both globally and in Europe. Fertility issues are a growing issue in Europe. However, as illustrated by the maps in Chapter 2, ART services are not readily available to everyone, due to restrictions to who can access both the treatments themselves and funding for these treatments. Understanding both whether there is a dissonance between the laws in place and public opinion, as well as whether the introduction of more inclusive ART laws may affect attitudes, are both avenues for future research. With regards to how laws may affect social norms, literature about the expressive power of the law highlights how new legislation affects society through communicating new norms, not just through threats and control. In the women and politics literature, Htun and Jensenius find that even weakly enforced laws on violence against women, and their communication to the public, contribute to positive social change (Htun & Jensenius, 2022). To conduct such research on ART laws and attitudes requires panel data, which includes data on attitudes before and after legislative changes were enacted. This may be worthwhile research, as an increasing number of individuals and couples seek fertility treatment worldwide.

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# Appendix

## A    Descriptive Statistics

Figure A.1: NNES: Distribution of Left-Right Self-Placement
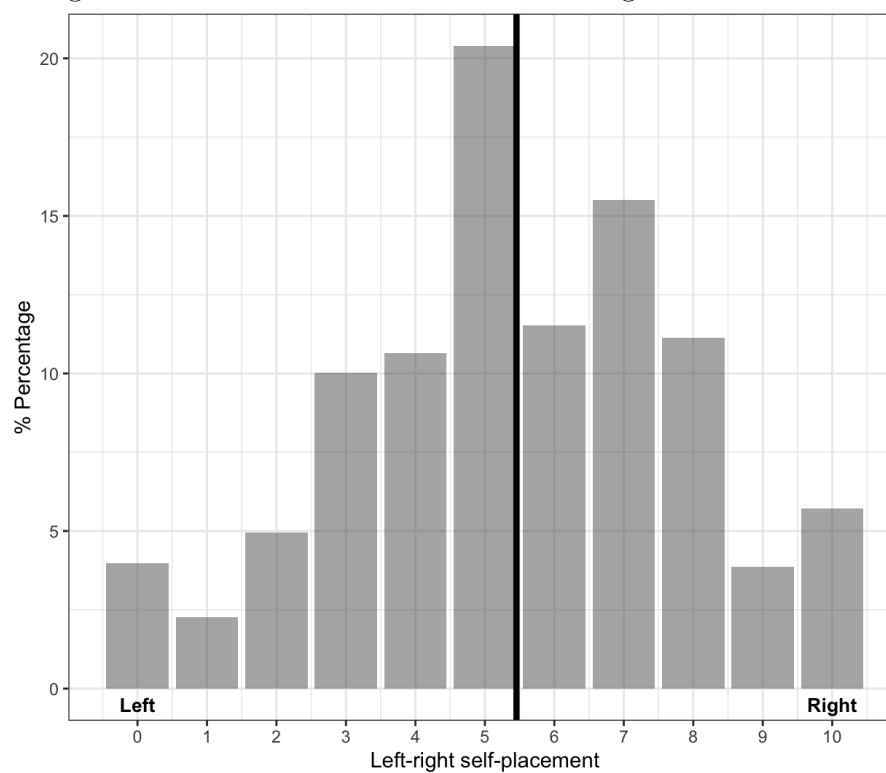
Figure A.2: Distribution of AI/IVF Attitudes: Country



AI/IVF attitudes
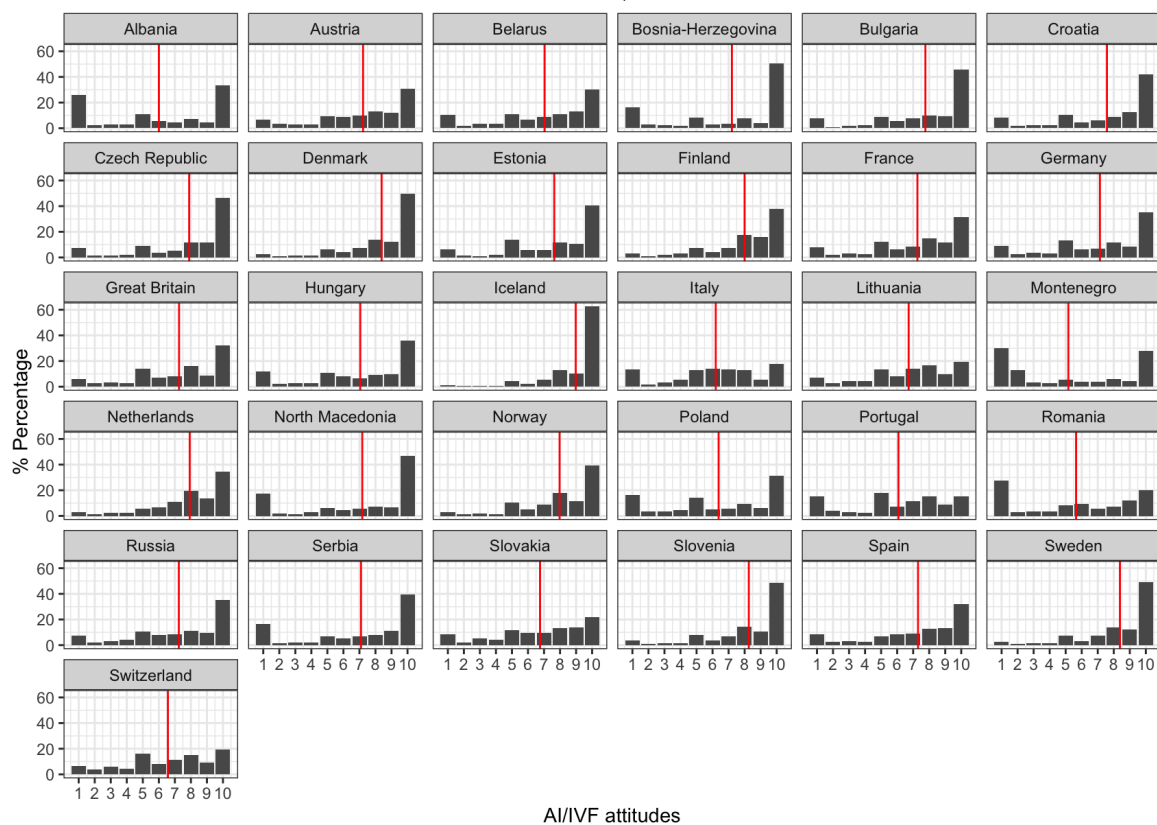
Figure A.3: Distribution of Abortion Attitudes: Country



Abortion attitudes
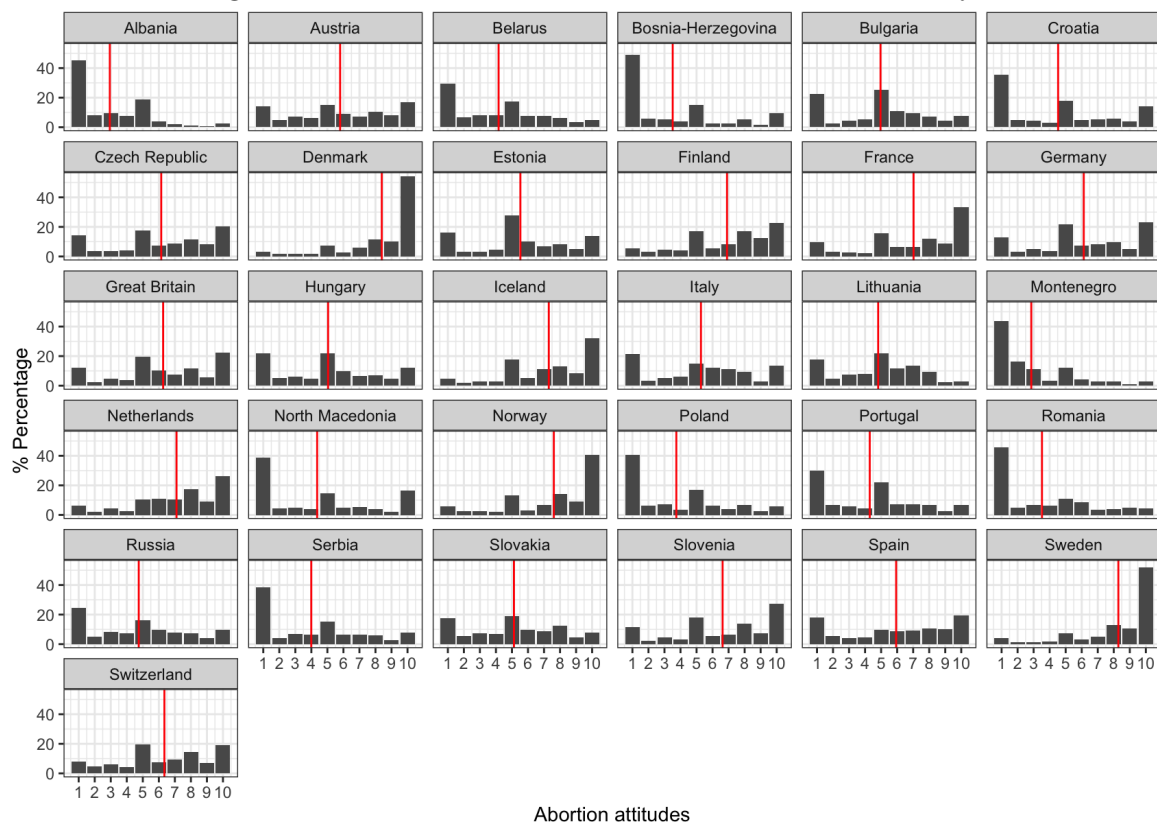
## Descriptive Statistics: Country-Level Controls

Table A.1: Gender Index

| Variable Name | Description | Min. | Max. | Mean | Std. dev. | N |
|---|---|---|---|---|---|---|
| *Gender index* | I expect how gender equal a country is to affect both AI/IVF and abortion attitudes (VDem, 2022). | 0.75 | 0.99 | 0.90 | 0.07 | 31 |

Table A.2: EU Membership

| EU Member | Count | Percentage (%) |
|---|---|---|
| *Yes* | 20 | 64.5 |
| *No* | 11 | 35.5 |

EU Membership is included as I anticipate this may affect both ART and abortion attitudes.

**Descriptive Statistics: Individual-Level Controls**

Table A.3: Control Variables: Individual-Level Analysis (EVS)

| Variable name | Count | Percentage (%) |
|---|---|---|
| *Gender* | | |
| Male | 22863 | 44.9 |
| Female | 28108 | 55.1 |
| *Education* | | |
| Less than high school | 11180 | 22.1 |
| High school | 20205 | 40.0 |
| Higher education | 19162 | 37.9 |
| *Marital status* | | |
| Not married | 23108 | 45.7 |
| Married | 27495 | 54.3 |
| *Cultural clusters* | | |
| Protestant Europe | 18037 | 36.4 |
| Catholic Europe | 19638 | 39.6 |
| Orthodox Europe | 11887 | 24.0 |

Table A.4: Age: Individual-Level Analysis (EVS)

| Variable | Min. | Max. | Mean | Std. dev. | N |
|---|---|---|---|---|---|
| *Age* | 18 | 82 | 50.1 | 17.7 | 50672 |

Table A.5: Control Variables: Norwegian Individual-Level Analysis (EVS)

| Variable name | Count | Percentage (%) |
|---|---|---|
| *Gender* | | |
| Male | 545 | 48.6 |
| Female | 577 | 51.4 |
| *Education* | | |
| Less than high school | 194 | 17.6 |
| High school | 385 | 34.9 |
| Higher education | 523 | 47.5 |
| *Marital status* | | |
| Not married | 553 | 49.5 |
| Married | 565 | 50.5 |

Table A.6: Age: Norwegian Individual-Level Analysis (EVS)

| Variable | Min. | Max. | Mean | Std. dev. | N |
|---|---|---|---|---|---|
| *Age* | 18 | 82 | 48.3 | 17.3 | 1120 |

Table A.7: Control Variables: Norwegian Individual-Level Analysis (NNES)

| Variable name | Count | Percentage (%) |
|---|---|---|
| *Gender* | | |
| Male | 1018 | 51.8 |
| Female | 948 | 48.2 |
| *Education* | | |
| Less than high school | 394 | 21.2 |
| High school | 716 | 38.5 |
| Higher education | 751 | 40.3 |
| *Marital status* | | |
| Not married | 980 | 52.3 |
| Married | 894 | 47.7 |

Table A.8: Age: Norwegian Individual-Level Analysis (NNES)

| Variable | Min. | Max. | Mean | Std. dev. | N |
|----------|------|------|------|-----------|------|
| *Age* | 18 | 79 | 47.2 | 16.4 | 1966 |

# B    Coding of Variables

**Classifying Central and Eastern Europe in the "Two Worlds" Framework.** To categorize the Central and Eastern European countries in the two worlds framework, I follow Engeli et al.'s (2012) prescriptions, as well as Adam et al.'s (2020) application of these prescriptions. Adam et al. find that the "Christian democratic parties in countries classified by Engeli et al. as members of the religious world held at least 10% of all seats in parliament during the whole observation period" (Adam et al., 2020, 1022). Thus, Adam et al. apply this 10% threshold as a benchmark to classify the Western European countries not explicitly classified by Engeli et al (2012). Consequently, I employ the 10% benchmark to determine which world the Central and Eastern European countries belong to, based on the amount of seats held at the time of the EVS collection period (2017-2020).

Table B.9: "Two Worlds" Typology: Classification of Central and Eastern European

| Classification | Countries | Justification |
|---|---|---|
| Secular | Albania, Belarus, Bulgaria, Czech Republic, Montenegro, North Macedonia, Poland, Romania, Russia, Serbia, Slovakia, Slovenia | No significant Christian Democratic party. |
| Religious | Bosnia and Herzegovina, Croatia, Estonia, Hungary, Lithuania | Significant Christian Democratic Party with more than 10% of the vote in last election. |

## Coding of Religiosity

The variables below are used to code religiosity. Note that individuals who report they are non-religious in the EVS sample and the Norwegian EVS sample are coded as non-affiliated. As a larger proportion of the NNES sample report belonging to a religious denomination, due to how the survey question is framed, all individuals reporting that they never attend religious services are coded as non-affiliated to get a better reflection of their actual affiliation.

**Religious Denomination.** This categorical variable indicates whether the individual belongs to a religious denomination, and if so which one. The variable has 7 categories: Non-religious, Catholic, Orthodox, Protestant, Other Christian denomination, Muslim, and Other denomination.

**Religious Attendance.** This numeric variable indicates how frequently the respondents attend religious services, excluding special occasions like christenings, weddings, and funerals. Both EVS and NNES include a variable on religious attendance, and they are both on a scale from 1-7. However, the levels of frequency are worded slightly differently[28]. Therefore, I have recoded both variables onto a scale from 1-6, which in turn is normalized to go from 0 to 1:

- 1: Never, practically never

- 2: Less often, less than once a year

- 3: Only on special holidays

- 4: Once a month

- 5: Once a week

- 6: More than once a week

---

[28]**EVS:** 1 = Never, pratically never; 2 = Less often; 3 = Once a year; 4 = Only on specific holy days; 5 = Once a month; 6 = Once a week; 7 = More than once a week.

**NNES:** 1 = Never; 2 = Less often; 3 = Only on special holy days; 4 = At least once a month; 5 = Once a week; 6 = More than once a week; 7 = Every day.

# C   Missingness

**Descriptive Statistics: Missingness**

Table C.10: Missing Data: Political Party (EVS)

| Variable name | Count | Percentage |
| --- | --- | --- |
| Political party | 10622 | 20.8% |

Table C.11: Missing data: European Individual-level Analysis

| Variable name | Count | Percentage |
| --- | --- | --- |
| AI/IVF attitudes | 2069 | 4.1% |
| Abortion attitudes | 1741 | 3.4% |
| Left-right self-placement | 9561 | 18.7% |
| Religiosity | 384 | 0.8% |
| Gender | 26 | 0.1% |
| Age | 325 | 0.6% |
| Marital status | 394 | 0.8% |
| Education | 450 | 0.9% |

Table C.12: Missing data: Norwegian Individual-level Analysis (EVS)

| Variable name | Count | Percentage |
| --- | --- | --- |
| AI/IVF attitudes | 10 | 0.8% |
| Abortion attitudes | 8 | 0.7% |
| Party group | 117 | 10.4% |
| Religiosity | 1 | 0.1% |
| Gender | 0 | 0% |
| Age | 2 | 0.2% |
| Marital status | 4 | 0.3% |
| Education | 20 | 2.0% |

Table C.13: Missing data: Norwegian Individual-level Analysis (NNES)

| Variable name | Count | Percentage |
|---|---|---|
| Surrogacy attitudes | 76 | 3.9% |
| Abortion attitudes | 66 | 3.4% |
| Party group | 368 | 18.7% |
| Religiosity | 98 | 5.0% |
| Gender | 0 | 0% |
| Age | 0 | 0% |
| Marital status | 61 | 3.1% |
| Education | 105 | 5.3% |

**Missing Data Analysis**

Table C.14: Comparing Missing Data: AI/IVF Attitudes (Numeric)

| Variable name | Not missing | | Missing | | P-value |
|---|---|---|---|---|---|
| | Mean | St.d. | Mean | St.d. | |
| Left-right self-placement | 5.4 | 2.3 | 5.4 | 2.4 | 0.930 |
| Age | 49.9 | 17.6 | 54.9 | 19.3 | <0.001 |

Table C.15: Comparing Missing Data: AI/IVF Attitudes (Categorical)

| Variable name | | Not missing | | Missing | | P-value |
|---|---|---|---|---|---|---|
| | | Count | % | Count | % | |
| Religiosity: | Non-affiliated | 15890 | 96.0 | 661 | 4.0 | |
| | Passive member | 10733 | 95.1 | 548 | 4.9 | 0.001 |
| | Active member | 21978 | 96.5 | 803 | 3.5 | |
| Gender: | Female | 27019 | 96.1 | 1089 | 3.9 | |
| | Male | 21887 | 95.7 | 976 | 4.3 | 0.001 |
| Education: | Less than HS | 10461 | 93.6 | 719 | 3.9 | |
| | High school | 19419 | 96.1 | 786 | 3.9 | 0.001 |
| | More than HS | 18644 | 97.3 | 518 | 2.7 | |
| Marital status: | Married | 26537 | 96.5 | 958 | 3.5 | |
| | Not married | 22048 | 95.4 | 1060 | 4.6 | 0.001 |

Table C.16: Comparing Missing Data: Left-Right Self-Placement (Numeric)

| Variable name | Not missing | | Missing | | P-value |
|---|---|---|---|---|---|
| | Mean | St.d. | Mean | St.d. | |
| AI/IVF attitudes | 7.4 | 2.9 | 6.7 | 3.3 | <0.001 |
| Age | 50.5 | 17.6 | 48.2 | 18.2 | <0.001 |

Table C.17: Comparing Missing Data: Left-Right Self-Placement (Categorical)

| Variable name | | Not missing | | Missing | | P-value |
|---|---|---|---|---|---|---|
| | | Count | % | Count | % | |
| Religiosity: | Non-affiliated | 13527 | 81.7 | 3024 | 18.3 | |
| | Passive member | 18773 | 82.4 | 4008 | 17.6 | 0.001 |
| | Active member | 8897 | 78.9 | 2384 | 21.1 | |
| Gender: | Female | 21957 | 78.1 | 6151 | 21.9 | 0.001 |
| | Male | 19457 | 85.1 | 3406 | 14.9 | |
| Education: | Less than HS | 8368 | 74.8 | 2812 | 25.2 | |
| | High school | 16112 | 79.7 | 4093 | 20.3 | 0.001 |
| | More than HS | 16623 | 86.7 | 2539 | 13.3 | |
| Marital status: | Married | 22725 | 82.7 | 4770 | 17.3 | 0.001 |
| | Not married | 18453 | 79.9 | 4655 | 20.1 | |

# D  Alternative Models

## Between-Party Variance: Alternative Controls

Table D.18: Between-Party Variance Given "Two Worlds" and EU Membership

| | Model 1a | Model 1b | Model 2a | Model 2b |
|---|---|---|---|---|
| | AI/IVF | AI/IVF | Abortion | Abortion |
| Constant | 49.45 (18.73)* | 41.56 (28.85) | 113.85 (17.03)*** | 88.54 (25.51)** |
| Religious world (ref: Secular) | 7.56 (23.93) | 10.47 (25.58) | −49.05 (21.75)* | −39.72 (22.61) |
| EU membership | | 9.47 (26.04) | | 30.37 (23.02) |
| $R^2$ | 0.00 | 0.01 | 0.15 | 0.20 |
| Adj. $R^2$ | −0.03 | −0.06 | 0.12 | 0.14 |
| Num. obs. | 31 | 31 | 31 | 31 |

OLS regression models ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Table D.19: Between-Party Variance Given "Two Worlds" and Gender Index

| | Model 1a | Model 1b | Model 2a | Model 2b |
|---|---|---|---|---|
| | AI/IVF | AI/IVF | Abortion | Abortion |
| Constant | 49.45 (18.73)* | 284.20 (161.69) | 113.85 (17.03)*** | −124.49 (145.59) |
| Religious world (ref: Secular) | 7.56 (23.93) | −3.64 (24.70) | −49.05 (21.75)* | −37.67 (22.24) |
| Gender index | | −253.41 (173.42) | | 257.29 (156.15) |
| $R^2$ | 0.00 | 0.07 | 0.15 | 0.22 |
| Adj. $R^2$ | −0.03 | 0.01 | 0.12 | 0.17 |
| Num. obs. | 31 | 31 | 31 | 31 |

OLS regression models ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

### Within-Party Agreement: Alternative Controls

Table D.20: Within-Party Agreement Given "Two Worlds" and EU Membership

|  | Model 1a AI/IVF | Model 1b AI/IVF | Model 2a Abortion | Model 2b Abortion |
|---|---|---|---|---|
| Constant | 0.29 (0.06)*** | 0.18 (0.09) | 0.19 (0.04)*** | 0.21 (0.06)** |
| Religious world (ref: Secular) | 0.06 (0.08) | 0.10 (0.08) | 0.13 (0.05)* | 0.13 (0.06)* |
| EU membership |  | 0.14 (0.09) |  | −0.02 (0.06) |
| $R^2$ | 0.02 | 0.10 | 0.17 | 0.18 |
| Adj. $R^2$ | −0.02 | 0.03 | 0.15 | 0.12 |
| Num. obs. | 31 | 31 | 31 | 31 |

OLS regression models ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Table D.21: Within-Party Agreement Given "Two Worlds" and Gender Index

|  | Model 1a AI/IVF | Model 1b AI/IVF | Model 2a Abortion | Model 2b Abortion |
|---|---|---|---|---|
| Constant | 0.29 (0.06)*** | −1.27 (0.49)* | 0.19 (0.04)*** | −0.05 (0.37) |
| Religious world (ref: Secular) | 0.06 (0.08) | 0.13 (0.07) | 0.13 (0.05)* | 0.14 (0.06)* |
| Gender index |  | 1.69 (0.52)** |  | 0.26 (0.40) |
| $R^2$ | 0.02 | 0.28 | 0.17 | 0.19 |
| Adj. $R^2$ | −0.02 | 0.23 | 0.15 | 0.13 |
| Num. obs. | 31 | 31 | 31 | 31 |

OLS regression models ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

### Cultural Clusters: Alternative Controls

Table D.22: Country Mean Given Cultural Clusters and EU Membership

|  | Model 1a<br>AI/IVF | Model 1b<br>AI/IVF | Model 2a<br>Abortion | Model 2b<br>Abortion |
|---|---|---|---|---|
| Constant | 6.79 (0.27)*** | 3.91 (0.32)*** | 4.01 (0.30)*** | 3.91 (0.32)*** |
| *Cultural clusters* (ref: Orthodox Europe) |  |  |  |  |
| Protestant Europe | 1.05 (0.36)** | 3.01 (0.44)*** | 3.13 (0.41)*** | 3.01 (0.44)*** |
| Catholic Europe | 0.31 (0.34) | 1.05 (0.51)* | 1.36 (0.38)** | 1.05 (0.51)* |
| EU member |  | 0.41 (0.44) |  | 0.41 (0.44) |
| $R^2$ | 0.25 | 0.69 | 0.68 | 0.69 |
| Adj. $R^2$ | 0.20 | 0.66 | 0.66 | 0.66 |
| Num. obs. | 30 | 30 | 30 | 30 |

OLS regression models ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Table D.23: Country Mean Given Cultural Clusters and Gender Index

|  | Model 1a<br>AI/IVF | Model 1b<br>AI/IVF | Model 2a<br>Abortion | Model 2b<br>Abortion |
|---|---|---|---|---|
| Constant | 6.79 (0.27)*** | −1.00 (3.78) | 4.01 (0.30)*** | −1.00 (3.78) |
| *Cultural clusters* (ref: Orthodox Europe) |  |  |  |  |
| Protestant cluster | 1.05 (0.36)** | 2.20 (0.81)* | 3.13 (0.41)*** | 2.20 (0.81)* |
| Catholic cluster | 0.31 (0.34) | 0.58 (0.69) | 1.36 (0.38)** | 0.58 (0.69) |
| Gender index |  | 6.24 (4.69) |  | 6.24 (4.69) |
| $R^2$ | 0.25 | 0.70 | 0.68 | 0.70 |
| Adj. $R^2$ | 0.20 | 0.67 | 0.66 | 0.67 |
| Num. obs. | 30 | 30 | 30 | 30 |

OLS regression models ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

**Multilevel Models Without Weights**

Table D.24: Attitudes Given Left-Right Self-Placement and Religiosity Without Weights

|  | Model 1: AI/IVF attitudes | Model 2: Abortion attitudes |
|---|---|---|
| Constant | 0.70 (0.02)*** | 0.45 (0.03)*** |
| Left-right self-placement | −0.07 (0.01)*** | −0.11 (0.01)*** |
| *Religiosity (ref: Non-affiliated)* | | |
| Passive member | −0.01 (0.00)** | −0.07 (0.00)*** |
| Active member | −0.12 (0.00)*** | −0.23 (0.00)*** |
| Gender (ref: Male) | 0.05 (0.00)*** | 0.02 (0.00)*** |
| Age | −0.11 (0.01)*** | −0.06 (0.01)*** |
| *Education (ref: Less than high school)* | | |
| High school | 0.05 (0.00)*** | 0.07 (0.00)*** |
| Higher education | 0.09 (0.00)*** | 0.12 (0.00)*** |
| Marital status (ref: Not married) | 0.01 (0.00)*** | −0.01 (0.00)*** |
| *Cultural clusters (ref: Orthodox Europe)* | | |
| Protestant Europe | 0.09 (0.03)** | 0.30 (0.04)*** |
| Catholic Europe | 0.04 (0.03) | 0.15 (0.03)*** |
| AIC | 15700.41 | 16408.31 |
| Log Likelihood | −7837.20 | −8191.16 |
| Num. obs. | 38407 | 38537 |
| Num. groups: c_name | 30 | 30 |

Linear multilevel regression models, where individuals are nested in countries. Random intercepts for each country. The numeric variables Left-right self-placement and Age are normalized from 0 to 1. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

## Logistics Regression With Weights

### Table D.25: Likelihood of Positive Attitudes with Weights

|  | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
|  | Abortion (EVS) | Abortion (NNES) | AI/IVF (EVS) | Surrogacy (NNES) |
| Constant | 0.39 (0.06)*** | 0.77 (0.04)*** | 0.49 (0.06)*** | 0.54 (0.05)*** |
| *Party group (ref: Right parties)* |  |  |  |  |
|   Christian Democratic Party | −0.16 (0.09) | −0.23 (0.06)*** | −0.20 (0.08)* | −0.16 (0.06)* |
|   Leftist parties | 0.01 (0.03) | 0.05 (0.02)* | −0.05 (0.03) | −0.06 (0.02)** |
|   Other parties | −0.03 (0.05) | −0.06 (0.03) | −0.08 (0.05) | −0.09 (0.03)** |
| *Religiosity (ref: Non-affiliated)* |  |  |  |  |
|   Passive member | −0.09 (0.03)* | −0.13 (0.02)*** | −0.03 (0.03) | −0.08 (0.02)*** |
|   Active member | −0.27 (0.06)*** | −0.54 (0.04)*** | −0.19 (0.06)** | −0.14 (0.05)** |
| Gender (ref: Male) | 0.09 (0.03)** | 0.06 (0.02)** | 0.13 (0.03)*** | 0.06 (0.02)** |
| Age | −0.00 (0.00) | 0.00 (0.00) | −0.00 (0.00)*** | −0.00 (0.00)*** |
| *Education (ref: Less than high school)* |  |  |  |  |
|   High school | 0.11 (0.04)** | 0.09 (0.03)*** | 0.10 (0.04)** | 0.03 (0.03) |
|   Higher education | 0.16 (0.04)*** | 0.10 (0.03)*** | 0.08 (0.04)* | −0.03 (0.03) |
| Marital status (ref: Not married) | 0.02 (0.03) | −0.04 (0.02) | 0.04 (0.03) | −0.03 (0.02) |
| AIC | 1383.95 | 1437.86 | 1355.48 | 1660.22 |
| Log Likelihood | −679.98 | −706.93 | −665.74 | −818.11 |
| Deviance | 217.16 | 218.60 | 210.99 | 251.99 |
| Num. obs. | 984 | 1546 | 984 | 1499 |

Logistic regression models, where each model is has a different dependent variable. Coefficients are reported as log-odds. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

**Logistics Regression With Alternative Reference Category for Party Groups**

Table D.26: Likelihood of Positive Attitudes Given Leftist Parties as Reference Category

|  | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
|  | Abortion (EVS) | Abortion (NNES) | AI/IVF (EVS) | Surrogacy (NNES) |
| Constant | 0.40 (0.07)*** | 0.83 (0.04)*** | 0.51 (0.07)*** | 0.48 (0.05)*** |
| *Party group (ref: Leftist parties)* |  |  |  |  |
| Christian Democratic Party | −0.19 (0.08)* | −0.30 (0.05)*** | −0.20 (0.08)* | −0.06 (0.06) |
| Right-wing parties |  | −0.05 (0.02)* |  | 0.06 (0.02)** |
| Other parties | −0.04 (0.05) | −0.11 (0.03)*** | −0.06 (0.05) | −0.03 (0.03) |
| *Religiosity (ref: Non-affiliated)* |  |  |  |  |
| Passive member | −0.11 (0.03)** | −0.13 (0.02)*** | −0.02 (0.03) | −0.08 (0.02)*** |
| Active member | −0.29 (0.06)*** | −0.52 (0.04)*** | −0.19 (0.06)** | −0.17 (0.05)*** |
| Gender (ref: Male) | 0.09 (0.03)** | 0.05 (0.02)** | 0.12 (0.03)*** | 0.06 (0.02)** |
| Age | −0.00 (0.00) | 0.00 (0.00) | −0.00 (0.00)*** | −0.00 (0.00)*** |
| *Education (ref: Less than high school)* |  |  |  |  |
| High school | 0.11 (0.05)* | 0.09 (0.03)** | 0.10 (0.05)* | 0.03 (0.03) |
| Higher education | 0.16 (0.04)*** | 0.11 (0.03)*** | 0.08 (0.04) | −0.03 (0.03) |
| Marital status (ref: Not married | 0.02 (0.03) | −0.04 (0.02)* | 0.05 (0.03) | −0.03 (0.02) |
| AIC | 1351.12 | 1372.38 | 1324.51 | 1630.19 |
| Log Likelihood | −663.56 | −674.19 | −650.26 | −803.10 |
| Deviance | 221.95 | 216.81 | 216.03 | 256.09 |
| Num. obs. | 984 | 1561 | 984 | 1514 |

Logistic regression models, where each model is has a different dependent variable. Coefficients are reported as log-odds. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Table D.27: Likelihood of Positive Attitudes Given Other Parties as Reference Category

|  | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
|  | Abortion (EVS) | Abortion (NNES) | AI/IVF (EVS) | Surrogacy (NNES) |
| Constant | 0.40 (0.07)*** | 0.73 (0.05)*** | 0.51 (0.07)*** | 0.45 (0.05)*** |
| *Party group (ref: Other parties)* |  |  |  |  |
| Christian Democratic Party | −0.19 (0.08)* | −0.19 (0.06)*** | −0.20 (0.08)* | −0.03 (0.07) |
| Right-wing parties |  | 0.05 (0.03) |  | 0.09 (0.03)** |
| Leftist parties | −0.04 (0.05) |  | −0.06 (0.05) |  |
| *Religiosity (ref: Non-affiliated)* |  |  |  |  |
| Passive member | −0.11 (0.03)** | −0.13 (0.02)*** | −0.02 (0.03) | −0.08 (0.02)*** |
| Active member | −0.29 (0.06)*** | −0.52 (0.04)*** | −0.19 (0.06)** | −0.17 (0.05)*** |
| Gender (ref: Male) | 0.09 (0.03)** | 0.05 (0.02)** | 0.12 (0.03)*** | 0.06 (0.02)** |
| Age | −0.00 (0.00) | 0.00 (0.00) | −0.00 (0.00)*** | −0.00 (0.00)*** |
| *Education (ref: Less than high school)* |  |  |  |  |
| High school | 0.11 (0.05)* | 0.09 (0.03)** | 0.10 (0.05)* | 0.03 (0.03) |
| Higher education | 0.16 (0.04)*** | 0.11 (0.03)*** | 0.08 (0.04) | −0.03 (0.03) |
| Marital status (ref: Not married) | 0.02 (0.03) | −0.04 (0.02)* | 0.05 (0.03) | −0.03 (0.02) |

Logistic regression models, where each model is has a different dependent variable. Coefficients are reported as log-odds. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Table D.28: Likelihood of Positive Attitudes Given Christian Democratic Party as Reference Category

|  | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
|  | Abortion (EVS) | Abortion (NNES) | AI/IVF (EVS) | Surrogacy (NNES) |
| Constant | 0.40 (0.07)*** | 0.53 (0.07)*** | 0.51 (0.07)*** | 0.42 (0.08)*** |
| *Party group (ref: Christian Democratic Party)* |  |  |  |  |
| Right-wing parties |  | 0.25 (0.05)*** |  | 0.13 (0.06)* |
| Leftist parties | 0.01 (0.03) | 0.30 (0.05)*** | −0.05 (0.03) | 0.06 (0.06) |
| Other parties | −0.04 (0.05) | 0.19 (0.06)*** | −0.06 (0.05) | 0.03 (0.07) |
| *Religiosity (ref: Non-affiliated)* |  |  |  |  |
| Passive member | −0.11 (0.03)** | −0.13 (0.02)*** | −0.02 (0.03) | −0.08 (0.02)*** |
| Active member | −0.29 (0.06)*** | −0.52 (0.04)*** | −0.19 (0.06)** | −0.17 (0.05)*** |
| Gender (ref: Male) | 0.09 (0.03)** | 0.05 (0.02)** | 0.12 (0.03)*** | 0.06 (0.02)** |
| Age | −0.00 (0.00) | 0.00 (0.00) | −0.00 (0.00)*** | −0.00 (0.00)*** |
| *Education (ref: Less than high school)* |  |  |  |  |
| High school | 0.11 (0.05)* | 0.09 (0.03)** | 0.10 (0.05)* | 0.03 (0.03) |
| Higher education | 0.16 (0.04)*** | 0.11 (0.03)*** | 0.08 (0.04) | −0.03 (0.03) |
| Marital status | 0.02 (0.03) | −0.04 (0.02)* | 0.05 (0.03) | −0.03 (0.02) |
| AIC | 1351.12 | 1372.38 | 1324.51 | 1630.19 |
| Log Likelihood | −663.56 | −674.19 | −650.26 | −803.10 |
| Deviance | 221.95 | 216.81 | 216.03 | 256.09 |
| Num. obs. | 984 | 1561 | 984 | 1514 |

Logistic regression models, where each model is has a different dependent variable. Coefficients are reported as log-odds. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

# E   Evaluating Models

## Multilevel Models: Random Intercepts

### Figure E.4: Random Intercepts By Country: AI/IVF Attitudes
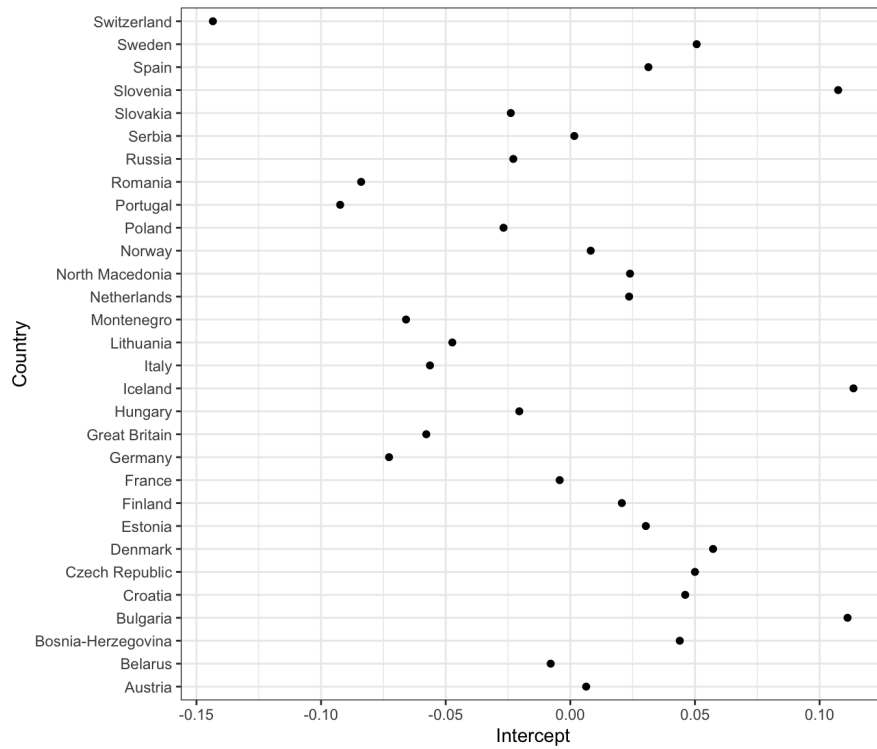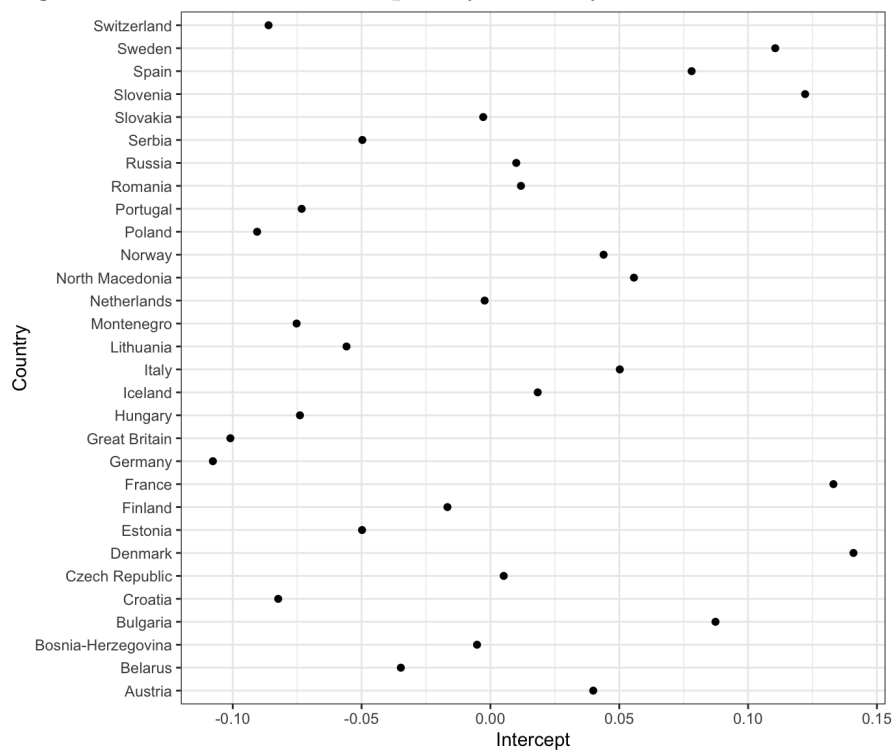


### Figure E.5: Random Intercepts By Country: Abortion Attitudes

**Assumptions for Logistic Regression: Linearity**

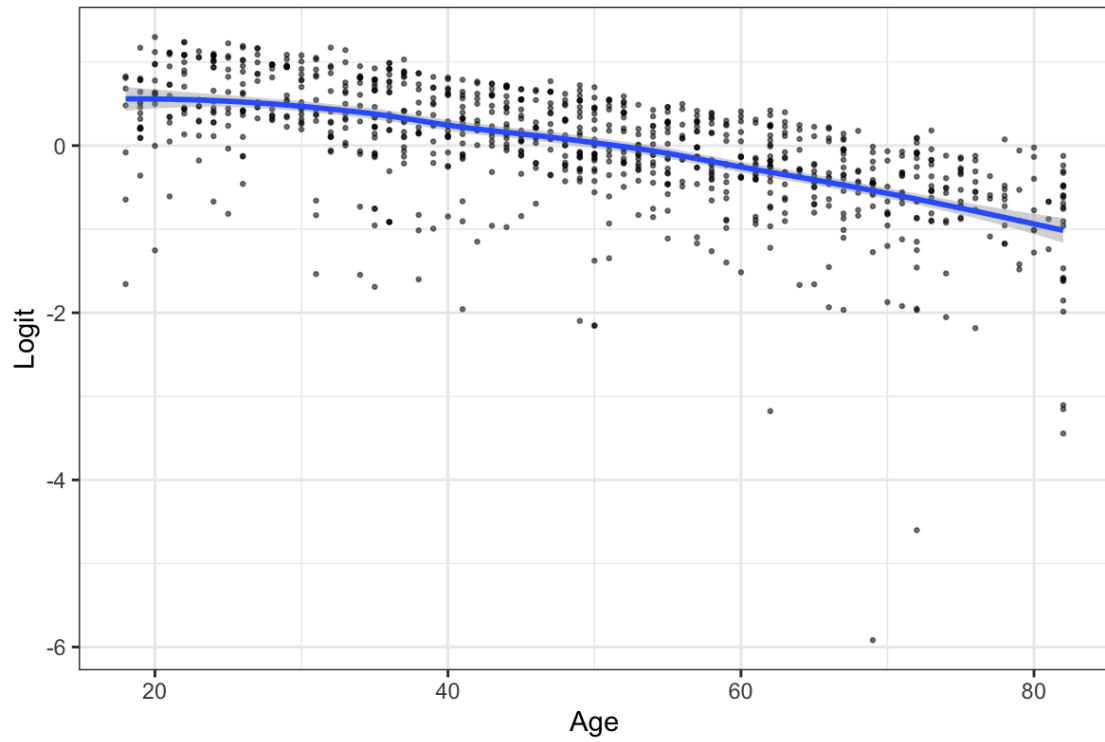Figure E.6: Age Linearity Assumption: AI/IVF (EVS)



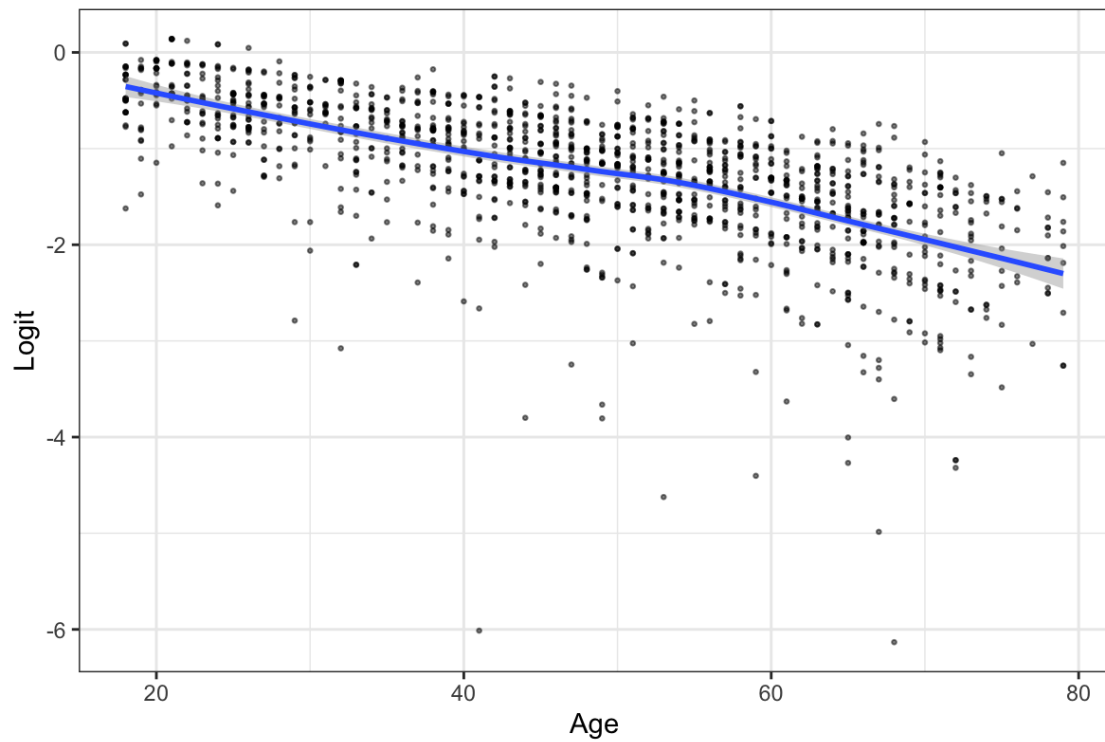Figure E.7: Age Linearity Assumption: Surrogacy (NNES)

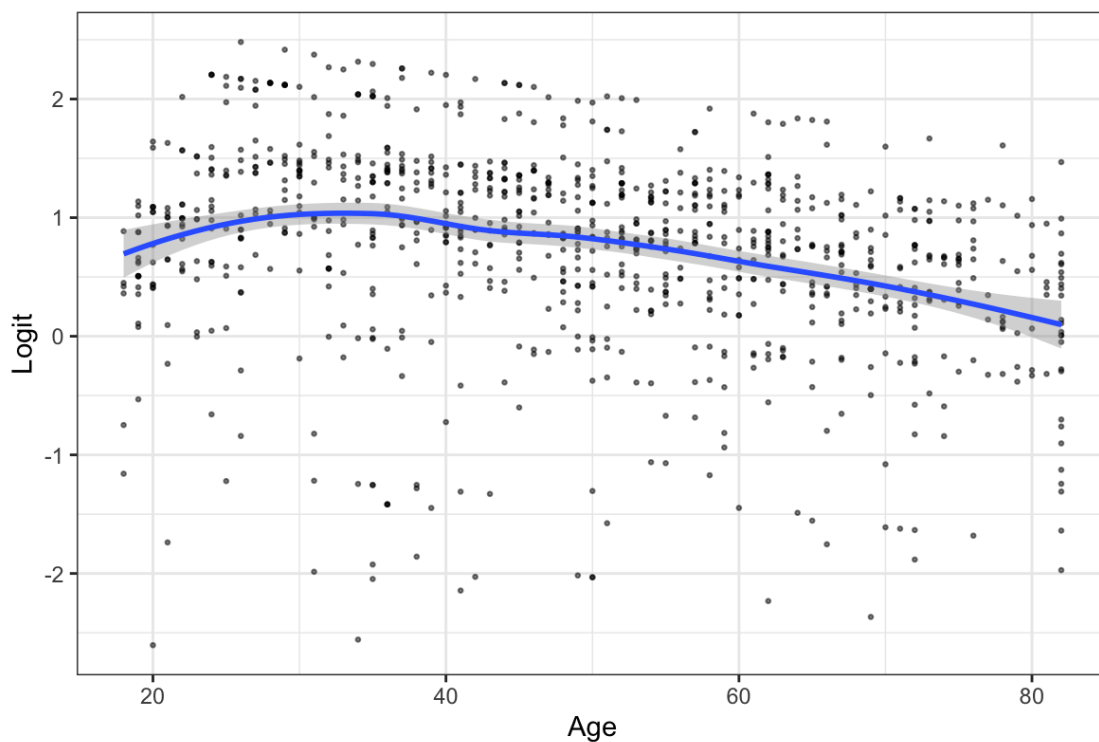Figure E.8: Age Linearity Assumption: Abortion (EVS)



Figure E.9: Age Linearity Assumption: Surrogacy (NNES)
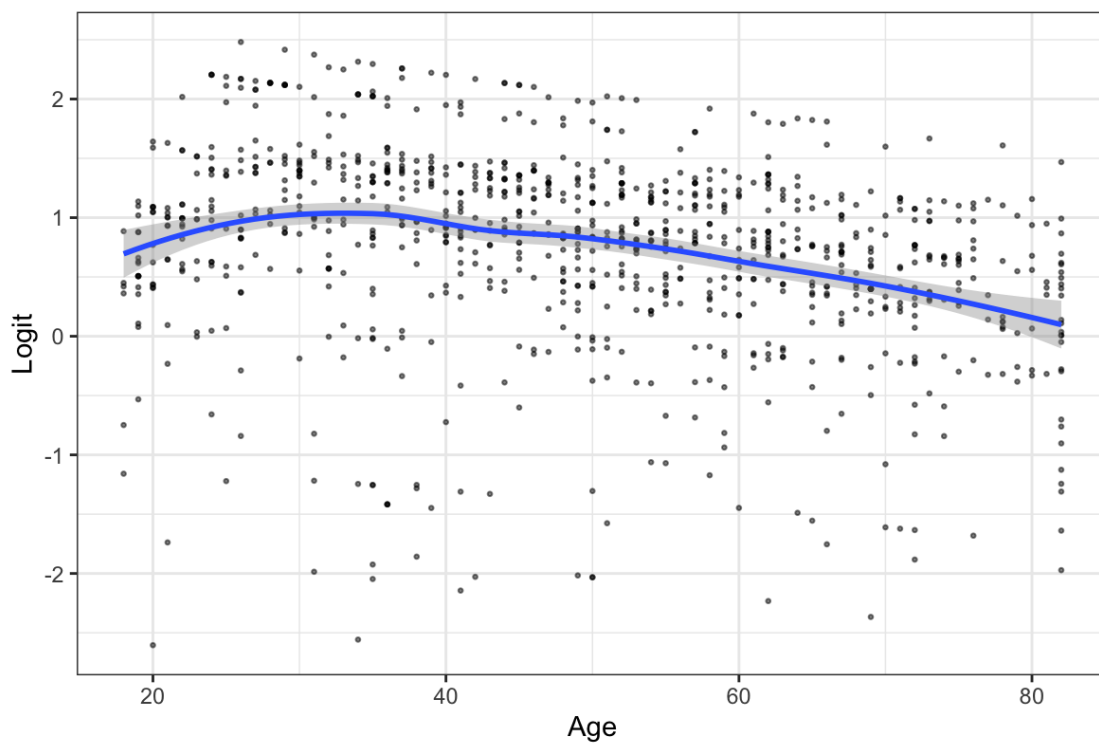
**Logistic Regression Models: ROC**

Figure E.10: ROC: Abortion (EVS)
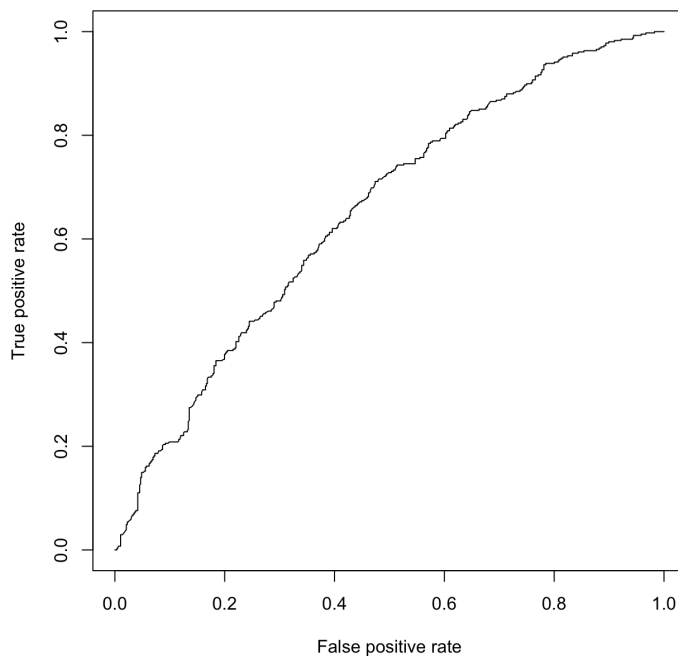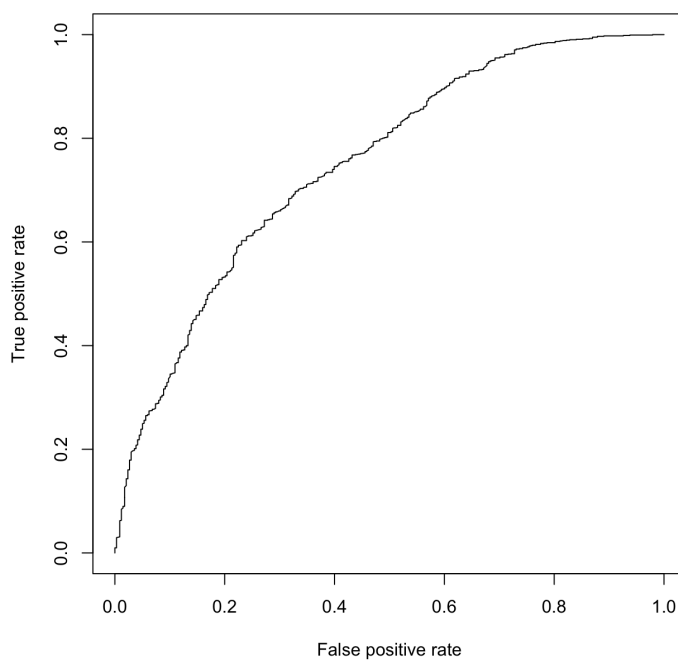


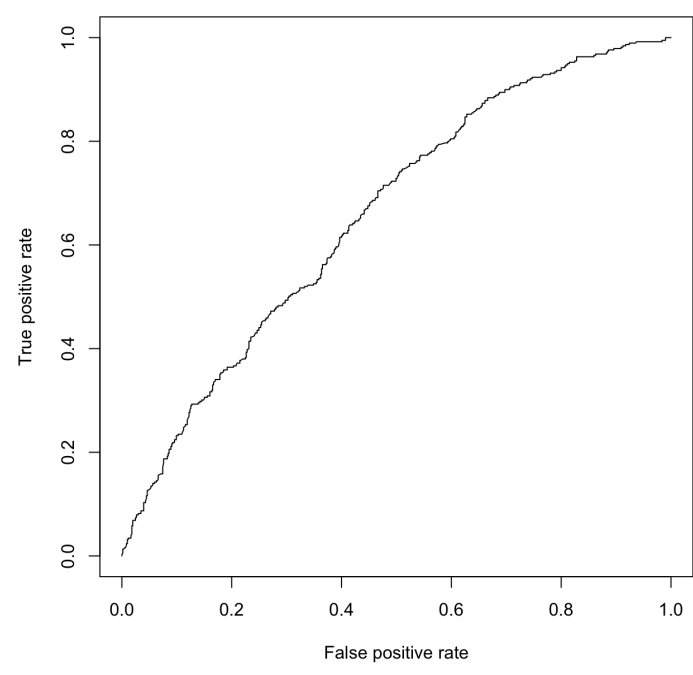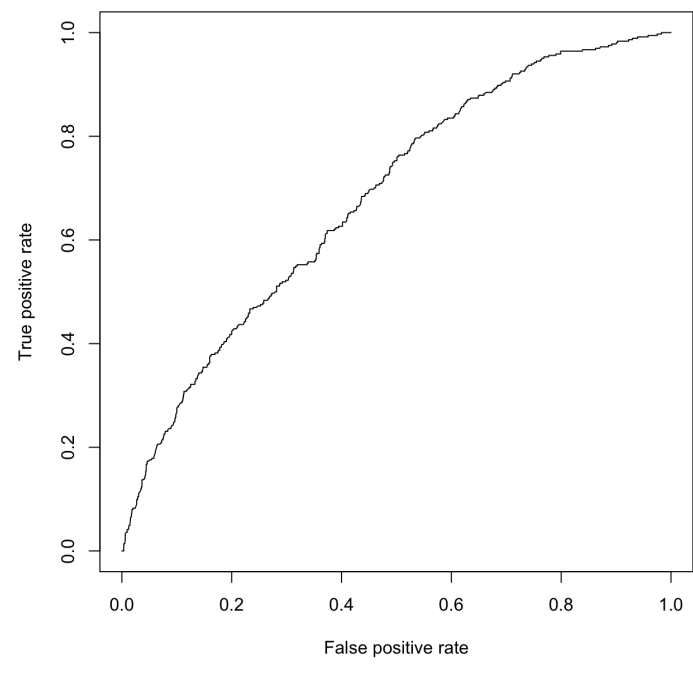Figure E.11: ROC: Abortion (NNES)

Figure E.12: ROC: AI/IVF (EVS)



Figure E.13: ROC: Surrogacy (NNES)

**Area Under the Curve (AUC)**

Table E.29: AUC-Values

| Model | AUC |
|---|---|
| Abortion (EVS) | 0.65 |
| Abortion (NNES) | 0.75 |
| AI/IVF (EVS) | 0.66 |
| Surrogacy (NNES) | 0.68 |

**Sensitivity versus. Specificity**

Table E.30: Predictions: Abortion Attitudes (EVS)

| | Not supportive | Supportive |
|---|---|---|
| **Not supportive (pred.)** | 51.9% | 48.1% |
| **Supportive (pred.)** | 30.6% | 69.4% |

Table E.31: Predictions: Abortion Attitudes (NNES)

| | Not supportive | Supportive |
|---|---|---|
| **Not supportive (pred.)** | 69.8% | 30.2% |
| **Supportive (pred.)** | 33.9% | 66.1% |

Table E.32: Predictions: AI/IVF Attitudes (EVS)

| | Not supportive | Supportive |
|---|---|---|
| **Not supportive (pred.)** | 55.2% | 44.8% |
| **Supportive (pred.)** | 31.1% | 68.9% |

Table E.33: Predictions: Surrogacy Attitudes (NNES)

| | Not supportive | Supportive |
|---|---|---|
| **Not supportive (pred.)** | 57.2% | 42.8% |
| **Supportive (pred.)** | 33.5% | 66.5% |