Norms, Politics, and Assisted Reproductive Technology (ART) Policies: A Cross-National Comparative Analysis

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Abstract

Increases in age at first birth and a related rise in infertility have resulted in a growth of ART (assisted reproductive technology) usage. Policies related to ART differ across countries. We demonstrate how three ART policies—couple and sexuality restrictions, number of embryos transferred, and cloning—are not purely formed on medical grounds but by socio-cultural norms. Data across the period 1998–2013 for 39 countries on aspects such as legislation, insurance coverage, affordability, utilization, and socio-cultural norms is analyzed. Preliminary results show that less approval of non-marital family forms are linked to more exclusive ART access. Widespread convictions that a fertilized egg is a human being is associated with a higher number of embryos being transferred. Favorable attitudes for therapeutic cloning are associated with more affordable treatments. We conclude by discussing how these policies have consequences for inequality of access and for health and wellbeing of mothers and children.

Introduction and background

The age at first birth for women in many countries has risen by 4–5 years over the last decades to around 29 years (Mills *et al.*, 2011). Older parenthood has been linked to increased levels of infertility, reaching a 15.5% prevalence among women (Thoma *et al.*, 2013). Couples who experience infertility increasingly opt for assisted reproductive technology (ART). The regulation, financing, and equality of utilization, however, widely differ across countries (Berg Brigham *et al.*, 2013; Chambers *et al.*, 2009, 2014; Pennings, 2009).

Basic justifications of ART policies build on the protection of human life, noncommercialization of the human body and reproduction, and responsible parenthood (Pennings, 2009). Although nations have an interest in promoting the safety and welfare of parents and their offspring, the large variation in how these fundamental goals are interpreted and realized demands an explanation.

ART has been at the heart of considerable political scrutiny and debate, not only for medical, but also often for cultural, ethical, and religious reasons. The move towards more explicit legislation has likewise been fueled by media reports of cases such as 65 year-old mothers (e.g. Dooley, 2012), sperm donors who fathered over 600 children (e.g. Kelly, 2012), posthumous fatherhood (Henig, 2013), and reproductive tourism to avoid national regulations (Shenfield *et al.*, 2010). The traditional debate related to ART treatments has been strongly associated with the use of embryos in research and the fate of donated embryos (Braude and Muhammed, 2003). IVF pioneers faced heated moral questions and protest from a variety of religious organizations that largely objected the destruction of fertilized eggs and raised concerns regarding whether these eggs had the status of a human being (Jones *et al.*, 2007). In 1987, the Catholic Church published the view that IVF is 'morally illicit' (*Donum Vitae*), which may have impacted policy formulation and utilization in some countries.

ART use in individual countries is strongly affected by the regulatory and legal framework that stipulates the costs of ART to patients, socially restricted access rules, number of treatment cycles reimbursed, and also limits some ART practices and methods (Nyboe Andersen *et al.*, 2009). Furthermore, many ART policies are regulated by general guidelines that are not dictated by national governments, but rather quasi-governmental agencies such as medical societies, religious organizations and access is related to insurance coverage (Jones *et al.*, 2007; Pennings,

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2009). Although there has been often implicit reference to the role that national cultural and religious norms play in shaping ART policy, there has been no empirical study to date.

The **aim of this paper** is to empirically demonstrate for the first time how three key ART policies—couple and sexuality restrictions, number of embryos transferred, and cloning—are shaped by socio-cultural norms and politics and how this in turn limits or enhances the accessibility and affordability of ART treatments in different nations. Data is drawn from multiple data sources to examine 39 countries over 15 years (1998–2013), including 35 European countries plus the United States, Canada, Japan, and China.

This study contributes to the existing literature in several ways. First, this paper empirically examines ART policy changes across time and between countries in a systematic manner for the first time. Second, this study will be the first to empirically test whether the divergent policies, affordability, and usage of ART is attributed to medical standards or rather related to socio-cultural, political, and religious values. Experts have suggested that guidelines, regulations, and practices emerge as the result of a complex interplay between medical safety, but as the IFFS (Jones *et al.*, 2007, p. S4) acknowledges, "sometimes reflect the social and religious mores of the particular sovereign state." Although socio-cultural and religious norms have been suggested, there is currently a lack of empirical evidence to demonstrate this point.

Theoretical framework and central hypotheses

A multilevel theoretical approach considers how macro-level institutional arrangements and policies link with micro-level individual and couple-level norms and behavior. Figure 1 adopts the classic sociological model often referred to as the macro–micro–macro model (Coleman, 1990). Although we will not empirically explore each relationship, this model specifies the underlying mechanisms of how policies interact with individual-level norms and in turn influence the equality of access and usage of ART, which in turn results in the aggregated national-level ART figures we observe.

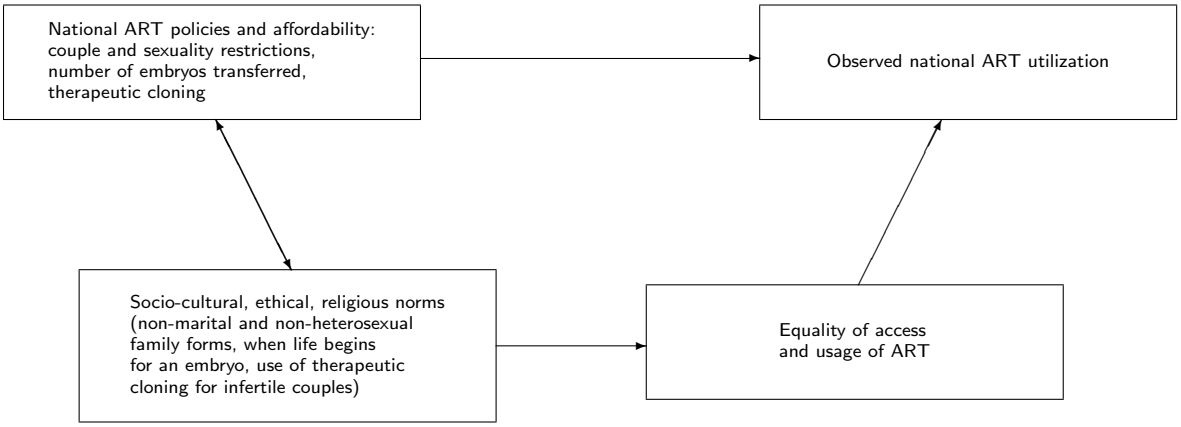

Figure 1: The link between national ART regulation, norms, and utilization

The **three central hypotheses** that will be tested and elaborated upon in more detail in the final paper are as follows.

1. A lower level of acceptability of norms related to: a) non-marital family forms (single mothers, non-marital cohabitation) and b) non-heterosexual family forms, will be related to more restrictive couple and sexuality requirements for ART treatment.

2. Nations where individuals have predominantly strong norms that a human embryo is alive immediately after fertilization and a history of religious lobbying in ART policy-formation will have policies that favor a higher number of transferred embryos.

3. Nations where individuals have predominantly supportive attitudes for infertile couples using therapeutic cloning will offer more affordable treatments (i.e., lower net cost of an ART cycle as a percentage of annual disposable income) and health insurance coverage.

Data and methods

The ART regulation **data** are largely taken from the International Federation of Fertility Societies (IFFS) Surveillance reports from 1998–2013 (Jones and Cohen, 1999, 2001, 2004; Jones *et al.*, 2007, 2011; Ory *et al.*, 2014). In some cases, we also use data collected by various academics from multiple sources and published as supplementary material to their articles (e.g. Chambers *et al.*, 2014). Socio-cultural normative data are taken from the World Values Survey (1998–2008) and the Eurobarometer survey (2002, 2010) and economic data regarding insurance coverage, affordability, and utilization from sources such as OECD, national agencies, and statistical registries. At the time of submitting this abstract, all data has been digitalized into one comprehensive dataset that will also be made publicly available upon publication of this paper. **Analytical methods** comprise descriptive statistics as well as cross-sectional and longitudinal (random and fixed effects) regression analyses.

First results

Preliminary analysis indicates promising findings that will be explored with more sophisticated techniques in the final version of the paper. Many countries have become more permissive and inclusive in their couple requirements for ART over time, but there remains a clear division of countries, with some maintaining non-inclusive regulations (e.g., Turkey, Japan, China, Hungary, Greece). Higher national levels of disapproval of non-marital family forms are associated with more stringent ART couple and sexuality restrictions.

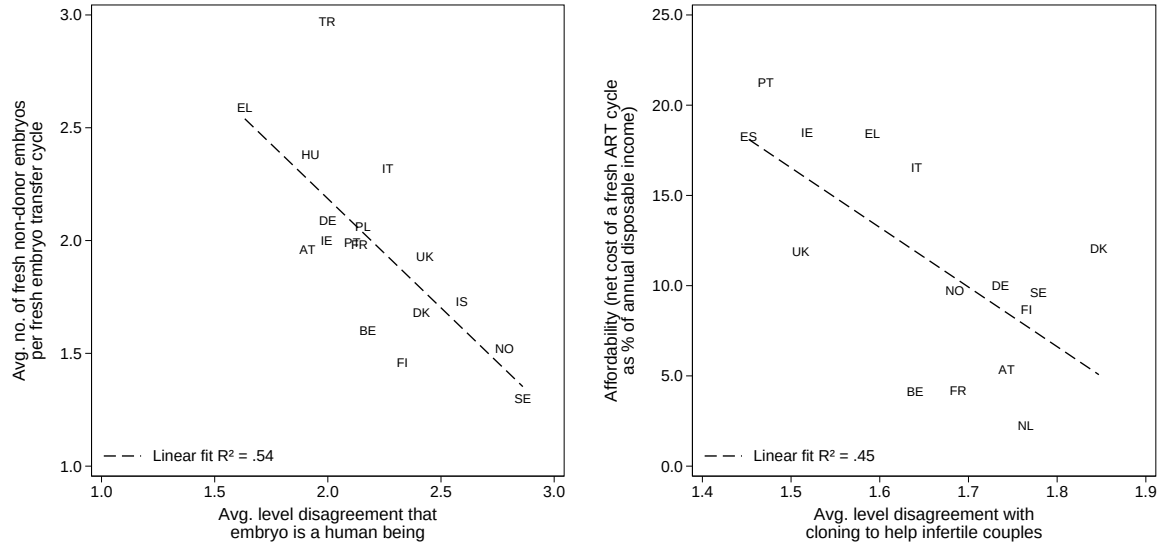

Figure 2: *Left-hand* panel: Relationship between norm of whether a fertilized egg is a human being and number of embryos transferred. *Right-hand* panel: Relationship between level of disagreement that cloning should be used to help infertile couples and ART affordability. Selected European countries

Notes: Authors' own calculations. Data sources: Eurobarometer and Chambers *et al.* (2014).
Country abbreviations: AT Austria, BE Belgium, DE Germany, DK Denmark, EL Greece, ES Spain, FI Finland, FR France, HU Hungary, IE Ireland, IS Iceland, IT Italy, NL The Netherlands, NO Norway, PL Poland, PT Portugal, SE Sweden, TR Turkey, UK United Kingdom

There is a strong relationship with the conviction that an embryo is a human being and the average number of embryos that are transferred in an ART treatment cycle (left hand panel of Figure 2). If the prevailing belief is that a fertilized egg is a human being, the higher the likelihood that more or all fertilized eggs will be transferred. Results are also discussed in relation to the strength of religious groups in Italy, Greece, Ireland and Turkey. Conversely, in Scandinavian countries, high levels of disagreement that a fertilized egg is a human go along with lower numbers of transferred embryos.

Most countries have moved to more stringent regulations regarding the transfer to embryos over time, which started in the early to mid-2000's in the Scandinavian countries. As the right panel of Figure 2 demonstrates, in nations where there are more positive attitudes towards ART technology, such as cloning to aid infertile couples, ART treatments are more affordable.

Conclusion

Although there has been an increase in the use of ART across many, particularly European countries, the evolution of the policies and how they impact inequality of access and usage are poorly understood. This paper is the first to empirically explore longitudinal changes in policies across time over a 15-year period in 39 countries. Three key policies related to couple and sexuality restrictions, number of transferred embryos and cloning are then linked to national level norms, attitudes and political and religious constellations. Preliminary results show that policies have been formed not only on medical grounds, but also largely related to religious and social norms. This has consequences for inequality of access, and when large numbers of embryos are transferred, also for the health and wellbeing of the mother and her children. The consequences of these policies have substantial implications related to general human rights such as whether gays and lesbians and single women are allowed access to treatment, insurance legislation, and the welfare and health of mothers and their offspring (Ethics Committee of the American Society for Reproductive Medicine, 2013). In March 2014, for instance, Italy passed the Medically Assisted Reproduction Law which prohibited the destruction of embryos created outside of the body. The consequence was that all embryos created during IVF (to a legal maximum of three) must be transferred to the patient, a regulation which increased health risks for mothers and babies. This law was, however, recently overturned.

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