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When Do Laws Matter? National Minimum-Age-of-Marriage Laws, Child Rights, and Adolescent Fertility, 1989–2007

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Abstract

Using the case of adolescent fertility, we ask the questions of whether and when national laws have an effect on outcomes above and beyond the effects of international law and global organizing. To answer these questions, we utilize a fixed-effect time-series regression model to analyze the impact of minimum-age-of-marriage laws in 115 poor- and middle-income countries from 1989 to 2007. We find that countries with strict laws setting the minimum age of marriage at 18 experienced the most dramatic decline in rates of adolescent fertility. Trends in countries that set this age at 18 but allowed exceptions (for example, marriage with parental consent) were indistinguishable from countries that had no such minimum-age-of-marriage law. Thus, policies that adhere strictly to global norms are more likely to elicit desired outcomes. The article concludes with a discussion of what national law means in a diffuse global system where multiple actors and institutions make the independent effect of law difficult to identify.

Keywords

World Polity Theory; Globalization; Law; Child Rights

Introduction

Teen births, and their personal and societal toll, are of central concern to a vast network of organizations, professionals, and activists in the global community. Despite decreases in rates of adolescent fertility over the past two decades, the World Health Organization (2008) reports that nearly 16 million girls aged 15–19 give birth each year. According to the United Nations Children's Fund (UNICEF) (2008), more than 70,000 girls die from pregnancy-related complications annually. Scholars have found that teenage childbearing increases the

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risk of school dropout and HIV infection and strains households and community health systems (Dodoo and Frost 2008; Gage 1998; Singh 1998). Recently, *New York Times* columnist Nicholas Kristof (2011) turned attention to the effect of teen births – 90 percent of which occur within marriage – on overpopulation and gender inequity. Our analysis of this social problem addresses the broad question of the relative importance that national laws play in bringing about global social change.

In this paper, we trace the history of global mobilization against adolescent childbirth by turning to the related issue of child marriage, as many international organizations have pushed for the prohibition of child marriage as a way to curb adolescent fertility (UNICEF 2008). Next, we situate our question in the broader literature on how international institutions, norms, and discourses, or what previous scholars have coined the "world polity" (Boli and Thomas 1999), shape concrete local reforms. To date, this literature has focused on either the impact of international organizing on national policymaking or the impact of treaty ratification on outcomes within countries. Our unique contribution is to consider another important but often overlooked issue – whether or when national policies affect outcomes net of international organizing and international law. After explaining how our analysis addresses this lacuna and introducing our methodology, we present statistical models predicting changes from 1989 to 2007 in adolescent fertility rates in poor and middle-income countries.

We find that countries with minimum-age-of-marriage laws that set the minimum age of marriage at 18, thus complying with current international standards, are more effective than other countries at reducing rates of adolescent fertility over time, even when international law and the presence of international nongovernmental organizations (INGOs) are controlled. Importantly, we also find that the nature of the law matters – countries with laws that provide exceptions to international standards, such as allowing earlier marriage with parental consent, were less successful at reducing adolescent fertility than countries that had laws that adhered strictly to those standards.

Child Marriage and Adolescent Fertility as Global Concerns

Combating child marriage has become a core strategy for reducing teen births worldwide (UNICEF 2001; WHO 2008). Until the 1960s, international laws concerning marriage only loosely aimed to address adolescent fertility. Since then, the rise of global mobilization around human rights has called attention to both the negative consequences of adolescent fertility on girls and the roots of the problem. Not only do an overwhelming majority of births among adolescents in developing countries occur within marriage, contraceptive use is also less common for young wives, and early pregnancies are more likely when girls marry younger (Mensch, Bruce, and Greene 1998; UNICEF 2001).[1] Thus, organizations like UNICEF and the World Health Organization (WHO) continually place minimum-age-of-marriage laws front and center in their efforts to curb teenage childbearing.

[1]In reports on teen pregnancy globally, marriage is broadly defined to include customary marriages (see Westoff et al. 1994).

International actors first identified child marriage as a problem in the Hague Conferences in 1904/5 and first addressed it in international law in the 1962 Convention on Consent to Marriage, Minimum Age for Marriage, and Registration of Marriages (the Marriage Convention). The Marriage Convention, which called on states to set a minimum age of marriage at 15 years or older, was motivated by concern for basic human rights, opposition to slavery, and a desire to spread "one of the basic institutions of Occidental civilization" to the rest of the world (Schwelb 1963:340). It was not tightly connected to the health concerns of early marriage, including pregnancy, that frame much of the debate today. The Marriage Convention was also not widely ratified. Even among countries that did ratify the Convention, very few set the minimum age at 18 years – the current international standard.

Whereas the Marriage Convention always had some link to human rights (it was opened for signature on Human Rights Day), the inclusion of a marriage requirement in the 1979 Convention for the Elimination of All Forms of Discrimination Against Women (CEDAW) more clearly cast child marriage as a rights issue. According to CEDAW, the "betrothal and the marriage of a child shall have no legal effect, and all necessary action, including legislation, shall be taken to specify a minimum age for marriage and to make the registration of marriages in an official registry compulsory" (Article 16, Para. 2). In addition, CEDAW General Recommendation 21 calls on countries to legislate 18 years as the minimum marriage age. CEDAW was adopted to recognize and promote women's rights, and it explicitly connected those goals to the requirements first set out in the Marriage Convention.

More recently, child marriage has become a child rights as well as a women's rights issue. For example, the 1990 African Charter on the Rights and Welfare of the Child urged states to prohibit child marriages through legislation establishing the minimum age of marriage at 18. Similarly, the 1989 United Nations Convention on the Rights of the Child (CRC)[2] has been viewed as obligating states to adopt minimum-age-of-marriage laws (Askari 1998; see also Bunting 2005). For example, by requiring states to register all births, the CRC provides a tool for states to identify under-age marriages even when there is no formal state record of the marriage (UNICEF 2001). Furthermore, while marriage is not specifically mentioned in the CRC, the Committee on the Rights of the Child (CRC Committee) routinely refers in its reports to the necessity of setting 18 years as the minimum age of marriage. At the international level, the rights framework of CEDAW and the CRC has received broader support than the moral framework of the earlier Marriage Convention. Unlike the Marriage Convention, the CRC has been widely ratified. Currently, only two countries have failed to ratify the CRC; in contrast, less than one-third of the countries that ratified the CRC also ratified the Marriage Convention.

As this history indicates, in terms of reducing teenage births and thus mitigating their associated health and social consequences, preventing early marriage is thought to be a crucial starting point. However, it is an empirical question if and how global mobilization is associated with its intended outcomes. International laws can bring changes at two levels.

[2]The CRC is notable for identifying responsible parties for securing child rights, including parents, governments, and the United Nations (Gran 2010).

They can lead countries to adopt national laws adhering to international treaties. They can also lead to changes on the ground regardless of national laws. Our question is whether national laws are a mere reflection of global mobilization or a meaningful mediator of change.

There is no question that global mobilization around women and children's rights in the world polity has corresponded with a recent diffusion of marriage policies. Figure 1 reveals the increasing significance accorded to child marriage in the global system. While less than ten percent of countries had laws setting the minimum age of marriage at 18 years in the period prior to the 1979 CEDAW Convention, by 2007, nearly 50 percent of countries had adopted them (see Data section for sources).

It is important to note, however, that not all laws strictly comply with the international standard. Even among countries with laws that set the minimum age of marriage at 18 as recommended by CEDAW, many allow exceptions to this general rule. Some countries allow children to get married at younger ages with parental consent. In other countries, minimum-age-of-marriage laws do not apply to groups governed by "customary" law. For example, in Malaysia, although the official minimum age of marriage is set at 18 for both boys and girls, Islamic law permits girls to be married as early as age 16. Some countries allow marriage under 18 in the case of pregnancy (e.g., Belarus), under "exceptional circumstances" as identified by a court (e.g., Bulgaria), or if a court determines the girl is capable of assuming the responsibilities related to marriage (e.g., Bosnia).

Laws that set the age at 18 but allow exceptions have always outnumbered strict policies, but the number of strict policies has increased at a faster rate over time, suggesting an ongoing norm cascade (Finnemore and Sikkink 1998). The next question is whether laws—either strict or with exceptions—have actually had the intended impact of reducing adolescent fertility.

Theoretical Considerations

Do national laws matter in the implementation of global norms? Prior cross-national studies have primarily focused on two distinct but related issues: the link between global norms (and international law) and national policy adoption, and the impact of global norms on the ground. Due to data limitations, there has been little attention to whether and when national laws affect outcomes net of global factors (exceptions include Meyer, Ramirez, and Soysal 1992; Hironaka and Schofer 2002).[3] In this section, we consider how previous scholars have approached the issue of national laws' impact in a global context. We then turn to the analysis of a second, related question: do national laws that strictly conform to global norms have a greater impact on outcomes than laws that follow the norm generally but allow exceptions in some circumstances?

[3]There are also studies that consider the impact of policy change in a single location. We discuss these below.

Background

In the 1990s, researchers became particularly interested in the implications of globalization on law. Much of this work focused on how global power dynamics complicated assumptions about the autonomy and local character of national laws (see, e.g., Mauer 1995; Boyle & Preves 1999). Some suggested that states were being “acculturated” into a global normative system (see, e.g., Goodman & Jinks 2004). This research called for revised conceptions of the nation-state as both a distinct local unit and an actor seeking approval in a global context. These analyses problematized overly dichotomous distinctions between the global and the local (see also Santos 1987; Robertson 1992). In the analysis here, we examine interconnections between the global and the local while also considering their distinct effects.

In terms of the impact of law, previous scholarship generates both pessimistic and optimistic views concerning national laws' impact on behavior. We address three different perspectives on law’s impact in the following sections.

Law as Epiphenomenal

Some scholars, notably world polity theorists, downplay the impact of national laws, imagining that global sources of change are more central. From this perspective, both laws and outcomes are seen as the result of "institutional effects" linked to the structure, penetration, and persistence of global civil society in a particular issue area (Schofer and Hironaka 2005). Case studies provide support for this view. For example, Benavot and Resnick (2006) cite countries without compulsory education laws that have high enrollment rates and, vice versa, countries with such laws where enrollment rates are very low (see also Meyer 2004). They infer that compulsory attendance laws “are only indirectly related to the actual (and future) expansion of a country’s education system” (p. 13). The focus of much of this research is the extent to which “worldwide standards penetrate national societies creating social expectations and practices *whether or not* appropriate government action occurs” (Meyer 2004:45, emphasis added). In other words, some scholars presume that laws at the national level are in many cases collinear, if not epiphenomenal, representations of larger global structures. As a consequence, research in this tradition has not directly considered the empirical question of whether national laws have an effect on outcomes independent of international laws and global mobilization.[4] The analysis here is a first step in differentiating the impact of treaty ratifications from the impact of national laws.

Ineffective Law

While many scholars presume that the effects of national policies are co-extensive with global institutional penetration, they believe national policies are symbolically important in constituting global consensus around issues. Meyer (2004:34), for instance, notes that it is a "mistake" to imagine that "all the virtuous policies around the world have little practical

[4]One line of research has demonstrated that global forces influence national policy adoption (see, e.g., Berkovitch 1999; Finnemore 1993; Gran and Aliberti 2003; Ramirez, Soyal, and Shanahan 1997; Stetson 1995), but this research did not explicitly consider the impact of such policies. Research that does consider the impact on outcomes uses international treaty ratifications as a proxy for national legal reforms (Chang 2004; Thomas and Lauderdale 1988; see also Simmons 2009). Suggestive of policy effects, this research cannot actually test those effects because it conflates international and national laws.

significance." However, there are skeptics who imagine that countries adopt laws to look good or in response to pressures from powerful international actors but have no ability or intention to implement them. Like world polity scholars, these individuals are doubtful about laws' impact, but not because they think other sources of change are more foundational. Instead, they see little real change occurring. Laws, like other types of reforms, do not have sufficient weight behind them to make a difference and are, essentially, window-dressing.

Also consistent with the idea that laws do not matter, at least in every circumstance, is previous organizational research showing that policies and actual practices or outcomes are sometimes disconnected from each other in a process known as “decoupling” (Orton and Weick 1990; Weick 1976). The decentralized structure of the international system and the lack of a world state invite such decoupling (Boyle & Meyer 1998; Krasner 1999; Meyer et al. 1997). In other words, decoupling will be especially likely in an environment with little formal oversight and minimal consequences for failing to implement new laws. For example, when international law is not particularly binding and compliance is voluntary, countries may adopt weaker versions of laws in effort to preempt more stringent policy changes, much like corporations who engage in voluntary social responsibility as a way to curb mandated regulation (Shamir 2011).

Related to this is the notion that laws promoted by international actors may be inconsistent with local cultural frameworks or power relations (e.g., Ibhawoh 2000; Wiles 2007; Saegusa 2009). In terms of our case, the precise method and meaning of marriage varies across countries (Bunting 2005). In some countries, girls are married at very young ages, but the marriage is not consummated until the girl is older. In this context, child marriage can be a response to poverty and be viewed by community members as a charitable act. In such countries, there may be resistance to minimum-age-of-marriage laws as upsetting local cultural traditions. In other countries, the beginning of a sexual relationship signals the beginning of a marriage, that is, sex and marriage are mutually constitutive. (For this reason, the Committee on the Rights of the Child calls for states to treat births by teenagers as evidence of a child marriage [UNICEF 2008]). In still other countries, a state or religious ceremony signals the initiation of a marriage. Cultural differences such as these may make international laws ineffective in some countries. In sum, a lack of systematic analyses, combined with case studies that reveal cultural divides and structural barriers, leave many pessimistic about national laws’ ability to make a difference.

Law as a Mechanism of Social Change

In contrast to case studies that question the importance or usefulness of national laws, numerous studies in varied contexts have demonstrated that laws can have an impact. For example, Bharadwaj (2009) found that increasing the minimum age of marriage in Mississippi reduced teen pregnancy. Studies such as this tend to focus on legal reform in a single location, taking a "before and after" approach to studying law's impact.

Although there have not been cross-national studies of this sort, these studies make many scholars optimistic about law's ability to create social change in a global context. Indeed, with numerous laws diffusing across countries, it is clear that individuals in global society

see national laws as a strategic mechanism to create change in many social spheres (see, e.g, the World Bank "Doing Business" Reports, which analyze countries' business regulations). National laws and policies may be effective because they act as magnets, attracting activists, investors, and funders for a particular cause. For example, Barrett and Tsui (1999) found that population aid was distributed, not on the basis of which countries had the most pressing overpopulation problems, but rather on the basis of which countries had adopted explicit fertility control policies. Consistent with this idea, Longhofer and Schofer (2010) found that national environmental laws tended to increase the number of environmental organizations. Laws provide an important source of legitimacy for activists and funders to direct their attention and instigate social change. Overall, these scholars are optimistic that, although it may take a while, laws eventually do create change.

The Varying Impact of Different Types of Laws

The law and globalization case studies draw attention to another important point: if laws can be effective, the forms national laws take may influence their effectiveness. Within the law and society tradition, case studies have begun to identify the factors that make laws more or less effective. Halliday and Carruthers (2009) raise a number of important points. First, they treat international policy, national law, and local implementation as conceptually separate but highly interpenetrated spheres. Second, they emphasize that law's implementation is a back-and-forth process (called recursivity) in which global and local actors negotiate various pressures related to the feasibility and appropriateness of laws. Law is rarely settled quickly; rather, laws are passed and then revised until a point of stability is reached. Halliday and Carruthers (2009) find that economic power and cultural distance from global society are associated with lower levels of reform (see also Halliday 2012; Shaffer 2012). They also find that ambiguity surrounding new laws can drive recursivity.

It is therefore important, in addition to asking whether laws matter, to ask which types of laws matter. In particular, we are interested in whether laws that strictly comply with international standards are more effective than those that carve out exceptions to compliance in certain circumstances. Prior analyses using treaty ratifications as a proxy for law are unable to study this type of variation. While a quantitative analysis cannot precisely document all of the insights from this extensive body of research, cross-national and longitudinal data will provide clues about the prevalence and influence of some key concepts.

Hypotheses

The issue of adolescent fertility is useful for clarifying the link between global norms, national laws, and desired outcomes. We focus specifically on laws designed to raise the minimum age of marriage. International standards currently call for countries to set their minimum ages of marriage for girls and boys at 18 years old, and we consider laws that meet that standard.[5] Since the vast majority of teen births in poor countries occur within

[5]We focus in particular on laws that set this minimum age for girls; in virtually all countries, the minimum age of marriage for boys is equal to or greater than that for girls. As previously noted, setting the minimum age of marriage at 18 was normative by the early 1990s when the African Charter on Child Rights and Responsibility established this age, followed by a general recommendation from the CEDAW Committee to this effect.

marriage, minimum-age-of-marriage laws should decrease births if law matters. In contrast, if laws are simply markers of the norms of a world polity, the adoption of international laws and the increasing density of INGOs will explain their effects. Thus, we hypothesize that *national minimum-age-of-marriage laws will be associated with decreases in rates of adolescent fertility, and that this effect will hold when controlling for international law and embeddedness in the global system.*

Even among countries that adopt laws setting the minimum age of marriage at 18, some countries strictly adhere to the international standard while others allow exceptions. The exceptions are varied; they include allowing younger girls to marry if their parents consent or if the girls are pregnant, and excluding groups subject to customary law from the age requirement. Exceptions may signal a country's willingness to tolerate behavior inconsistent with the law or a lack of commitment to the law's core premise. Marriage laws providing exceptions may send mixed messages about appropriate behavior to parents and young people, creating ambiguity about how seriously people should take them (Halliday and Carruther 2009; compare Perry-Smith and Blum 2000). Accordingly, we hypothesize that *minimum-age-of-marriage laws that strictly comply with international standards will be associated with reductions in adolescent fertility, while laws with exceptions will not be associated with reductions.* Even with respect to strict laws, it may take some time for laws to have the desired effect. Therefore, *the impact of strict marriage laws will increase the longer the policies have been in effect*.

We expect world polity norms, represented by international treaties and ties to international nongovernmental organizations (INGOs), to affect adolescent fertility as well. Previous research tends to find a weak effect of international laws on desired outcomes, such as in the cases of physical integrity rights (Hafner-Burton and Tsutsui 2005), children's survival and development rights (Boyle and Kim 2009), and governments' material commitment to free, universal education (Kim and Boyle 2011; but see Simmons 2009). In such studies, the effect of ratifying international treaties is often indirect, operating through other mechanisms like international organizations. *Still, we hypothesize that the ratification of treaties concerned with child marriage will be associated with decreases in adolescent fertility over time,* although it is possible this effect will be offset by other global factors.

Coinciding with international laws, adolescent fertility is now a core issue for many INGOs, such as the Guttmacher Institute (1997) and the International Planned Parenthood Federation (2009). Numerous globalization scholars argue that transnational networks transmit cultural models and ideas constructed in world society to nation-states and local communities (Boli and Thomas 1999; Keck and Sikkink 1998; Meyer et al. 1997). For example, Hafner-Burton and Tsutsui (2005) found that countries improved their human rights records when nonstate actors placed pressure on national governments (see also Avdeyeva 2007). A strong INGO presence within a country tends to signify its embeddedness in the world polity and the alacrity with which the country responds to emerging global norms. In short, we hypothesize that *more ties to INGOs will be associated with greater decreases in adolescent fertility within countries.* With these hypotheses, we examine if national law concerning child marriage and its form matter for adolescent fertility beyond international laws and global

child rights organizing. In doing so, we ask whether claims drawn from prior case studies can be generalized across many countries over different time periods.

Data and Methods

To evaluate our hypotheses, we utilize cross-national data at yearly intervals for developing countries between 1989 and 2007, capturing active years of international mobilization on adolescent fertility issues. We limit our study to countries that do not belong to the Organization for Economic Co-operation and Development (OECD) because fertility issues in these poorer countries over the last several decades have been treated very differently from those in wealthier countries (Barrett, Kurzman, and Shanahan 2010). Our final data set includes information for 114 poor- and middle-income countries, resulting in a sample of 1,757 observations. Operationalization of variables and descriptive statistics based on the adolescent fertility models can be found in Appendix 1.

Dependent Variable

The goal of minimum-age-of-marriage laws is to reduce births by adolescents. Thus, our dependent variable is the adolescent fertility rate, measured as the number of births per 1,000 girls aged 15 to 19.[6] It ranges from 3.16 (Libya in 2007) to 242.04 (Democratic Republic of Congo in 1997). The mean across all country years is 81.77 births per 1,000 girls. The data, taken from the 2010 World Development Indicators (World Bank 2010; World Bank 2012), originally come from the United Nations Department of Economic and Social Affairs, Population Division (2010) and include data from the Demographic and Health Surveys as well as national statistics and estimates from other UN surveys. We interpolate the data to fill in years for which data are missing to allow for a longitudinal analysis.[7]

The adolescent fertility rate includes births to unmarried as well as married girls. It is possible that minimum-age-of-marriage laws are increasing the ratio of illegitimate births to legitimate births without decreasing the total number of teen births. If this is the case, such laws are failing to accomplish their goal, and our dependent variable—rates of total teen births—will show no change. Although it would be interesting to know how these laws affect rates of illegitimate births, such data do not exist and we do not need to determine this to answer our central question of the laws' effectiveness.[8]

[6]Ideally, we would want an adolescent fertility rate that only includes girls who became pregnant under age 18, but these data are not available for most countries.

[7]We interpolate the data here to draw upon greater temporal variability in other important independent variables, but we acknowledge its limitations. 675 cases (38%) were interpolated for adolescent fertility. Separate analyses excluding interpolated cases report similar effect sizes and directions. Although significance levels dropped due to the smaller sample size, those of our key variables (minimum-age-of-marriage laws) stayed the same.

[8]Presumably reducing marriage is a mediating factor in reducing adolescent fertility. Indeed, correlations between adolescent marriage rates and adolescent fertility rates are high (.84). To test for the effect of minimum-age-of-marriage laws on child marriage, we also ran an analysis with adolescent marriage rates as the dependent variable. On the key variables, results for marriage rates and fertility rates are very similar. Strict marriage laws are associated with a greater reduction in adolescent marriage rates while laws with exceptions were associated with a higher level of adolescent marriage rates over time or have no significant effects on adolescent marriage rates. The data quality for marriage rates, however, is significantly inferior to the quality of birth rates. There are data for only 188 country years. Thus, after interpolation, 84 percent of the data points were interpolated in our analysis. Measuring adolescent fertility rates directly as the dependent variable is more reliable.

Independent Variables

Our independent variables are all lagged three years and include:

Minimum-Age-of-Marriage Laws—There is fairly complete information on national minimum-age-of-marriage laws. Thus, we are able to identify three categories of countries: those with 1) laws that strictly adhere to the current international standard by setting the minimum age to 18 years and allowing no exceptions (strict laws); 2) laws that comply with the current international standard of 18 but allow for some exceptions (laws with exceptions); and 3) no laws or noncompliant laws. The second category includes countries with very diverse exceptions to the minimum age laws. While our sources indicate when national laws allowed exceptions to the minimum age of marriage, they do not always specify the nature of the exceptions. From our own research, we know that exceptions sometimes allow younger girls to marry with parental consent, if the girls are part of a group governed by customary law, with approval from a government official or judge, or in the case of pregnancy. We include laws that set the minimum age for girls at lower than 18 (i.e., noncompliant laws) in the "no law" category, as these laws do not comply with the international standard. In our analysis, countries with no laws or noncompliant laws are the reference category.

Data come from our own coding of the CRC Committee's Concluding Observations[9] and Melchiorre's (2004) report on age laws. We verified and supplemented these data with our own country-by-country research on marriage laws. The latter research allowed us to sort out contradictory information and identify the years when each marriage law was passed.[10] As our domestic policy measures are time varying, our analysis not only compares countries having a policy against those without a policy in a given year but also examines the effects of a policy change (e.g., from no law to a strict law) within a country. We use a dummy variable for the year in which each type of policy was passed, interpolating afterward until another known policy change occurred.

International Laws—We consider ratification of the Marriage Convention (1962), CEDAW (1979), and the CRC (1989). At the country level, we use an ordinal count variable measuring the total number of these treaties a state has ratified in a given year.

Interpenetration of International and National Laws—We include two interaction terms to measure whether national laws have more impact when countries are acquiescent to international law: the presence of a strict national law interacted with the number of child-marriage-related treaties a country has ratified, and the presence of a law with exceptions interacted with the number of child-marriage-related treaties a country has ratified.

INGOs—We measure country ties to the world polity conventionally by counting the number of international nongovernmental organizations to which any citizen of a country belongs (Boli and Thomas 1999). Data come from the *Yearbook of International*

[9]Available online at http://tb.ohchr.org/default.aspx.
[10]This information is largely unavailable for laws that set the minimum age of marriage lower than 18 years for girls. Thus, it is not possible to categorize countries with these laws separately from countries with no laws.

Organizations (UIA various years), which reports country memberships annually from 1982.

Population Reduction Policies—As of 2009, nearly 70 percent of developing countries worldwide had policies in place to either lower or maintain overall population levels (Melchiorre 2004). We constructed a dummy variable for when a country viewed its fertility rates as too high and had a population policy to reduce fertility (policy=1).[11] Data indicate country population policies and views on fertility over four time points (1976, 1986, 1996, and 2007) (United Nations Population Division 2010). We assign a one for each year that a policy exists, beginning in the year we learn that a country has a policy. A few countries with population policies aiming to increase fertility were excluded from our analysis.

Gross Domestic Product per capita—Demographic transition theory posits that economic development reduces infant mortality and, in turn, overall fertility levels (McQueston, Silverman, and Glassman 2012; Notestein 1945). However, the record for fertility transitions has been mixed in much of the developing world, particularly in sub-Saharan Africa (Dodoo and Frost 2008; Zuberi et al. 2003). We log this standard measure of country wealth and economic development to account for skew (World Bank 2010). We include it here primarily as a control variable.

Female Secondary Enrollment—We do not claim that our macro-level approach can replace many individual-level explanations of adolescent fertility or that our analysis can address micro-processes. However, we do control for a major individual-level determinant of adolescent pregnancy at the aggregate level. We include a measure of gross enrollment rates of adolescent girls in secondary education institutions (World Bank 2010). Uneducated adolescents are more likely to become pregnant due to limited access to health information and contraception.

Urban population—Previous research has shown that rural adolescent girls are more likely to become pregnant than urban girls (except in a few cases, including Guyana, Kenya, and Rwanda) (Khan and Mishra 2008). Urban population is not included in our analysis, however, because it is highly correlated with GDP per capita (.80).[12] We use country and time fixed effects modeling to account for this and other heterogeneity that is not specifically captured in our indicators.

Time—We created an indicator to capture the variable effects of marriage policies over time on adolescent fertility rates. We estimated an interaction between the adoption of a strict marriage policy or a marriage policy with exceptions and years passed since its adoption. The interaction term is 0 for all country years until a strict marriage policy is implemented and then indexed by years passed since the law's adoption.

[11]One might argue that access to contraception is just as important as national population policies in reducing teenage childbearing. In our analysis, every country with a population reduction policy provides some support for contraception, as do the majority of countries without a population policy. Because population policies and contraceptive support are highly correlated, their effects are nearly identical. We do not report results of the latter. We also tested for the effects of population aid, total population, and the percent of 15 to 19 year-olds currently employed, but these variables had no effect.

[12]Results when the percentage of population living in urban areas was included were the same for all other independent variables in terms of their direction and significance level.

Other variables—There were several other indicators we tested that showed no statistically significant relationship with the dependent variable. These included a "rule of law" measure, which we included to assess the effectiveness of laws within countries, as well as levels of trade and levels of bilateral aid. Because of the lack of effects, we do not include these indicators in our final models.

Analytical Strategy

We employ pooled panel regression models to predict adolescent fertility rates in developing countries from 1989 to 2007, which captures the period during which most minimum-age-of-marriage laws were passed. Pooling data over time allows us to draw upon temporal changes in the data as well as address case-specific heterogeneity. However, pooling data also means that errors for each country will be correlated over time, thus violating a central assumption of ordinary-least-squares regression. Thus, we use a fixed effects model to capture how particular interventions in countries at particular times affected adolescent fertility within those countries. Such a model focuses on over time change within a country while controlling for variations across countries. In other words, our approach implicitly takes into account those characteristics of countries that are totally or relatively unchanging (colonial history, dominant religion, mechanisms of informal social control) or for which the rank order of the country varies little relative to other countries (population, level of democracy).[13]

In addition to country-specific unobserved characteristics, we control for year-specific characteristics.[14] As adolescent fertility rates are decreasing over time for the most of the countries, there might be trends over time that influence adolescent fertility rates that our time-varying independent variables cannot exhaustively capture. Therefore, we include year fixed effects, in which each year is included as a dummy variable, in order to account for unobserved trends over time that might have simultaneously influenced reductions in adolescent fertility and our explanatory variables. [15] Thus, any effects of our time-varying independent variables on adolescent fertility are net of unobserved trends over time in adolescent fertility.

Using this general structure, we specify our model as follows:

$$\text{Adolescent Fertility}_{it} = \alpha_i + \delta_t + \beta_1 \text{Strict marriage policy}_{it\text{-}3} +$$

[13]In a fixed effects model, we assume that such time-invariant characteristics of countries can impact or bias the independent variables or rates of adolescent fertility; and so, to assess the predictors' net effects, the model controls for these characteristics. Another assumption of the fixed effects model is that those time-invariant country characteristics are unique to the country and their error terms should not be correlated with error terms of other country characteristics. Hausman's chi-square test indicated that fixed effects were preferable over random effects given the vast country-level heterogeneity and minimal error term correlations in our data.

[14]We also conducted a series of Granger causality tests to determine whether marriage policies are causally associated with reductions in fertility. However, including multiple lags of our dependent variable introduced too much multicollinearity into our model, leaving little variance left to be explained and rendering the causality test inconclusive. Therefore, we are unable to assess causal relationships in these particular models. Also, although alternative analytical models such as a paired cases analysis can provide results with clearer causality, such modeling strategies typically require a large N to find a number of exact matches based on all of the independent variables.

[15]One way to correct for potential autocorrelation in our panel models is to include a lagged dependent variable (see Ostrom 1990; Baltagi 1995; Kennedy 1998). Recently, however, Angrist and Pischke (2009) warned against using a lagged dependent variable in a fixed effect model, as 1) adding a fixed effect for each country is equivalent to accounting for different starting points for different countries, making a lagged dependent variable unnecessary and 2) country fixed effects are necessarily correlated with the lagged dependent variable, eliminating country fixed effects. Thus, we do not include a lagged dependent variable in this analysis.

$$\beta_2 \text{Marriage policy with exceptions}_{it\text{-}3} + \beta_3 \text{Treaty ratifications}_{it\text{-}3} + \beta_4 \text{INGOs}_{it\text{-}3} +$$

$$B_5 \text{Years since strict marriage policy has been in place}_{it\text{-}3} +$$

$$B_6 \text{ Treaty ratifications*marriage policy}_{it\text{-}3} \sum(\beta_k \text{controls})_{it\text{-}3} + \varepsilon_{it}$$

"Adolescent Fertility$_{it}$" represents our dependent variable in country *i* in year *t*. The two national marriage-age law variables represent countries, in year *t*, that strictly adhere to the international standard and countries that have laws with exceptions (the reference category is countries that do not have minimum-age-of-marriage laws that comply with international standards). “Treaty ratifications” represents the number of international treaties ratified, while “INGOs” represents each country’s ties to international nongovernmental organizations. Controls include population reduction policies, GDP per capita, and female secondary enrollment. In order to account for constant differences between countries and overall world-level trends in adolescent fertility, we include fixed country effects (α_i) and year effects (δ_t) as separate dummy variables for each country and each year. We also include a duration variable for strict marriage policies and tested two interaction effects: strict policies by treaty ratifications and policies with exceptions by treaty ratifications.

As an additional check, we also ran our model for subsets of countries based on religion[16] and geographic region. We control for these non-time-varying variables by including fixed effects in our full sample model. We ran these additional analyses, however, to determine if our full-sample results masked any path dependencies created by the non-time-varying variables. Results did not suggest any such path dependencies and thus are not reported here.

Results

Adolescent fertility rates, which were remarkably high throughout poorer countries in the 1980s, began to decline over the past two decades (see Figure 2). Eighty-eight percent of non-OECD countries saw some decrease in rates over this period. Ultimately, middle- and low-income countries reached an average of about 40 births per 1000 adolescent girls by 2006. It is notable that the final average for all poor and middle-income countries is substantially higher than the average in wealthier countries. This suggests that floor effects (that is, adolescent fertility rates having reached the lowest levels possible) are not a major concern for our analysis.

Figure 2 shows the trends regarding rates of adolescent fertility over time by different categories of countries. It also shows that countries with laws that set the minimum age of marriage at 18 years old—the global norm—begin the survey period with slightly higher teenage fertility rates. This suggests that adolescent fertility issues were more endemic in these countries, and perhaps there was more of a perceived need or more pressure to take a strong policy action to curb the rates. However, higher adolescent fertility rates at the beginning of the survey period also mean more challenges to address adolescent fertility issues and social contexts that enable higher fertility rates. One way to assess the policy effect is to compare changes over time (i.e., the slopes of the lines). Over time, we see

[16]The importance placed on religion operates apart from the dominant religion within countries and may vary more over time. Unfortunately, this information is available for only a small number of the countries in our sample.

greater decreases in adolescent fertility in countries with a strict minimum-age-of-marriage policy than in countries that have not adopted such laws or in those that have adopted laws with exceptions. We now turn to our multivariable analysis to see if this relationship holds when other factors are controlled.

Table 1 presents pooled panel regression models predicting adolescent fertility rates in poor- and middle-income countries. As explained in the methods section, all models presented here report changes in adolescent fertility rates after controlling for the trend-line over time. Model 1 contains the control variables and the marriage policy variables. Higher Gross Domestic Product per capita is negatively associated with rates of adolescent fertility over time, but this association is not statistically significant. This may mean that the years of our analysis did not capture the period of demographic transition in most countries or that other factors associated with the demographic transition (such as increased schooling) are capturing some of the effect. Consistent with prior work (Bearinger et al. 2007), female secondary enrollment rates have a strong and consistent negative effect on adolescent fertility. This likely reflects a combination of mechanisms—greater knowledge of contraception among girls, reduced marriage rates due to school attendance, and a country's greater commitment to gender equality.[17] We also consider national population reduction policies as a control variable. The presence of such policies reduces births by adolescents throughout all models. Considering that since the 1990s fertility policies increasingly have focused on safe, planned childbirth and the autonomy of women in every phase of decision-making, our findings suggest that this more general empowerment of mothers has a spillover effect on teen childbearing.

Turning next to marriage policies, countries with strict laws see greater reductions in adolescent fertility than countries without laws setting the marriage age at 18. Reductions range for 6.8 to 11 fewer births per thousand for countries with strict policies relative to countries without such policies. Considering that the average births per thousand girls across all countries was down to about 40 by 2006, this is a notable effect. The effect holds after controlling for national treaty ratifications (Model 2) and the presence of INGOs (Model 3), thus supporting our hypothesis that national laws have an effect beyond global forces. Delving into this difference further, our findings suggest that national laws that formally comply with international standards but have exceptions fare no better than countries without laws in reducing rates of adolescent fertility. This may indicate that laws allowing exceptions are more likely to be window dressing or they may reflect unique local circumstances. We address the possibilities in more detail in the next section.

World polity effects are reported in Models 2–3. Ratification of relevant treaties is associated with greater decreases in rates of adolescent fertility, providing evidence that international treaties are more than symbolic. For every additional treaty ratified, rates of adolescent fertility within a country decrease by 1.9 to 2.4. However, membership in INGOs does not have clear effects on adolescent fertility (Model 3). In separate analyses, we considered the effects of more-precisely identified women's rights INGOs and child rights INGOs and similarly found no significant positive effects for those INGO links. These

[17]We tested an interaction effect between INGOs and female enrollment and found minimal to no effect.

findings contrast with the significance of global relationships found in previous research. For example, Boyle and Kim (2009) found no effect for international laws but a strong effect for the presence of INGOs in their analysis of children's health and well-being. The difference may be attributable to the fact that our models control for general time trends while theirs did not. In combination, the international law and INGO findings indicate that the mechanisms that create change at the global level are complex. Future research is necessary to identify under what circumstances international law and/or organizations are more critical. For purposes of the current analysis, the important point is that national laws continued to have an effect even when global factors were controlled.

In addition to the strict minimum-age-of-marriage law main effects, we added an indicator to capture the variable effects of a marriage policy over time (Models 4 through 7). In Models 4–5, we estimated an interaction between the adoption of a marriage policy and the years passed since its adoption. We find that the reduction in adolescent fertility in countries with a strict marriage policy becomes greater the longer the policy has been in place (Model 4). However, laws that formally comply with international standards but have exceptions are ineffective regardless of the number of years they have been in place (Model 5).

Law and globalization scholarship notes that global, national, and local spheres are highly interpenetrated (see, e.g., Santos 1987, Merry 2006, Halliday and Carruthers 2009). Thus, while our analysis demonstrates that national effects matter net of global forces, it is still important to consider how the national and the global interact. In other words, do national laws' effects vary depending on global connections? To test this, we include an interaction term to determine how countries' acquiescence to international law (in the form of child-marriage treaty ratifications) affects the impact of strict laws and laws with exceptions.

Model 6 shows that the effect of strict laws does not change based on how many treaties a country has ratified. Once adopted, the strict marriage policy effects are not influenced by global legal circumstances surrounding policy adoption or enforcement. However, Model 7 reveals a significant interaction effect between countries that have laws with exceptions and countries that have ratified more child-marriage related treaties. Countries with a weak child marriage law that had not signed any child-marriage related treaties were doing significantly worse than countries without laws in reducing rates of adolescent fertility (as shown by the main effect for the law with exceptions category; $b = 7.521$; $p < .05$). Likewise, among the countries with exceptions in their laws, those that had ratified more international treaties related to child marriage did significantly better at reducing adolescent fertility than those that had ratified fewer treaties. For each treaty ratified, countries passing laws with exceptions reduce their rates of adolescent fertility by 2.914 births per thousand girls ($p < .05$).

The significant interaction effect between laws with exceptions and treaty ratification confirms previous research that there is a complex interplay of global and local factors when it comes to the impact of national laws. It could be that countries with marriage policies with exceptions are more influenced by global pressure to adopt a marriage policy as window-dressing; but, at the same time, global pressure also helps with implementation. Perhaps the progress of countries that have ratified child-marriage related treaties is more likely to be

monitored than the progress of other countries. This would provide more motivation for countries to implement social change (Cole 2005). It is also possible that ratifying treaties leads to greater levels of international support and that this enables more social change.

In addition to our full-sample analyses, we ran the same models for subsets of countries based on dominant religion and region (not reported here). The effects of strict laws, laws with exceptions, and their interactions with treaty ratifications were the same for the different religious subsets (although the results were not always statistically significant due to some very small sample sizes). For region subsets, the finding that strict laws are more effective than laws with exceptions also held across all models.[18]

Overall, the results provide support for our hypothesis that minimum-age-of-marriage laws are associated with decreases in adolescent fertility, and that this effect goes above and beyond the effect of international laws and embeddedness in the world polity (as indicated by the presence of INGOs). However, this is only true with respect to minimum-age-of-marriage laws that strictly comply with international standards. Countries in which these laws allow exceptions are not significantly different from countries that lack laws setting the minimum age of marriage at 18. This supports our hypothesis that countries with strict laws are the most effective at reducing adolescent fertility. Our hypotheses regarding the lasting effect of strict policies over time, as well as the effect of treaty ratifications, are also supported.

These findings can be illustrated by examining specific countries. For example, Rwanda established a strict law in 1988. It was already on a trajectory to decrease its rate of adolescent fertility, and this decline continued after the law was adopted. While over 100 of every 1,000 Rwandan teenage girls were giving birth in the 1960s, this rate was under 40 by 2009. By contrast, Tanzania passed a minimum-age-of-marriage law in 1971, but the law has never applied to groups governed by customary laws. Tanzania thus represents a country that has a law allowing exceptions. Although Tanzania saw a drop in adolescent fertility between 1970 and 1988, the rate spiked in the early 1990s. Currently, the country's rate of teenage fertility is about 130 births per 1,000 girls. As a final example, Benin is a country that has no minimum-age-of-marriage law. In the early 1980s, when data became available, the rate of adolescent fertility in Benin was about 150 per 1,000 births. The rate has dropped over time, but is still over 100 births per 1,000 teenagers. These three cases illustrate what our analysis shows is a broader trend: strict laws have an impact, while laws that allow exceptions tend to be similar to countries with no laws or laws that set the minimum age of marriage lower than 18.

[18]The interaction effects were somewhat different across region subsets. For example, among African countries, countries that adopted strict laws and ratified treaties tended to do better at reducing adolescent fertility than countries that adopted strict laws without ratifying treaties. This is in contrast to the full sample where there was no significant interaction effect. We believe the important finding is that the relative main effects of strict laws and laws with exceptions are consistent across all regions. Because of the small sample sizes of the subset analyses, one or two cases can drive the results. These results are available from the authors on request.

Discussion and Conclusion

This paper was motivated by the fundamental question: When and to what extent do national laws lead to their desired outcomes above and beyond international laws and global organizing? Drawing on the case of adolescent fertility, we find clear evidence that policies matter. Laws that strictly established 18 as the minimum age of marriage were associated with dramatic reductions in adolescent fertility. We find that strict laws matter above and beyond conventional demographic factors and world polity indicators.

Our country and time fixed effects models control for different starting points across countries as well as general trends over time. In this way, our analysis adds much-needed empirical rigor to a literature that has drawn different conclusions about the effect of law. Significant national policy effects after controlling for unobserved trends provide strong support for our argument that national minimum-age-of-marriage laws have an independent effect in reducing adolescent fertility.

What does it mean for law and globalization scholarship that strict laws are associated with fundamental changes in human behavior over time? This finding undercuts arguments that law is either epiphenomenal of other processes or altogether irrelevant. While Frank et al. (2009) found states engaging in ceremony without substance and substance without ceremony, we find that in the case of adolescent fertility, ceremony (the passage of a law) and substance (a reduction in adolescent fertility) coincide with one another. However, we also find evidence that most countries experienced reductions in adolescent fertility in the recent period, even if they did not adopt any laws. Reductions in these countries, some of which is directly linked to international law ratification, lend support to Frank et al.'s contention that global institutions generate both policy reforms and local outcomes. In the case of adolescent fertility, having ceremony is not merely ceremonial but also substantive. We also find that strict marriage laws have stronger effects over time, suggesting increased impact as laws become institutionalized.

Our research also reveals that the form of law matters. "Weak" laws—those that allow exceptions to the minimum age of marriage—appear to be less effective than laws that strictly adhere to international standards.[19] In contrast to countries with strict laws, countries with laws that allowed exceptions to the minimum age of marriage were statistically indistinguishable from countries that lacked laws setting 18 as the minimum age of marriage. Previous research points to several possible reasons for this.

First, laws with exceptions may signal the lack of a serious commitment to reducing child marriage by states. It is possible that the type of law signals whether states are serious about reform or, rather, intend to use laws as window dressing. Committed states may adopt strict laws; hypocritical states may adopt laws with exceptions. Second, laws with exceptions may signal cultural distance from the global system, slowing reform efforts (Halliday and Carruther 2009). When local understandings of marriage are very different from the definitions provided by global actors, gaps between formal law and enforcement are more

[19]It is important to note that our analysis does not prove that laws with exceptions are ineffective; rather, it does not allow us to reject the null hypothesis that they are not effective.

likely to emerge. Third, laws with exceptions may create more ambiguity than strict laws, and ambiguity is also associated with slower societal change (Halliday and Carruthers 2009). Even if states passing laws with exceptions do care about reducing child marriage, this type of law may send the opposite message to people within the country. Exceptions may make individuals question whether the targeted behavior is truly a serious societal concern. If some individuals are allowed to engage in the behavior, it may appear that the state is not making child marriage a priority. More pragmatically, exceptions may raise questions about precisely when the law applies. Ambiguity is thus another potential explanation for the differences we find in the impact of laws.

Organizations will sometimes regulate themselves to avoid or preempt potentially harsher regulation from the state, such as the case of corporations and voluntary social responsibility reporting (see Shamir 2011). In a similar way, states may adopt weaker legislation to forestall more onerous policy changes. The weaker legislation is easier to implement because it means less change (which also explains why it is less effective). This explanation is worth exploring in future research, but we would be cautious about drawing too many inferences from this organizational literature. The social contexts of states versus corporations are very different. States can legislate the activities of corporations, but the international system can only make suggestions regarding the activities of states. Whether weak laws are a strategic product of states to counteract global pressure needs further exploration.

Our analysis provides a first step in differentiating the impact of national laws from the impact of world polity factors, such as INGO links and treaty ratifications. We find that strict laws are associated with reductions in adolescent fertility even when world polity factors are controlled. Thus, national reforms appear to have an effect above and beyond global efforts.

World polity indicators themselves had mixed effects on levels of adolescent fertility. Countries that had ratified more treaties tackling child marriage showed greater progress in reducing adolescent fertility than other countries. Somewhat surprisingly, however, INGO links did not have any impact on the dependent variable. This could be the result of using a more conservative statistical model that controls for general trends over time. It may also suggest that a particular kind of participation into world polity—treaty ratification—is more important in this case.

In addition to finding that strict minimum-age-of-marriage laws are associated with reductions in adolescent fertility, our statistical analysis also revealed an interesting interaction between national laws and global connections. We found that among countries with laws with exceptions, those that had ratified more treaties were doing slightly (and statistically significantly) better at reducing teenage births than the others. International treaties may provide a counterbalance to weak laws at the national level by providing closer monitoring or greater support for countries that ratify treaties and pass laws. The same interaction effect did not hold for countries that passed strict laws, suggesting that, once adopted, strict national laws actively promote the ideas of international law regardless of monitoring or support from the international actors.

Our results also suggest that while national laws are important mediators in linking international legislation with concrete local outcomes, international laws' effect does not entirely depend on the existence of strong local (and often ceremonial) support. Most countries in the world experienced a reduction of adolescent fertility regardless of international law ratification or INGO links (as shown in Figure 2). Our analysis reveals a process of social change in which each country's commitment to international law and its own legislative reform efforts have independent effects.

Our paper is not without some important caveats. First, while our analysis finds that the legal context shapes fertility patterns at the aggregate level, we cannot ascertain how these factors are shaping the individual decision-making that leads to teenage pregnancy. Further research is needed to unravel the precise mechanisms through which state policies and global structures affect individual decisions and behaviors. Second, our analysis does not tell us why some countries adopt strict laws while others allow exceptions. Ultimately, understanding the origins of laws will be important for understanding why they have varying impacts. It is possible that country differences not captured in our statistical models could explain both the adoption of policies and the reduction in rates of adolescent fertility.

National policy making involves complex relationships between the state and society. As we explained in the Methods section, we controlled for these other factors by including a dummy variable for every country in the analysis. This "fixed effect" approach allows us to consider how policies affect outcomes net of ongoing differences across countries. Uncovering the precise mechanisms through which the global and local circumstances interact in making and enforcing national policies is an important area for future research from both quantitative and qualitative scholars.

Finally, while many in international society define adolescent fertility as a social problem, there are others who see it differently (e.g., Bunting 2005; see also Furstenberg 2003). Our research addresses the process through which social change occurs as a result of global mobilization. Global actors have identified a link between child marriage and teen births, and our analysis is consistent with the claim that the two phenomena are connected. Whether changing family dynamics is better than other interventions, such as reducing global poverty, is a critical consideration outside the scope of our analysis.

In sum, this study provides one of the first empirical cross-national analyses of law's impact in the context of global norms. It calls attention to the general effect of law on desired outcomes as well as the specific effects of laws that conform to global norms to varying degrees. Whether national law is an expression of a stronger commitment to global norms or a reflection of a cultural proximity between international laws and local circumstances, adopting and implementing national laws that adhere closely to global norms matters for creating change. Together, international laws and national policies create a loosely coupled and interpenetrated system in which national laws reflect and crystallize international legislation but maintain a clear level of autonomy. We hope our analysis will encourage further research on this interpenetration in other domains beyond adolescent fertility.

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References

Achen, Christopher H. Why Lagged Dependent Variables Can Suppress the Explanatory Power of Other Independent Variables. Political Methodology Working Paper. 2000

Askari, Ladan. The Convention on the Rights of the Child: The Necessity of Adding a Provision to Ban Child Marriages. International Law Student Association Journal of International and Comparative Law. 1998; 5(1):123–138.

Avdeyeva, Olga. When Do States Comply with International Treaties? Policies on Violence against Women in Post-Communist Countries. International Studies Quarterly. 2007; 51:877–900.

Baltagi, Badi. Editor's Introduction: Panel Data. Journal of Econometrics. 1995; 68:1–4.

Barrett, Deborah; Kurzman, Charles; Shanahan, Suzanne. For Export Only: Diffusion Professionals and Population Policy. Social Forces. 2010; 88(3):1183–1207.

Barrett, Deborah; Tsui, Amy Ong. Policy as Symbolic Statement: International Response to National Population Policies. Social Forces. 1999; 78(1):213–234.

Bearinger, Linda H.; Sieving, Renee E.; Jane, Ferguson J.; Sharma, Vinit. Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. Lancet. 2007; 369:1220–1231. [PubMed: 17416266]

Benavot, Aaron; Resnick, Julia. Lessons from the Past: A Comparative Socio-Historical Analysis of Primary and Secondary Education. In: Cohen, JE.; Bloom, DE.; Malin, MB., editors. Educating All Children: A Global Agenda. Cambridge, MA: American Academy of Arts and Sciences; 2006. p. 123-229.

Berkovitch, Nitza. From Motherhood to Citizenship: Women's Rights and International Organizations. Baltimore, MD: Johns Hopkins Press; 1999.

Bharadwaj, Prashant. Impacts of Changes in Marriage Law: Implications for Fertility and Educational Attainment of Women. 2009. (June 2009) Available at SSRN: http://ssrn.com/abstract=1091789

Boli, John; Thomas, George, editors. Constructing World Culture: International Non-Governmental Organizations since 1875. Stanford: Stanford University Press; 1999.

Boyle, Elizabeth Heger; Corl, Amelia Cotton. Law and Culture in a Global Context: Interventions to Eradicate Female Genital Cutting. Annual Review of Law & Social Science. 2010; 6:14.1–14.21.

Boyle, Elizabeth Heger; Meyer, John W. Modern Law as a Secularized and Global Model: Implications for the Sociology of Law. Soziale Welt. 1998; 49:275–294.

Boyle, Elizabeth Heger; Kim, Minzee. International Human Rights Law, Global Economic Reforms, and Child Survival and Development Rights. Law & Society Review. 2009; 43(3):455–490.

Bunting, Annie. Stages of Development: Marriage of Girls and Teens as an International Human Rights Issue. Social & Legal Studies. 2005; 14:17–38. 2005.

Chang, Mariko Lin. Growing Pains: Cross-National Variation in Sex Segregation in Sixteen Developing Countries. American Sociological Review. 2004; 69:114–137.

Cole, Wade. Sovereignty Relinquished? Explaining Commitment to the International Human Rights Covenants, 1966–1999. American Sociological Review. 2005; 70:472–495.

Dodoo, F Nii-Amoo; Frost, Ashley E. Gender and African Population Research: The Fertility/ Reproductive Health Example. Annual Review of Sociology. 2008; 34:431–452.

Finnemore, Martha. International Organization as Teachers of Norms: The United Nations Educational, Scientific, and Cultural Organization and Science Policy. International Organization. 1993; 47(4):567–569.

Finnemore, Martha; Sikkink, Kathryn. International Norm Dynamics and Political Change. International Organization. 1998; 52(4):887–917.

Frank, David John; Hardinge, Tara; Wosick-Correa, Kassia. The Global Dimensions of Rape-Law Reform: A Cross-National Study of Policy Outcomes. American Sociological Review. 2009; 74(2):272–290.

Furstenberg, Frank F, Jr. Teenage Childbearing as a Public Issue and Private Concern. Annual Review of Sociology. 2003; 29:23–29.

Gage, Anastasia J. The Social Implications of Adolescent Fertility. In: Livi-Bacci, M.; de Santis, G., editors. Population and Poverty in the Developing World. New York: Oxford University Press; 1998. p. 120-143.

Goodman, Ryan; Jinks, Derek. How To Influence States: Socialization and International Human Rights Law. Duke Law Journal. 2004; 54(3):621–703.

Gran, Brian. Comparing Children's Rights: Introducing the Children's Rights Index. International Journal of Children's Rights. 2010; 18:1–17.

Gran, Brian; Aliberti, Dawn. The Office of the Children's Ombudsperson: Children's Rights and Social-Policy Innovation. International Journal of the Sociology of Law. 2003; 31(2):89–106.

Guttmacher Institute. Risks and Realities of Early Childbearing Worldwide. New York: 1997.

Hafner-Burton, Emilie M.; Tsutsui, Kiyoteru. Human Rights in a Globalizing World: The Paradox of Empty Promises. American Journal of Sociology. 2005; 110(5):1373–1411.

Halliday, Terrence C. Architects of the State: International Financial Institutions and the Reconstruction of States in East Asia. Law & Social Inquiry. 2012; 37(2):265–296.

Halliday, Terrence C.; Carruthers, Bruce G. Bankrupt: Global Lawmaking and Systemic Financial Crisis. Stanford, CA: Stanford University Press; 2009.

Hironaka, Ann. The Globalization of Environmental Protection: The Case of Environmental Impact Assessment. International Journal of Comparative Sociology. 2002; 43(1):65–78.

Ibhawoh, Bonny. Between Culture and Constitution: Evaluating the Cultural Legitimacy of Human Rights in the African State. Human Rights Quarterly. 2000; 22(3):838–860.

International Planned Parenthood Federation. Sexual Rights: An IPPF Declaration. New York: IPPF; 2009.

Khan, S.; Mishra, V. Youth Reproductive and Sexual Health, DHS Comparative Reports. Calverton, MD, USA: Macro International, Inc.; 2008.

Kim, Minzee; Boyle, Elizabeth Heger. Neoliberalism, Transnational Education Norms, and Education Spending in the Developing World, 1983–2004. Law & Social Inquiry. 2011; 37(2):367–394.

Keck, Margaret E.; Sikkink, Kathryn. Activists beyond Borders: Advocacy Networks in International Politics. Ithaca, NY: Cornell University Press; 1998.

Kennedy, Peter. A Guide to Econometrics. Cambridge, MA: MIT Press; 1998.

Krasner, Stephen D. Sovereignty: Organized Hypocrisy. Princeton, NJ: Princeton University Press; 1999.

Kristof, Nicholas D. The Birth Control Solution. New York Times. 2011 Nov 3.:A31.

Longhofer, Wesley; Schofer, Evan. National and Global Origins of Environmental Association. American Sociological Review. 2010; 75(4):505–533.

Mauer, William M. Writing Law, Making a 'Nation:' History, Modernity, & Paradoxes of Self-Rule in the British Virgin Isl&s. Law & Society Review. 1995; 29(2):255–286.

McQueston, Kate; Silverman, Rachel; Glassman, Amanda. CGD Working Paper 295. Washington, D.C.: Center for Global Development; 2012. Adolescent Fertility in Low- and Middle-Income Countries: Effects and Solutions.

Melchiorre, Angela. At What Age?. Right to Education Project. 2nd ed.2004. Available online at http://www.right-to-education.org/

Mensch, Barbara S.; Bruce, Judith; Greene, Margaret S. The Uncharted Passage: Girls' Adolescence in the Developing World. Population Council. 1998

Merry, Sally E. Human Rights and Gender Violence: Translating International Law into Local Justice. Chicago: University of Chicago Press; 2006.

Meyer, John W. Nation as Babbitt: How Countries Conform. Contexts. 2004; 3(3):42–47.

Meyer, John W.; Boli, John; Thomas, George; Ramirez, Francisco O. World Society and the Nation-State. American Journal of Sociology. 1997; 103:144–181.

Notestein, F. Population: the Long View. In: Schultz, TW., editor. Food for the World. Chicago: University of Chicago Press; 1945. p. 36-69.

Orton, J Douglas; Weik, Karl E. Loosely Coupled Systems: A Reconceptualization. Academy of Management Review. 1990; 15:203–223.

Ostrom, Charles. Time Series Analysis: Regression Techniques. 2nd ed. Newbury Park, CA: Sage; 1990.

Paxton, Pamela; Hughes, Melanie M.; Green, Jennifer. The International Women's Movement and Women's Political Representation, 1893–2003. American Sociological Review. 2006; 71(6):898–920.

Perry-Smith, Jill E.; Blum, Terry C. Work-Family Human Resource Bundles and Perceived Organizational Performance. The Academy of Management Journal. 2000; 43(6):1107–1117.

Ramirez, Francisco O.; Soysal, Yasemin; Shanahan, Suzanne. The Changing Logic of Political Citizenship: Cross-National Acquisition of Women's Suffrage Rights, 1890–1990. American Sociological Review. 1997; 62:735–745.

Robertson, Roland. Globalization: Social Theory and Global Culture. London: Sage Publications; 1992.

Saegusa, Mayumi. Why the Japanese Law School System Was Established: Co-optation as a Defensive Tactic in the Face of Global Pressures. Law & Social Inquiry. 2009; 34(2):365–398.

Santos, Boaventura de Sousa. Law: A Map of Misreading. Toward a Post-Modern Conception of Law. Journal of Law & Society. 1987; 14(3):279–302.

Schofer, Evan; Hironaka, Ann. World Society and Environmental Protection Outcomes. Social Forces. 2005; 84:25–47.

Schofer, Evan; Longhofer, Wesley. The Structural Sources of Association. American Journal of Sociology. 2011; 117(2):539–585.

Schwelb, Egon. Marriage and Human Rights. American Journal of Comparative Law. 1963; 12:337–384.

Shaffer, Gregory. Transnational Legal Process and State Change. Law & Social Inquiry. 2012; 37(2): 229–264.

Shamir, Ronen. Socially Responsible Private Regulation: World- Culture or World-Capitalism? Law & Society Review. 2011; 45(2):313–336.

Simmons, Beth A. Mobilizing for Human Rights: International Law in Domestic Politics. Cambridge: Cambridge University Press; 2009.

Singh, Susheela. Adolescent Childbearing in Developing Countries: A Global Review. Studies in Family Planning. 1998; 29(2):117–136. [PubMed: 9664627]

Stetson, Dorothy McBride. Human Rights for Women: International Compliance with a Feminist Standard. Women & Politics. 1995; 15:71–95.

Thomas, George M.; Lauderdale, Pat. State Authority and National Welfare Programs in the World System Context. Sociological Forum. 1988; 3(3):383–399.

UNICEF. Early Marriage: Child Spouses. Innocenti Digest. 2001; 7:1–29.

UNICEF. Progress for Children: A Report Card on Maternal Mortality. New York: UNICEF; 2008.

Union of International Associations. Yearbook of International Organizations. Brussels [Belgium]: Union of International Associations; various years

United Nations. UN General Assembly, Convention on the Rights of the Child. Treaty Series. 1989 Nov 20.1577:3.

United Nations. UN General Assembly, Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages. Treaty Series. 1962 Nov 7.521:231.

United Nations. Un General Assembly, Convention on the Elimination of All Forms of Discrimination against Women. Treaty Series. 1979 Dec 18.1249:13.

United Nations Population Division. World Population Policies 2009. New York: United Nations; 2010.

U.S. Bureau of the Census. Trends in Adolescent Fertility and Contraceptive Use in the Developing World. Washington, DC: U.S. Government Printing Office; 1996.

U.S. Department of State. 2010 Human Rights Report: Benin. 2011. April 8, 2011. Available at: www.state.gov/g/drl/rls/hrrpt/2010/af/154331.htm.

Weick, Karl. Educational Organizations as Loosely Coupled Systems. Administrative Science Quarterly. 1976; 21:1–19.

Westoff, Charles F.; Blanc, Ann K.; Nyblade, Laura. DHS Comparative Studies No. 10. Calverton, MD: Macro International Inc.; 1994. Marriage and Entry into Parenthood.

Wiles, Ellen. Headscarves, Human Rights, and Harmonious Multicultural Society: Implications of the French Ban for Interpretations of Equality. Law & Society Review. 2007; 41(3):699–736.

World Bank. Doing Business. 2012. Available at: http://www.doingbusiness.org/. Last visited August 31, 2012

World Bank. World Development Indicators 2010. Washington, D.C.: World Bank; 2010.

World Health Organization. MPS Notes. Vol. 1. Geneva: World Health Organization; 2008 Oct. Adolescent Pregnancy.

Zuberi, Tukufu; Sibanda, Amson; Bawah, Ayaga; Noumbissi, Amadou. Population and African Society. Annual Review of Sociology. 2003; 29:465–486.

Appendix 1: Operationalization of variables and summary statistics

	Operationalization	Source	Obs.	Mean	Std. Dev.
Dependent Variables:					
Adolescent fertility	The number of births per 1,000 girls aged 15 to 19	World Bank 2010	1757	81.77	51.26
Control Variables:					
GDP per capita (3 yr lagged)	GDP per capita, constant US$	World Bank 2010	1757	2299.26	3697.65
	Transformation (logged)			*6.89*	*1.29*
Female secondary enrollment (3 yr lagged)	Gross enrollment rates of adolescent girls in secondary education institutions	World Bank 2010, 2012	1757	47.16	30.30
Population reduction policy	Dummy, 1 = country-year with a view that its fertility rates as too high and had a population policy to reduce fertility	UN Population Division 2010	1757	.51	
Minimum-age-of-marriage Policies:					
Minimum set strictly at 18 (3 yr lagged)	Dummy, 1 = country-year with laws that strictly comply with the current international standard by setting the minimum age to 18 years and allowing no exceptions (strictly conforming countries)	Our own coding; Melchiorre 2004	1757	.11	
Minimum set at 18 with major exceptions (3 yr lagged)	Dummy, 1 = country-year with laws that comply with the current international standard of 18 but allow for some exceptions	Our own coding; Melchiorre 2004	1757	.20	
No law set at 18 (3 yr lagged)	Dummy, 1 = country-year with no laws or laws that set the minimum age lower than 18 years	Our own coding; Melchiorre 2004	1757	.69	
World Polity Variables:					
International treaty ratification (3 yr lagged)	Total number of three treaties (the Marriage Convention, the CRC, and CEDAW) a state has ratified in a given year	UN	1757	1.71	.85

	Operationalization	Source	Obs.	Mean	Std. Dev.
INGO membership (3 yr lagged)	The number of INGOs to which any citizen of a country belongs	UIA, various years	1733	469.31	359.45
	Transformation (logged)			*5.87*	*.80*

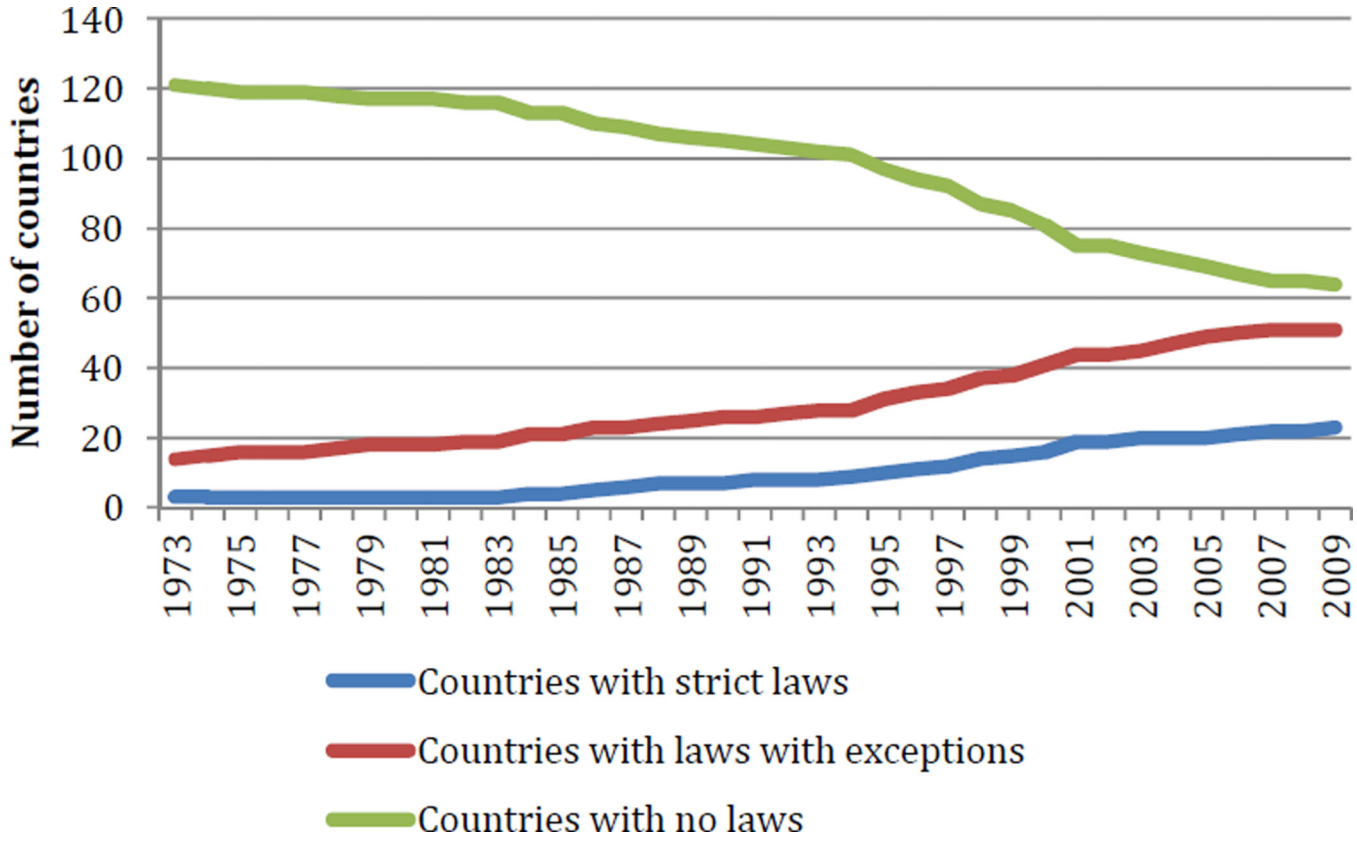

Figure 1.
Minimum-age-of-marriage policies in non-OECD countries, 1973–2009

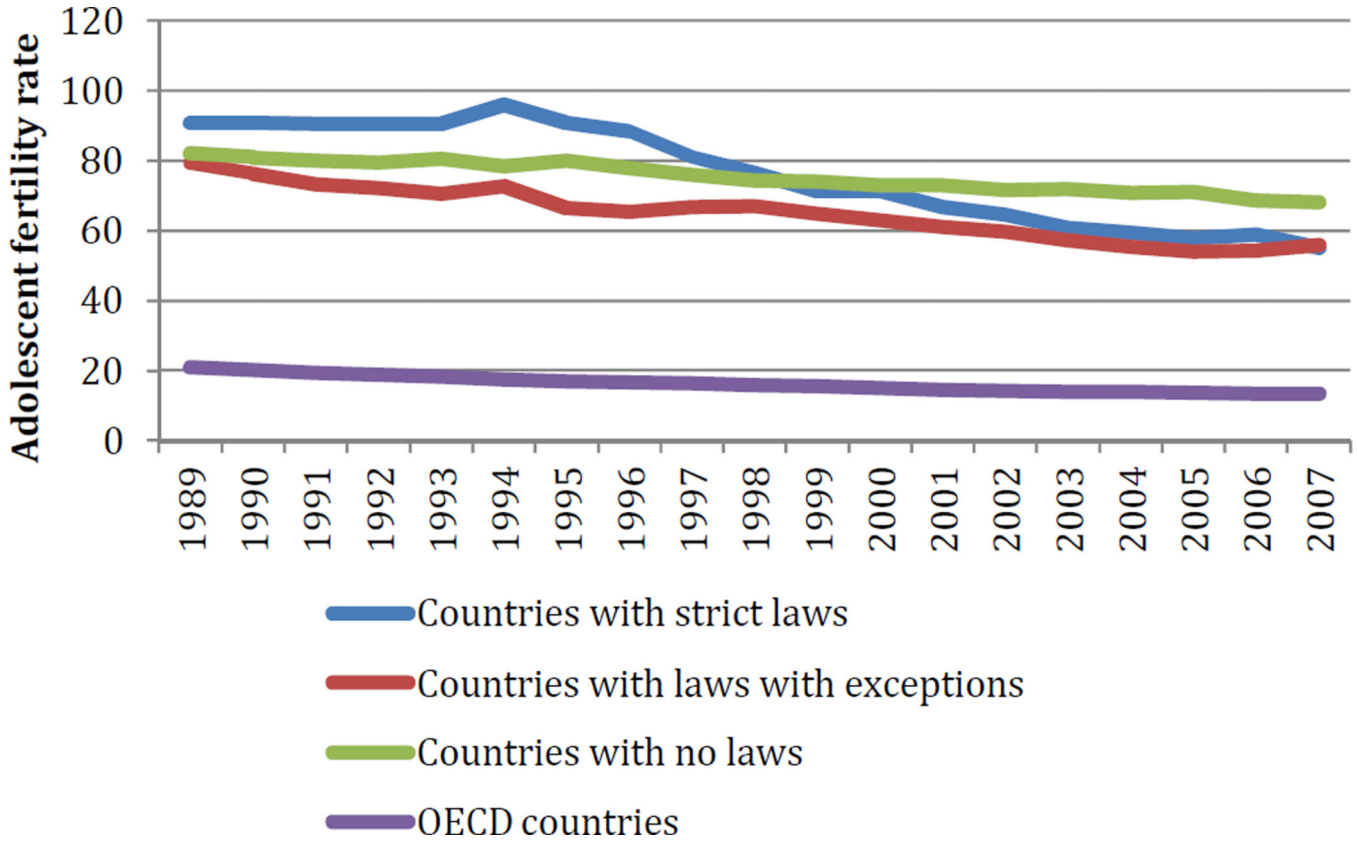

Figure 2.
Adolescent fertility rates by minimum-age-of-marriage policy in non-OECD countries, 1989–2007

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Table 1

Country and year fixed effects models predicting adolescent fertility rates in non-OECD countries, 1989–2007

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Control Variables							
GDP per capita (logged)	−2.524	−2.726+	−2.682	−2.489	−2.704	−2.727	−2.221
	(1.641)	(1.637)	(1.664)	(1.665)	(1.672)	(1.665)	(1.673)
Female secondary enrollment	−0.476***	−0.482***	−0.485***	−0.491***	−0.485***	−0.480***	−0.485***
	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.046)	(0.045)
Population reduction policy	−2.528*	−2.563*	−2.612*	−2.911**	−2.618*	−2.525*	−2.471*
	(1.059)	(1.056)	(1.067)	(1.074)	(1.068)	(1.072)	(1.067)
Minimum-age-of-marriage Policy							
Minimum set strictly at 18	−9.822***	−10.024***	−9.992***	−8.117***	−9.954***	−11.964***	−10.270***
	(1.792)	(1.787)	(1.801)	(1.990)	(1.821)	(2.897)	(1.802)
Set at 18 but exceptions	1.275	1.484	1.656	1.259	1.574	1.759	7.781**
	(1.436)	(1.433)	(1.461)	(1.470)	(1.572)	(1.466)	(2.977)
No law set at 18 (reference category)							
World Polity Ties							
Treaties ratified (0–3)		−2.284***	−2.363***	−2.299***	−2.357***	−2.501***	−2.032**
	(0.673)	(0.683)	(0.683)	(0.684)	(0.701)	(0.696)	
INGO membership (logged)			−0.608	−0.6	−0.601	−0.567	−0.778
			(1.307)	(1.305)	(1.309)	(1.308)	(1.307)
Interaction Effects of Marriage Policy							
Minimum set strictly at 18 * years since adoption				−0.389*			
				(0.176)			
Set at 18 but exceptions * years since adoption					0.02		
					(0.139)		
Minimum set strictly at 18 * treaties ratified						1.035	
						(1.191)	
Set at 18 but exceptions * treaties ratified							−2.873*
							(1.217)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Constant	117.416***	124.199***	128.275***	128.259***	128.251***	128.259***	125.374***
	(11.535)	(11.670)	(13.549)	(13.533)	(13.554)	(13.550)	(13.585)
Number of country-years	1,757	1,757	1,733	1,733	1,733	1,733	1,733
Number of countries	115	115	114	114	114	114	114
R-squared	0.375	0.379	0.379	0.38	0.379	0.379	0.381

Note. Country fixed effects and year fixed effects are included in the analysis but not reported here.

* p < .05

** p < .01

*** p < .001 (two-tailed tests); standard errors in parentheses.