

Sex Roles

The best is yet to come? Attitudes toward gender roles among adolescents in 36 countries --Manuscript Draft--

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Abstract

In the present article, we look at attitudes toward gender roles among young women and men in 36 countries with different levels of societal gender inequality. By applying multilevel models to data from the International Civic and Citizenship Education Study 2009, the study contributes to our understanding of gender inequality by showing that (a) both young women and young men (in 8th grade; $M_{age} = 14.39$ years) display more gender-egalitarian attitudes in countries with higher levels of societal gender equality; (b) young women in all countries have more egalitarian attitudes toward gender roles than young men do, but (c) the gender gap in attitudes is more evident in more egalitarian contexts; and (d) a higher level of maternal education is associated with more gender-egalitarian attitudes among young women. In contrast, no statistically significant association emerges between maternal employment and young men's attitudes. Overall, the findings suggest that adolescents in different contexts are influenced by the dominant societal discourse on gender inequality, which they interiorize and display through their own attitudes toward gender roles. However, the findings also indicate that young women are more responsive to external cues than young men are. This result, coupled with the fact that young men in egalitarian contexts have not adopted gender-egalitarian attitudes to the same extent as young women, is concerning because it suggests a slowdown in the achievement of societal gender equality that is still far from being reached.

Keywords: adolescents, gender equality, attitudes toward gender roles, parental education, International Civic and Citizenship Education Study

The Best Is Yet to Come?

Attitudes Toward Gender Roles Among Adolescents in 36 Countries

In the present article we employ a comparative approach to investigate attitudes toward gender roles among adolescents in 36 countries worldwide. Indeed, despite women's increased presence in the public and political sphere over recent decades in many countries, gender inequality is still present in various domains such as employment (Bettio et al. 2013, pay (Cooke 2014), the allocation of time to unpaid domestic work (Dotti Sani 2014), and political participation (Burns et al. 2001) and representation (Krook 2010). Beyond many structural characteristics that keep women in a secondary position in society, scholars argue that traditional attitudes toward gender roles are also responsible for the persisting inequalities between women and men (Farré and Vella 2013; Inglehart and Norris 2003). However, although much previous research has focused on the levels, determinants, and consequences of gender-role attitudes among adults (Bolzendahl and Myers 2004; Fortin 2005; Lück 2006; Zuo and Tang 2000), much less is known about attitudes toward gender roles among children and teenagers, especially in a comparative perspective (Antill et al. 2003; Burt and Scott 2002).

The present article contributes to the literature on gender equality by addressing cross-national differences in attitudes toward gender roles among young citizens worldwide. Specifically, we go beyond prior knowledge by exploring variations in young women's and men's gender attitudes in countries with very different levels of societal gender equality. Moreover, by focusing on the relationship between individual characteristics, such as gender and maternal education, as well as attitudes toward gender roles among youth within a wide range of countries, our study exploits different levels of analyses to offer a nuanced and novel view of adolescents' gender-role attitudes in context as well as their correlates.

Studying and understanding attitudes toward equality in gender roles is relevant because gender equality is considered one of the cornerstones of human development (Inglehart and Norris 2003). Indeed, national and supranational institutions worldwide aim at the achievement of gender equality in a variety of domains (Council of the European Union 2011; United Nations 2010) because equality between women and men is seen as advantageous for a number of reasons. For example, gender equality in employment is good for businesses and also for the wider economy (Smith et al. 2013). Moreover, it is a fundamental element in fertility control in less developed countries and a driving force for it in more developed ones (McDonald 2013). In this perspective, what adolescents in different countries around the world think about women's and men's places in society is crucial for the future of gender equality because the attitudes of the young are tightly linked to the choices they make about their future (Burt and Scott 2002). Therefore, if today's youth endorse equality in roles between genders, then there are good chances that gender inequalities will progressively decrease in the coming decades. Negative attitudes toward equality between women and men among adolescents, instead, are likely to stall the development of more gender-equal societies.

We test theory-driven hypotheses at three distinct levels of analysis to investigate attitudes toward gender roles among adolescents. At the macro-level, we follow dependence theory (Baxter and Kane 1995) to investigate whether youth in countries with greater gender equality express more egalitarian attitudes. At the individual-level, building on social learning theory (Bandura 1977) and on Rogers' theory of the diffusion of innovations (Rogers 1962), we expect young women and those with a better socioeconomic background to display more egalitarian attitudes toward gender roles. Thus, we examine (a) differences in attitudes toward gender roles between young women and men and (b) the relationship between adolescents'

attitudes and the socioeconomic background of the family of origin, in particular maternal level of education. Last, we develop expectations about the interaction between the macro- and meso-levels and investigate whether the effect of societal gender equality varies according to gender and maternal education.

To address our research questions, we apply multilevel models to data on 36 countries from the International Civic and Citizenship Education Study 2009 (ICCS) (Schulz, Ainley, & Fraillon, 2011). The ICCS aims to measure attitudes and orientations taking a large comparative perspective and is specifically designed to study how young people are equipped to become citizens in a large number of countries. It is particularly suited to our scope because it includes a measure tested across 36 countries that taps adolescents' attitudes toward gender roles.

Societal Gender Equality

Over recent decades, attitudes toward gender roles have changed, with both adult women and men worldwide being more likely to support gender equality than in the past (Fortin 2005, for a comparison of 25 OECD (Organisation for Economic Co-operation and Development) countries; Inglehart and Norris 2003 for the countries included in the World and European Values Surveys; Lück 2006, for a comparison of North American and European countries, Australia and New Zealand; Zuo and Tang 2000, for the U.S.). In western countries, shifts from traditional to non-traditional gender-role attitudes are attributed to growing levels of human and economic development (Inglehart 1997, comparing 43 western and non-western countries), to the rise of the women's movement and to women's increased presence in the public sphere (Bolzendahl and Myers 2004, for the U.S.; Thornton et al. 1983, for the U.S.). Authors claim that the increase in gender egalitarian attitudes is especially due to the growth in female employment because "paid work has facilitated women's egalitarian outlook by providing them with

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4 economic independence and a sense of fulfilment” (Zuo and Tang 2000, p. 30; see also Cassidy
5 and Warren 1996, for the U.S.). In addition, innovations in birth control methods, increased rates
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7 of separation and divorce, and decreasing family size have all contributed to the diffusion of
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9 more liberalized attitudes toward gender roles (Bolzendahl and Myers 2004). Female education
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11 is also tightly linked to more egalitarian attitudes toward gender roles because highly educated
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13 women are exposed to ideas about feminism and gender equality (Rhodebeck 1996, for the U.S.)
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15 and are more likely to be employed and thus have access to, and control over, economic
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17 resources that can emancipate them. In a nutshell, according to modernization theory (Inglehart
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19 1997; Inglehart and Norris 2003; Wilensky 2002), human and economic development lead
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21 women (and men) to embrace more egalitarian attitudes toward gender roles.
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29 Beyond the western world, however, a lack of historical data makes the relationship
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31 between gender equality and development difficult to study. Hence, scholars have suggested
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33 studying societal change by comparing countries at different levels of development rather than
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35 by exploiting historical variations within countries (Thornton 2001). Indeed, previous cross-
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37 national studies have adopted this approach to studying gender-role attitudes in a comparative
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39 perspective and have found evidence of a correlation between human and economic development
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41 with egalitarian attitudes toward gender roles in the adult population (Bergh 2006 for 19
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43 advanced industrial countries from the World Values Study; Inglehart 1997; Inglehart and Norris
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45 2003). A similar mechanism is proposed by dependence theory (Baxter and Kane 1995, for U.S.,
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47 Canada, Australia, Norway and Sweden), according to which greater gender inequality at the
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49 societal level translates into traditional attitudes toward gender roles at the individual level.
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53 Indeed, the authors show that the more women are dependent on men, the less likely they are to
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55 hold egalitarian attitudes and more likely to adapt to traditional roles. The study by Kunovich
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and Kunovich (2008) based on 32 countries from the International Social Survey Programme also indicates that societal gender equality is positively associated with individual egalitarian attitudes, although in contrast with Baxter and Kane (1995) their results show that macro-level gender dependence has a stronger effect on men than on women.

Kunovich and Kunovich (2008) also point out that childhood socialization is a relevant aspect for adult women's and men's attitudes in their comparative setting. However, whether societal-level gender equality is relevant for adolescents' attitudes toward gender roles has yet to be explicitly tested. Therefore, in the present article we take a similar approach to study the association between macro-level societal gender inequality and micro-level individual attitudes toward gender roles among adolescents. Whereas it would be endogenous to expect this association among adults, adolescents are not currently contributing to the overall level of gender equality; rather, they are spectators and will eventually contribute to the overall future level of societal gender equality. Precisely due to their role as viewers, we can hypothesize that a mechanism of imitation and learning is in place. That is, in countries where women are emancipated and visible in the public sphere, adolescents are more likely to internalize more progressive values and attitudes toward gender equality. Indeed, it is rather straightforward to imagine that if young women and men see adult women taking leading positions in society, they should be more likely to think that both women and men can hold positions of power. Thus, for example, German children growing up during the years of Angela Merkel's chancellorship are probably more accepting of women as leaders compared to children socialized in countries where the majority of politicians are male or take backward positions on gender roles. Similarly, exposure to large numbers of women in influential and typically male-dominated positions (such as corporate executives) or sectors (such as science, technology, engineering and mathematics—

STEM) is likely to influence the way young women and men think about the roles women and men should have in societies. Thus, our first and baseline hypothesis is that in countries with higher levels of societal gender equality, adolescents will display more egalitarian attitudes toward gender roles than in countries with lower societal gender equality (Hypothesis 1).

Micro and Meso Attributes

At the micro-level, studies have highlighted important characteristics that impact individuals' attitudes toward gender roles. To begin, research has consistently found that females have less traditional and more egalitarian views on gender roles than males do, both among adults (Bolzendahl and Myers 2004; Zuo and Tang 2000) and adolescents (Antill et al. 2003, for Australia; Burt and Scott 2002, for the UK; Crouter et al. 2007; Galambos et al. 1990; McHale et al. 1999, all three for the U.S.). Indeed, from an *interest-based approach* (Bolzendahl and Myers 2004), women are the ones who would directly benefit from a more gender-egalitarian society in terms of employment and career opportunities (OECD 2016), pay (Cooke 2014), the division of housework (Dotti Sani 2014), control over economic and political resources (UNDP—United Nations Development Programme 2010), and personal security and safety (FRA – European Union Agency for Fundamental Rights 2014). In other words, “females stand to gain by pushing for equal status while males, the high-status group, do not” (Crouter et al. 2007, p. 913). In fact, for men, supporting gender equality implies renouncing ascribed “material and ideological advantages” (Ferree 1990, p. 870). Moreover, scholars suggest that because masculine interests and behaviours are more valued at the societal level, there is more pressure for boys to “conform to the masculine sex role than there is for girls to conform to the feminine sex role” (Galambos et al. 1990, p. 1911). Thus, our second hypothesis is that across countries young women will have more gender-egalitarian attitudes than young men will (Hypothesis 2).

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4 Studies have also shown that gender egalitarianism correlates with various dimensions of
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6 socioeconomic status. Bolzendahl and Myers (2004) argue that employed women are more likely
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8 than homemakers are to develop gender egalitarianism because they benefit from greater gender
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10 equality in the workplace (*interest-based approach*) and because they are exposed to situations
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12 that reveal gender inequality and meet other women with non-traditional attitudes (*exposure-*
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14 *based approach*). Moreover, highly educated women are more likely to have non-traditional
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16 gender-role attitudes because they “experience the ‘enlightenment’ effect through education,
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18 which combats gender stereotypes and provides alternative interpretations of women’s roles in
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20 the social world” (Bolzendahl and Myers 2004, p. 762). Similarly, McHale et al. (1999) and
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22 Marks et al. (2009, for the U.S.) show that lower levels of income and education are associated
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24 with traditional rather than egalitarian attitudes, and Zuo and Tang (2000) find that breadwinning
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26 status is associated with more egalitarian attitudes among women and with more traditional
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28 attitudes among men.
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35 Studies have also highlighted the link among children’s attitudes toward gender roles,
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37 their parents’ attitudes, and certain parental characteristics, such as education and working status.
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39 According to social learning theory (Bandura 1977; Thornton et al. 1983), early socialization to
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41 appropriate gender-role attitudes is provided, consciously or not, by parents’ attitudes and
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43 behaviours (Goffman 1977) so that “by modelling more or less traditional roles and attitudes and
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45 encouraging or discouraging sex-typed activities in their children, parents influence their
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47 children’s sex role socialization” (McHale et al. 1999, p. 991). Indeed, studies reveal important
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49 similarities between parents and children’s attitudes toward gender roles (Crouter et al. 2007;
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51 Johnston et al. 2014, for the UK; Marks et al. 2009, for the U.S.). For example, McHale et al.
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53 (1999) showed that children are more likely to display non-traditional attitudes toward gender
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roles if their parents also do so. Similarly, Crouter et al. (2007) found that sons and daughters of traditional parents have traditional attitudes toward gender roles themselves. Moreover, Farré and Vella (2013, for the U.S.) reported an association between mothers' and children's gender-role attitudes. Children were also found to be influenced by certain parental characteristics. For example, they tended to display non-traditional attitudes toward gender roles if their mother was employed or highly educated (Bolzendahl and Myers 2004; Farré and Vella 2013; Powell and Carr Steelman 1982, for the U.S.) because exposure to parental behaviour that defies traditional gender roles may be beneficial to the development of gender egalitarianism among children.

From the perspective of Rogers' (1962) classic theory of the social diffusion of innovations, which posits that elite subjects will be the first to adopt innovative behaviours and attitudes, it is not surprising that the children of well-educated women should be more likely to embrace non-traditional gender-role attitudes. Therefore, our third hypothesis is that children of highly educated mothers will display more gender-egalitarian attitudes than will children of less educated mothers (Hypothesis 3). Moreover, because previous research addressing the effects of maternal education on sons and daughters separately has not reached a definite answer, we also explore differences in this respect. Given that previous studies have found children more likely to imitate their same-sex parents (Burt and Scott 2002), we expect maternal education to have a stronger effect on daughters than on sons (Hypothesis 4).

Individual Characteristics in Context

In studying the development of equality in gender-role attitudes, research has repeatedly asked whether the effects of individual attributes in determining more or less traditional attitudes have changed, that is, whether they have become more or less prominent over time (Bolzendahl

and Myers 2004; Zuo and Tang 2000). In our study, we focus on how two driving determinants of gender-role attitudes (gender and education) matter differently across countries.

As far as gender is concerned, Inglehart and Norris (2003) argue that there should be smaller gender differences in attitudes toward gender roles in more traditional societies, where both women and men are likely to be more accepting of traditional roles, because less economic development and less diffusion of materialistic values place gender equality on the backburner. In contrast, in societal contexts where gender equality is more widespread, differences in attitudes between genders should be more pronounced because women and female adolescents are more likely to act in their own interests and hold egalitarian gender attitudes because they have greater interests to defend and are more exposed to ideas about feminism (Crouter et al. 2007). Moreover, young women in more egalitarian contexts receive greater inputs about gender-egalitarian attitudes through an inter-cohort process than young men do, ultimately reinforcing the gender gap in attitudes (Schutz Lee et al. 2010, for Japan). Building on these arguments, we hypothesize that young women and young men will have more similar attitudes toward gender roles in countries with less gender equality (Hypothesis 5).

As far as education is concerned, in their study of cohort changes in gender-role attitudes, Zuo and Tang (2000), using a randomly selected national U.S. sample, found education to be positively associated with equality in attitudes toward gender roles in the 1980 wave but not in the subsequent waves of data, thus suggesting a weakening effect of education over time. In contrast, Bolzendhal and Myers (2004) documented basically no change in the effect of education on U.S. gender-role attitudes from 1974 to 1998. However, Banaszak and Plutzer (1993, for Western Europe) showed that education has less of an effect in countries with a more favourable women-to-men ratio in the workforce. In our comparative setting, we found high

levels of maternal education to be less common in developing countries than in advanced democracies, and because of this, we expect it to have a stronger role in fostering gender egalitarianism among children. Therefore, our last hypothesis is that maternal education will be more strongly associated with both sons' and daughters' attitudes toward gender roles in less equal societies (Hypothesis 6).

Method

Data and Sample

To test our expectations, we used the International Civic and Citizenship Education Study 2009 (ICCS), a cross-sectional survey carried out by the International Association for the Evaluation of Educational Achievement (IEA), which collected data from over 140,000 8th grade students in nearly 40 countries across the world. The general purpose of the survey was to investigate whether young people are prepared to fully become citizens by looking at their behaviours, attitudes, and orientations in several domains (Schulz, Ainley, Fraillon, Kerr, & Losito, 2010). The breadth of both the sample size and the topics included in the questionnaire makes it the largest international survey on developmental outcomes in adolescents. For the purpose of our study, we selected respondents from 36 countries: Austria, Belgium (Flemish), Bulgaria, Chile, Chinese Taipei (Taiwan), Colombia, Cyprus, Czech Republic, Denmark, Dominican Republic, England, Estonia, Finland, Greece, Guatemala, Indonesia, Ireland, Italy, Republic of Korea, Latvia, Lithuania, Luxembourg, Malta, Mexico, Netherlands, New Zealand, Norway, Paraguay, Poland, Russian Federation, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and Thailand. Liechtenstein and Hong Kong are also included in the ICCS but we had to omit them because the macro-level variable of interest was not available for these

countries. Overall, our sample consisted of 112,493 respondents nested in 5,009 schools. Table 1 reports descriptive information about these respondents.

Dependent Variable

Our dependent variable measured attitudes toward gender roles. Gender roles can be defined as all those expectations and beliefs about the appropriate roles for men and women in the private and in the public spheres: “gender attitudes are attitudes that concern gender relations in society [...] the term refers to normative beliefs about what gender relations in society *should* be like, or the extent to which a person supports the norm of gender equality” (Bergh 2006, p. 6, italics in the original). Attitudes toward gender roles are multidimensional, involving power balance in the private and in the public spheres (Constantin and Voicu 2015; Larsen and Long 1988). The former regards attitudes toward gender equality within the household, such as toward an equal division of paid and unpaid work between partners. The latter concerns attitudes toward gender roles in non-private spheres, such as in politics, education or business.

The literature on the measurement of gender-role attitudes shows that there are many scales gauging this phenomenon, with emphasis on the dimensions of the concept (McHugh and Frieze 1997). The variety of scales mainly depends on the construct researchers are trying to measure, often leading to idiosyncratic measures suited to particular research questions (Beere 1990). In general, scales have focused on stereotypes, gender schemas, gender-related characteristics, attitudes toward feminist attitudes, gender-role attitudes, or gender norms (McHugh and Frieze 1997). Examples of such scales are the Attitudes Toward Women Scale, which measures the rights and roles of women in the vocational, educational, intellectual, sexual, and marital domains (Spence and Helmreich 1978); the Sex-Role Egalitarianism Scale, which measures equality in relevant domains, such as marital, parental, employment, social-

interpersonal-heterosexual, and educational roles (Beere et al. 1984); the Attitudes Toward Marital and Childrearing Roles Scale, accounting for attitudes toward independence and achievement, in particular regarding marital roles and child rearing (Hoffman and Kloska 1995); and the Gender Equality Scale, accounting for political, educational, labour, and family domains (Inglehart and Norris 2003).

In this article, as dependent variable we used an index of attitudes toward gender roles that is included in the ICCS dataset. This already tested and ready-to-use index has a mean of 50 and a standard deviation of 10 and is constructed so that higher values reflect stronger egalitarian attitudes. As described in the dataset manual, the index scores were obtained by applying an item response theory model (partial credit model) and weighted likelihood estimation (see Schulz et al. 2011 for details). The index is based on adolescents' responses, on a 4-point rating scale from 1 (*strongly disagree*) to 4 (*strongly agree*), to six statements included in the dataset: (a) "Men and women should have equal opportunities to take part in government"; (b) "Men and women should have the same rights in every way"; (c) "Women should stay out of politics"; (d) "When there are not many jobs available, men should have more right to a job than women"; (e) "Men and women should get equal pay when they are doing the same jobs"; and (f) "Men are better qualified to be political leaders than women." These items capture attitudes toward egalitarian roles in the public sphere of society. Unfortunately, items about the private sphere (e.g., attitudes toward parental roles or the division of labour at home) are not included in the survey, thus forcing us to confine our investigation to the public domain.

The index is shown to have high levels of reliability and internal consistency over the sample. The country reliabilities, reported in Table 3, range from 0.56 to 0.88, with an average of

0.79 (Cronbach's alpha). Only four countries have a value of alpha somewhat below the conventional 0.70 threshold: Korea, Mexico, Dominican Republic, and Indonesia.

Independent Variables

The independent variables are measured at different levels. At the country-level, we include the Gender Inequality Index (UNDP 2010) as of 2008. Data for Taiwan come from the National Statistics Bureau because they are not calculated by the UNDP (National Statistics Bureau Taiwan 2016). The Gender Inequality Index is a summary indicator accounting for gender-based disadvantages in reproductive health, empowerment, and the labour market (see Bose 2015, for discussion). Its goal is to provide a measure of disparity between men and women in the public field. The index is multidimensional and takes into account: (a) females' reproductive health (maternal mortality ratio and adolescent birth rate), (b) female empowerment (female population with at least secondary education and women's share of parliamentary seats), (c) female labour force participation rates, (d) male empowerment (male population with at least secondary education and men's share of parliamentary seats), and (e) male labour force participation rates. The Gender Inequality Index is basically a relative measure of inequality between women and men, ranging from 0 to 1, where higher values indicate greater inequality.

As a robustness check, we also used the Gender Empowerment Measure (GEM) and the Female Labour Force Participation rate. The results are not substantially different to those presented here, although the data for GEM cover fewer countries. The models were also estimated including the Human Development Index (HDI). Similar conclusions can be drawn from these models. In the end, the choice for the Gender Inequality Index was due to theoretical appropriateness and data coverage. Among the selected countries, the Netherlands scored the lowest and Guatemala the highest.

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4 Following previous research, we also include the number of years a country has been
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6 democratic since 1930 (as at 2000) (Treisman 2007) because continuous experience with
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8 democracy means consolidation of rights easing women's access to the public sphere of society
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10 and guaranteeing their empowerment. Older democracies also tend to be more economically
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12 developed, another important factor for gender equality (Inglehart and Norris 2003). As an
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14 alternative, we used the Freedom House score to measure the level of democracy (Freedom
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16 House 2016). The results were similar to those presented here. Moreover, in previous analyses
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18 we also included the level of GDP per capita. Due to an issue of collinearity with the Gender
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20 Inequality Index, we decided not to use it here, although the main results were unaffected.
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26 At the individual-level, we include the respondents' gender (young man is the reference
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28 category) and the mother's level of education using the ISCED classification (not completed
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30 ISCED level 1 or ISCED level 1 [primary education], as the reference category; ISCED level 2
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32 or 3 [secondary or upper secondary education]; ISCED level 4 or 5B [non-tertiary post-
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34 secondary or vocational tertiary education]; ISCED level 5A or 6 [theory-oriented tertiary or
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36 postgraduate education]).
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41 We then included three control variables following previous literature (Antill et al. 2003;
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43 Bolzendahl and Myers 2004): (a) the respondents' age calculated in years and months; (b) the
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45 level of education they expect to attain coded into three categories (not completing or completing
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47 ISCED level 2 [secondary education], as the reference category; ISCED level 3, 4 or 5B [upper
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49 secondary, non-tertiary post-secondary or vocational tertiary education]; ISCED level 5A or 6
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51 [theory-oriented tertiary or post-graduate education]); (c) and the "National civic knowledge
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53 scale," measuring the respondents' civic knowledge based on 79 cognitive test items. We also
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55 included an index measuring the respondents' support for democratic values, accounting for their
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stance regarding social and political rights. This measure was added to explore the role of democracy in attitudes toward gender roles from the individual-level perspective. We account for the respondents' nationality using a dummy variable distinguishing whether they are native or not (as the reference category).

We also included the father's level of education (measured as the mother's). We then added the father's and mother's occupational status. To measure this variable, the ICCS uses the International Socioeconomic Index of Occupational Status (ISEI) (Ganzeboom et al. 1992), which ranks occupations using a stratification system. When occupations are not mapped, they are reported as missing. This implies that the parents' occupational status is supposedly not employed. To avoid losing information, we recoded this index in quintiles, adding a dummy for the observations with missing values (the third quintile is used as the reference category). Then, we included a variable measuring home literacy, proxied by the approximate number of books present in the home. This variable was measured on a scale from 1 to 6, where 1 indicates 0-10 books and 6 means more than 500 books. This variable should further capture the family's socioeconomic status. For additional information about the individual and country-level variables, see the Online Supplement for our paper ([put link to Online Supplement here](#)), Schulz et al. (2011), and the documentation of the ICCS 2009. Descriptive statistics for all variables are reported in Table 1.

Models

We test our hypotheses using three-level linear multilevel models (Gelman and Hill 2006). This choice is motivated by two reasons. First, respondents are nested in schools and countries and multilevel models allow accounting for these sources of heterogeneity. Second, the variables are measured at both the individual-level and at the country-level. Therefore, variation

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4 in the dependent variable can be explained using variables on both levels. Moreover, these
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6 models allow the variation in the association between individual-level variables and the
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8 dependent variable to be predicted across contexts using macro-level variables.
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11 First, we ran an unconditional model (Model 0), which we use as a reference. Then in
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13 Model 1, we included the Gender Inequality Index, the respondent's gender, and maternal level
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15 of education to test Hypothesis 1 (that adolescents will display more egalitarian attitudes toward
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17 gender roles in countries with lower societal gender equality), Hypothesis 2 (that young women
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19 are more gender egalitarian than men are), and Hypothesis 3 (that the mother's education level is
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21 associated with gender-egalitarian attitudes). In a second step (Model 2), we included the control
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23 variables. In the following model (Model 3), we added the interaction between the respondent's
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25 gender and maternal level of education to test Hypothesis 4 (that maternal education will have a
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27 stronger effect on daughters than on sons). Finally, to test Hypothesis 5 (that young women and
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29 men will have more similar attitudes toward gender roles in countries with less gender equality)
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31 and Hypothesis 6 (that the mothers' educational status will have more influence on gender-
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33 egalitarian attitudes in less egalitarian countries), we let the slopes of the respondent's gender
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35 and maternal education vary across countries and included cross-level interactions with the
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37 Gender Inequality Index (Model 4 and Model 5 respectively). This operation allowed us to
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39 predict the variation in the slopes across countries as a function of societal gender inequality.
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48 In addition to the models presented in the present article, we carried out several tests for
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50 robustness. First of all, given that certain independent variables might be correlated from a
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52 theoretical or empirical standpoint, the models were checked for multicollinearity, which was not
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54 found. Second, we tested the models for the presence of influential cases, in this case countries,
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56 which could drive the results, especially when the higher-level units are not very numerous.
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Following the example of Van der Meer et al. (2010), we used measures of influence, which pointed out that Guatemala and Taiwan might be influential countries. To account for this problem, we used two strategies. The first strategy consisted in checking for changes in the statistical significance of the independent variables when the two countries were excluded from the models (one at a time and simultaneously). These tests indicated that the exclusion of these countries from the models (and all the other countries one at a time as well) did not affect the statistical significant of the predictors. However, excluding countries from the sample resulted in a loss in observations at the individual level. Therefore, our second strategy consisted in adding two dummy variables accounting for the two potentially influential countries. Using this strategy, the results again were very similar to those presented in the present article.

Results

Table 2 reports the estimates of the linear multilevel models. The unconditional model (Model 0) indicates that, on average, the score of the index of attitudes toward gender roles among all respondents is about 50. Table 3 reports the country scores of the index with 95% confidence intervals. At the top of the distribution we find highly developed countries, although not necessarily from the West. Sweden is the country with the highest score, followed by Taiwan, Ireland, Spain, Denmark, and Norway. On the other side of the distribution we find Indonesia, the Dominican Republic, Russia, Thailand, and Mexico, countries where women's rights or presence in the public domain are somewhat limited and men are most prominent in these areas. Table 3 also shows that there is a certain degree of cross-national variability in adolescents' attitudes that can be explained by including country- and individual-level predictors.

Model 1 allows investigating the association between adolescents' attitudes and societal gender equality (Hypothesis 1). The model indicates that in countries where gender inequality is

more diffuse, adolescents have less egalitarian attitudes (see Table 2, $p < .001$). This means that in countries where gender inequality is high (as in Guatemala, Indonesia, Colombia, and Paraguay), the index of attitudes toward gender equality is, on average, about 45. On the contrary, in highly egalitarian countries (such as the Netherlands, Denmark, and Sweden), the score for gender attitudes is, on average, about 53.

To better illustrate this pattern, which supports Hypothesis 1, we predict attitudes toward gender roles over the entire sample and plot them against the Gender Inequality Index in Figure 1. The solid line represents the predicted values and the shaded area the 95% confidence intervals (the predicted values are calculated at the means of the covariates). The figure also shows the predicted country-level scores. Societal levels of gender inequality seem to approximate well the countries' levels of attitudes toward gender equality among adolescents, suggesting that adolescents learn from the surrounding environment: Where gender equality is more widespread, adolescents have more egalitarian attitudes and vice versa, probably because they imitate and reproduce the examples to which they are exposed. As has been argued, this might be due to economic and social development contributing to the weakening of gender disparities that are barriers against human development (Inglehart 1997; UNDP 2010; Wilensky 2002).

Model 1 also includes the individual-level variables of interest (the respondent's gender and maternal level of education), which allow testing of Hypotheses 2 and 3 (see Table 2). In support of Hypothesis 2, respondents' gender is strongly associated with attitudes toward gender equality. Young women have a score on the index 5.707 points higher than men's ($p < .001$). This confirms our second hypothesis by indicating that, even in adolescence, young women show more egalitarian attitudes than young men do and avoid conforming to traditional gender

roles (Crouter et al. 2007; Galambos et al. 1990). Maternal education is also strongly associated with the index, thus confirming Hypothesis 3. Indeed, the score for respondents whose mothers did or did not complete primary education is 48.23 whereas it is about one point higher (49.32) when the mother completed secondary or upper secondary education. The score gains another point (50.34) if the mother has completed post-secondary non-tertiary or vocational tertiary education, whereas it further increases if the mother has completed theory-oriented tertiary or post-graduate education (50.84). This result suggests that adolescents with highly educated mothers may be exposed to less traditional attitudes and behaviours in terms of gender roles (Bolzendahl and Myers 2004), which they are likely to acquire through processes of imitation and learning (McHale et al. 1999). Importantly, Model 1 accounts for much country-level variance (39%), indicating that societal gender equality explains country differences in adolescents' attitudes well.

In Model 2 we add the control variables (the coefficients are reported in the [Online Supplement](#)). As can be seen in Table 2, the variables of interest remain significantly associated with egalitarian attitudes among adolescents. In particular, the coefficient for gender remains almost unaltered and that for the Gender Inequality Index only marginally decreases. However, the magnitude of the coefficient of the mother's level of education is strongly reduced, suggesting that other variables are also relevant to attitudes toward equality in gender roles.

Regarding the control variables, age has a negative association with egalitarian gender attitudes, whereas the respondent's expected educational attainment shows a positive one, as do the civil knowledge scale, support for democratic values, and the respondent's background (see Table 2). The father's level of education is mostly unrelated to egalitarian attitudes, with low education apparently positively associated with egalitarian attitudes and high education

1 negatively associated. Although this result may seem surprising, it can be explained by parental
2 educational homogamy because partners share educational attainment. However, it is the
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4 mother's education that matters more; the father's education plays only a marginal role. Parents
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6 at the bottom of the index of occupational status and those whose occupation could not be
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8 classified appear to have children who are less supportive of equality between genders. Finally,
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10 home literacy shows a significant and positive association with the dependent variable. The
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12 control at the country-level (years of democracy) has a positive and significant association with
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14 egalitarian gender attitudes among adolescents, confirming previous results (Inglehart and Norris
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16 2003). To conclude on Model 2, the variance components indicate that the predictors explain
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18 about 24% of the variance at the individual-level and 55% at the country-level.
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29 To test the hypothesis that maternal education has a stronger effect on daughters than on
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31 sons (Hypothesis 4), Model 3 adds the interaction between the respondent's gender and the
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33 mother's level of education. The coefficients in the model seem to fully support this expectation
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35 (see Table 2). The effect of the mother's education for daughters is positive, whereas for sons,
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37 the effect is actually negative (albeit close to zero). In fact, at low levels of the mother's
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39 education, the score for the index of egalitarian attitudes among daughters is 50.97, and it is
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41 52.88 when maternal education is the highest. Among sons, the score for the index of egalitarian
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43 attitudes is 48.16 when the mother has not completed primary education or has completed it, and
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45 it is 46.90 when the mother has completed theory-oriented tertiary or post-graduate education.
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48 The differences are statistically significant for daughters but not for sons. These results are in
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50 contrast with previous findings showing that young men are more affected by their mother's
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52 education than young women are, or that education positively affects the attitudes of both young
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54 women and young men (Farré and Vella 2013; Powell and Carr Steelman 1982). It appears,
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4 instead, that young women strengthen their egalitarian attitudes by emulating highly educated
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6 mothers.
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9 We also hypothesized that the effect of societal gender inequality would not be even
10 across the sample but would vary by gender and by maternal education. In particular, in gender
11 unequal countries we anticipated *smaller* differences in attitudes between young men and women
12 (Hypothesis 5) and *larger* differences in attitudes among respondents whose mothers have
13 different levels of education (Hypothesis 6). Models 4 and 5 test these expectations (see Table
14 2). Model 4 lets the slope of the respondent's gender vary across countries and includes a cross-
15 level interaction between gender and the Gender Inequality Index. The coefficient for the
16 interaction is negative and significant (see Table 2, $p < .001$). This means that as societal
17 inequality increases, the effect of gender decreases and, therefore, that the effect of societal
18 inequality is different for young men and women. Because interaction terms are not easy to
19 interpret, in Figure 2 we plot the effect of the Gender Inequality Index on the predicted attitudes
20 toward gender equality for young men and women (see Figure 2a) and the differences between
21 them, that is, the marginal effect of gender on attitudes toward gender equality along the Gender
22 Inequality Index (see Figure 2b). In both panels we also plot the corresponding country-level
23 scores.
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45 Figure 2a shows that the effect of societal inequality is strong for young women whereas
46 it is relatively weak for men. This finding shows that the effect of societal-level gender equality
47 is heterogeneous for the two groups of respondents, and it contrasts with research demonstrating
48 that, among adults, societal gender equality matters more for men's attitudes than for women's
49 (Kunovich and Kunovich 2008). Among young women, the predicted score for attitudes toward
50 gender roles is about 56 in countries with lower levels of inequality and about 47 in countries
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with higher levels of inequality (a difference of 9 points). For young men, the predicted score is about 49 in countries with lower levels of inequality and about 45 in countries with higher levels of inequality (a difference of 4 points).

Figure 2 also indicates that country differences between the scores for young men and young women on the index become narrower as societal inequality increases. As can be seen in Figure 2b, young women score almost 8 points higher than men do in highly equal countries, whereas the difference is only about 2 points in highly unequal countries. The countries where the gaps between young women and men are the smallest are the Dominican Republic, Indonesia, and Thailand. Conversely, the countries where the gaps between young women and men are the widest are Finland, Austria, and Cyprus.

Overall, the results indicate that the effect of the Gender Inequality Index on adolescents' attitudes toward gender equality is different for young men and young women and that the variation in the effect of gender on attitudes can be explained by societal gender inequality. Indeed, Model 4 explains 54% of the variation in the effect of gender across the countries analysed. In addition, our results show that the cross-national variations in the gender gap in attitudes among adults suggested by previous studies (Inglehart and Norris 2003) are also visible among adolescents.

Finally, Model 5 lets the slope of the mother's level of education vary across countries and includes a cross-level interaction between this variable and the Gender Inequality Index. Although the coefficients go in the expected direction, they are highly imprecise. This imprecision implies that the effect of societal inequality does not change among respondents whose mothers have different levels of education and that the variation in the effect of the mother's education does not depend on the level of societal gender inequality.

Discussion

In the present article we have taken a comparative approach to the study of attitudes toward gender roles among young men and women in 36 countries worldwide. By applying multilevel models to unique data for 8th grade students, our analyses make three contributions to the literature. First, we show that there are large cross-national disparities in the way the young view women's and men's roles in societies. Indeed, in countries where societal gender equality is far from being reached, both young men and young women hold rather traditional views about gender roles. Second, we have shown the importance of mothers' education in shaping egalitarian attitudes toward gender roles among daughters. Indeed, our results show that, regardless of the context, the more educated mothers are, the more likely their daughters are to be accepting of equality in roles between women and men. Third, our results point toward crucial cross-national differences in the way gender shapes attitudes toward gender roles. In particular, societal gender equality has a strong "enlightening" effect on young women but not on men. In other words, in societies with high gender inequality, both young men and women hold more traditional attitudes. At lower levels of inequality, both young women and men report more egalitarian attitudes but the effect is much stronger for the former, suggesting that even in more gender-equal societies young men may support traditional gender roles.

Limitations and Future Research Directions

Our study is not without limitations. One concerns our selection of countries because the countries included in the ICCS are, of course, not representative of all countries across the globe. Nevertheless, the ICCS provides the largest known pool of cross-sectional data for investigating adolescents' attitudes and behaviours in a comparative perspective. A second concern lies with the cross-sectional nature of the data, which allows differences between adolescents living in

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4 diverse countries to be studied, but not changes over time. Shifts in gender attitudes are probably
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6 due to a process of cohort replacement, with newer generations possibly being more egalitarian
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8 than older ones (Inglehart and Norris 2003). Thus, it would be fruitful for future research to
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10 explore attitudes toward gender roles across generations. Moreover, cross-sectional data do not
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12 allow changes within individuals to be studied so that they miss important aspects related to the
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14 process of socialization, which might be studied using panel data. It should be clear, however,
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16 that comparative panel data, including indicators about attitudes toward gender roles, are far
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18 from easy to collect, although future research should aim at this goal. Finally, the data used do
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20 not include information about the parents' attitudes toward gender roles. It is well known that
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22 parents are models for children. Thus, it is likely that gender-egalitarian parents raise egalitarian
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24 children. We have tried to assess this learning/imitation process at least partially by looking at
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26 respondents' gender and their mothers' education. However, future research should focus more
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28 thoroughly on the relationship between parents' and children's attitudes in a comparative
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30 perspective.
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38 **Practice Implications**

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40 The gender disparity in attitudes that emerges in less egalitarian countries is worrisome
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42 because it suggests that adolescents are internalizing social cues on inequality between women
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44 and men which they might eventually reproduce when they become adults. The positive side of
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46 this reasoning is that adolescents living in countries with low gender inequality hold rather
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48 egalitarian attitudes toward gender roles, suggesting positive developments for further gender
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50 equality in the future. Knowledge of this "snowball" or "accumulation" effect could prove useful
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52 for policymakers when designing tools for promoting gender equality. In particular, the fact that
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54 maternal education is especially important for children's gender equal attitudes adds yet another
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point to the list of reasons why educating and empowering women is beneficial for society (UN Women 2016).

However, our results indicate also that sons are less responsive to their mothers' education, suggesting that exposure to other sources promoting traditional gender roles (e.g., peers, media, and other contextual factors) might interfere with them picking up their attitudes from highly educated mothers. Our findings suggest that there is ample room for improvement in the way adolescents are socialized to gender roles and that additional efforts are necessary to ensure that especially young men are receiving egalitarian inputs on attitudes toward gender equality. According to the societal-level of gender inequality, two separate pathways can be identified. On the one hand, in countries with high gender equality it is young men who appear reluctant to adopt more gender-egalitarian attitudes, whereas young women appear to be forerunners in the process (Burt and Scott 2002). Hence, male adolescents could represent a promising target for intervention by national and supranational institutions sponsoring equality in gender-role attitudes. On the other hand, in countries with low gender equality, both male and female adolescents could benefit from acquiring more gender-egalitarian attitudes and therefore proper policy tools could be developed to address both genders.

Conclusion

It is important to keep in mind that today's youth are tomorrow's adult population. In an attempt to imagine the future of gender equality—albeit with a large degree of approximation and without attempting to make deterministic predictions—by looking at the attitudes toward gender roles of today's adolescents, we find little room for optimism. Considering how far the adolescents in our study are from fully supporting equality between genders, it is unlikely that women and men will have reached equal opportunities any time soon. Indeed, the best is yet to

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4 come in terms of gender equality. Nonetheless, there are positive signals because women's
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6 position in various domains of society is gradually improving worldwide. Future studies will
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8 have to address the development of gender inequalities in the coming years as women become
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10 more and more present in the public domain and (hopefully) men become more present in the
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12 domestic one.
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Table 1

Summary Descriptive Statistics

Variables	<i>M</i> (<i>SD</i>) / %	Min	Max
Dependent variable			
Index of attitudes toward gender equality	49.83 (9.80)	16.26	64.56
Individual-level variables (<i>N</i> = 112,493)			
Gender (Young women)	50.9%	0	1
Age	14.39 (.69)	12.00	17.92
Respondent's expected education:			
ISCED 2	6.0%	0	1
ISCED 3-4-5B	40.0%	0	1
ISCED 5A-6	54.0%	0	1
National civic knowledge scale	150.86 (9.82)	92.43	207.90
Support for democratic values	50.38 (9.93)	12.34	67.34
Background (Native)	94%	0	1
Mother's education:			
ISCED 0-1	12.8%	0	1
ISCED 2-3	50.3%	0	1
ISCED 4-5B	15.6%	0	1
ISCED 5A-6	21.4%	0	1
Father's education:			
ISCED 0-1	11.8%	0	1
ISCED 2-3	47.3%	0	1
ISCED 4-5B	16.0%	0	1
ISCED 5A-6	21.6%	0	1
Mother's ISEI:			
Missing	23.0%	0	1
First quintile	15.4%	0	1
Second quintile	15.7%	0	1
Third quintile	14.7%	0	1
Fourth quintile	17.3%	0	1
Fifth quintile	13.9%	0	1
Father's ISEI:			
Missing	8.4%	0	1
First quintile	22.2%	0	1
Second quintile	14.3%	0	1
Third quintile	18.8%	0	1
Fourth quintile	20.1%	0	1
Fifth quintile	16.2%	0	1
Home literacy	3.20 (1.37)	1	6
Country-level variables (<i>N</i> = 36)			
Gender Inequality Index	0.40 (.16)	0.17	0.71
Years of democracy	31.74 (25.82)	1	70

Note. ISCED 0-1: incomplete or complete primary education. ISCED 2-3: secondary or upper secondary education. ISCED 4-5B: non-tertiary post-secondary or vocational tertiary education. ISCED 5A-6: theory-oriented tertiary or postgraduate education.

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Table 2

Three-level Linear Multilevel Models Predicting Attitudes Toward Gender Equality Among 8th Grade Students in 36 Countries

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
	(<i>SE</i>)	(<i>SE</i>)	(<i>SE</i>)	(<i>SE</i>)	(<i>SE</i>)	(<i>SE</i>)
Intercept	50.032*** (0.609)	51.050*** (1.292)	3.945* (1.723)	5.506** (1.719)	3.090 (1.646)	4.409** (1.688)
Gender Inequality Index		-14.353*** (3.198)	-11.342*** (3.033)	-11.365*** (3.024)	-6.825* (2.874)	-12.244*** (2.963)
Gender (Young woman)		5.707*** (0.052)	5.194*** (0.047)	2.811*** (0.129)	9.370*** (0.648)	5.193*** (0.047)
Mother's education (r.c. ISCED 0-1):						
ISCED 2-3		1.087*** (0.093)	0.181 (0.096)	-1.154*** (0.124)	0.062 (0.095)	-0.145 (0.338)
ISCED 4-5B		2.103*** (0.113)	0.513*** (0.110)	-1.193*** (0.143)	0.398*** (0.109)	0.383 (0.435)
ISCED 5A-6		2.603*** (0.106)	0.437*** (0.110)	-1.253*** (0.139)	0.303** (0.109)	-0.317 (0.456)
Gender × mother's education:						
Young woman × ISCED 2-3				2.412*** (0.144)		
Young woman × ISCED 4-5B				3.160*** (0.173)		
Young woman × ISCED 5A-6				3.168*** (0.163)		
Gender Inequality Index × gender:						
Gender Inequality Index × Young woman					-10.286*** (1.607)	
Gender Inequality Index × mother's education:						
Gender Inequality Index × ISCED 2-3						0.541 (0.657)
Gender Inequality Index × ISCED 4-5B						-0.085 (0.976)
Gender Inequality Index × ISCED 5A-6						1.692

						(1.000)
Country-level variances (random effects)						
School	6.605	4.694	1.832	1.805	1.777	1.796
Country	13.262	8.137	5.988	5.951	5.358	5.595
Respondent	75.309	68.047	57.313	57.097	56.286	57.279
Gender (Young woman)					1.996	
Mother's education:						
ISCED 2-3						0.111
ISCED 4-5B						0.347
ISCED 5A-6						0.466
BIC	810,825	798,748	777,890	777,483	775,973	777,970

Note: *N* respondents = 112,493; *N* schools = 5,009; *N* countries = 36. Models 2–5 control for the respondent's age, educational expectations, national civic knowledge scale, support for democratic values, background, father's education, mother's occupational status, father's occupational status, home literacy, and years of democracy.

r.c. = reference category.

BIC = Bayesian Information Criterion.

ISCED 0-1: incomplete or complete primary education. ISCED 2-3: secondary or upper secondary education. ISCED 4-5B: non-tertiary post-secondary or vocational tertiary education.

ISCED 5A-6: theory-oriented tertiary or postgraduate education.

* $p < .05$. ** $p < .01$. *** $p < .001$.

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Table 3

Country-level Attitudes Toward Gender Equality Among 8th Grade Students in 36 Countries, reliabilities for scales reflecting students' attitudes toward gender equality, the Gender Inequality Index and years of democracy by country.

Country	Est.	95% CI [lower, upper]	Alpha	GII	Years of democracy
Sweden (SWE)	55.782	[55.253, 56.310]	0.87	0.212	70
Taiwan (TWN)	55.625	[55.148, 56.103]	0.81	0.223	4
Ireland (IRL)	54.635	[54.072, 55.198]	0.84	0.344	70
Spain (ESP)	54.587	[54.066, 55.109]	0.75	0.280	23
Denmark (DNK)	54.555	[54.057, 55.054]	0.85	0.209	70
Norway (NOR)	54.012	[53.423, 54.601]	0.84	0.234	70
England (ENG)	53.575	[52.937, 54.213]	0.84	0.355	70
Finland (FIN)	53.443	[52.948, 53.938]	0.87	0.248	70
New Zealand (NZL)	52.310	[51.719, 52.900]	0.83	0.320	70
Switzerland (CHE)	52.230	[51.680, 52.780]	0.83	0.228	70
Slovenia (SVN)	52.183	[51.659, 52.707]	0.83	0.293	9
Belgium (BFL)	52.108	[51.571, 52.645]	0.79	0.236	70
Luxembourg (LUX)	52.072	[50.949, 53.195]	0.79	0.318	70
Austria (AUT)	52.011	[51.406, 52.615]	0.82	0.300	46
Italy (ITA)	51.747	[51.255, 52.238]	0.80	0.251	53
Chile (CHL)	51.554	[51.093, 52.016]	0.75	0.505	11
Netherlands (NLD)	51.263	[50.294, 52.233]	0.81	0.174	70
Malta (MLT)	50.918	[50.127, 51.709]	0.76	0.395	25
Korea, South (KOR)	50.543	[50.066, 51.020]	0.67	0.310	19
Greece (GRC)	49.946	[49.376, 50.517]	0.82	0.317	26
Colombia (COL)	49.416	[48.985, 49.848]	0.72	0.658	27
Guatemala (GTM)	48.890	[48.360, 49.421]	0.71	0.713	15
Estonia (EST)	48.814	[48.223, 49.406]	0.74	0.409	8
Paraguay (PRY)	48.370	[47.821, 48.919]	0.70	0.643	25
Cyprus (CYP)	48.259	[47.511, 49.007]	0.80	0.284	40
Czech Republic (CZE)	48.168	[47.639, 48.697]	0.77	0.330	10
Slovakia (SVK)	47.839	[47.299, 48.379]	0.77	0.352	8
Poland (POL)	47.753	[47.235, 48.271]	0.80	0.325	10
Lithuania (LTU)	47.458	[46.989, 47.926]	0.78	0.359	8
Latvia (LVA)	46.179	[45.599, 46.758]	0.74	0.316	7
Bulgaria (BGR)	45.751	[45.234, 46.268]	0.73	0.399	10

Mexico (MEX)	45.596	[45.177, 46.015]	0.56	0.576	61
Thailand (THA)	43.737	[43.253, 44.222]	0.83	0.586	8
Russia (RUS)	43.594	[43.142, 44.046]	0.67	0.422	9
Dominican Republic (DOM)	43.586	[43.041, 44.132]	0.57	0.646	35
Indonesia (IDN)	42.631	[42.132, 43.129]	0.62	0.680	1

Note: Est. = random-intercepts from Model 0. Sorted from highest to lowest.

Alpha = Reliabilities for scales reflecting students' attitudes toward gender equality.

GII = Gender Inequality Index

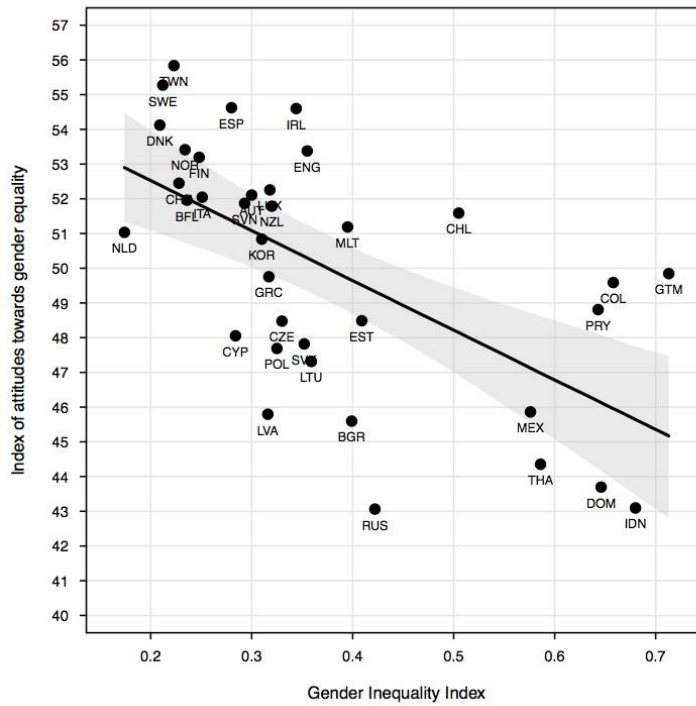
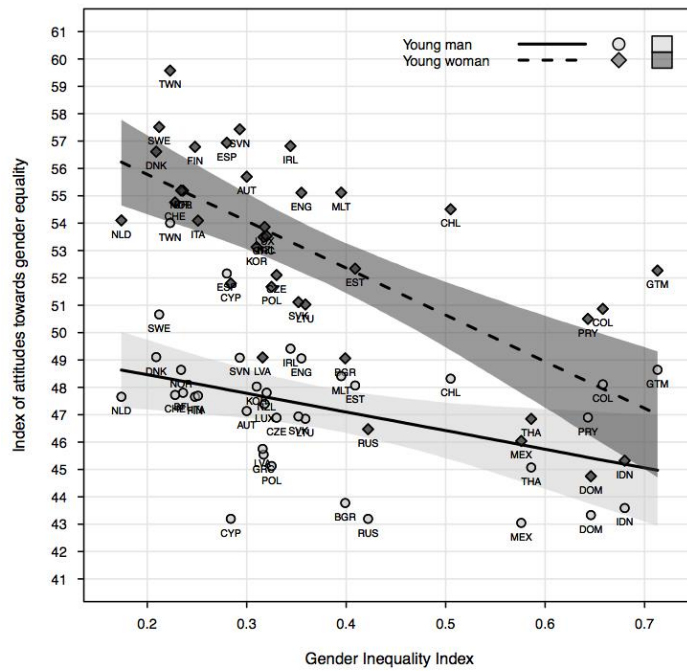
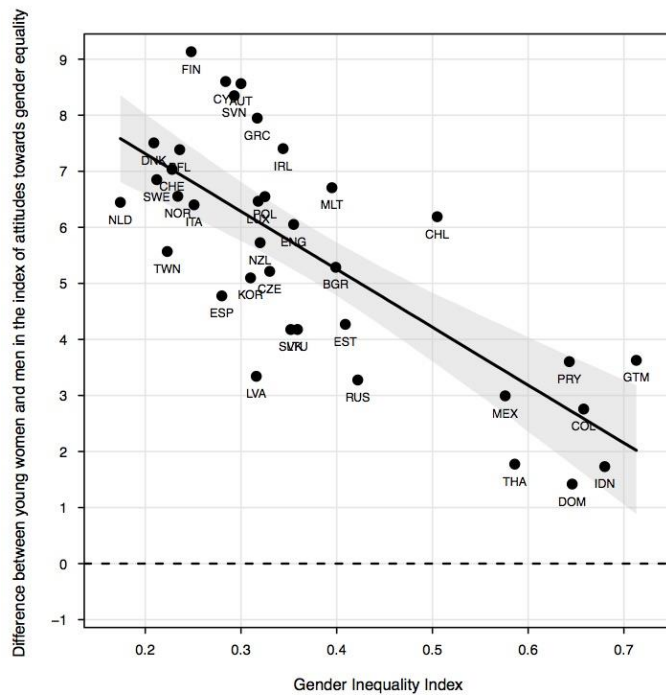


Figure 1. Predicted values and 95% confidence intervals for attitudes toward gender equality at different levels of the Gender Inequality Index among 8th grade students in 36 countries (based on Model 1). The key to the country designations can be found in Table 3.



(a) Compares the attitudes toward gender equality of young men and your women



(b) The difference between young men and young women attitudes

Figure 2. (a) Predicted values and 95% confidence intervals of attitudes toward gender equality of young men and women and (b) predicted differences with 95% confidence intervals between the attitudes toward gender equality of young men and women at different levels of the Gender

Inequality Index among 8th grade students in 36 countries, (based on Model 4). The key to the country designations can be found in Table 3.

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Online supplement for Dotti Sani, G. M., & Quaranta, M. (2016). The best is yet to come? Attitudes toward gender roles among adolescents in 36 countries. *Sex Roles*. Giulia M. Dotti Sani, Collegio Carlo Alberto. Email: giulia.dottisani@carloalberto.org

Table S1

Description of the Individual-level Variables

Variable	Description	Coding/Procedure
GENEQL*	Students' attitudes towards gender equality	IRT WLE weighted scores with mean of 50 and standard deviation of 10 for equally countries, based on the following items: IS2P24A Men and women should have equal opportunities to take part in government; IS2P24B Men and women should have the same rights in every way; IS2P24C Women should stay out of politics; IS2P24D When there are not many jobs available, men should have more right to a job than women; IS2P24E Men and women should get equal pay when they are doing the same jobs; IS2P24F Men are better qualified to be political leaders than women.
SGENDER	Gender of student	Girl = 1; Boy = 0
SAGE*	Age of student	$((ITDATEY - IS2G01B) \times 12) + (ITDATEM - IS2G01A)/12$; IS2G01B year of birth; IS2G01A month of birth; ITDATEY date of testing/year; ITDATEM date of testing/month.
SISCED	Respondent's expected education	Not completing or completing ISCED level 2 [secondary education] = 0; ISCED level 3, 4 or 5B [upper secondary, non-tertiary post-secondary or vocational tertiary education] = 1; ISCED level 5A or 6 [theoretically oriented tertiary or post-graduate education] = 2.
NWLCIV*	National civic knowledge scale	IRT WLE scores with mean of 150 and standard deviation of 10 within each country. The scaling is based on the 79 adjudicated international cognitive test items and provides nationally comparable results for students' civic knowledge. The weighted likelihood estimates (WLE) were computed using the same international parameters and scores are only available for students who participated in the test.
DEMVAL*	Students' support for democratic values	IRT WLE weighted scores with mean of 50 and standard deviation of 10 for equally countries, based on the following items: IS2P20A Everyone should always have the right to express their opinions freely; IS2P20E All people should have their social and political rights respected; IS2P20F People should always be free to criticise the government publicly; IS2P20H All citizens should have the right to elect their leaders freely; IS2P20I People should be able to protest if they believe a law is unfair.
IMMIG	Immigration background	1 = Native student; 0 = First generation or non-native student.
MISCED	Mother's level of education	Not completed ISCED level 1 or ISCED level 1 [primary education] = 0; ISCED level 2 or 3 [secondary or upper secondary education] = 1; ISCED level 4 or 5B [non-tertiary post-secondary or vocational tertiary education] = 2; ISCED level 5A or 6 [theoretically oriented tertiary or post-graduate education] = 3.
FISCED	Father's level of education	Not completed ISCED level 1 or ISCED level 1 [primary education] = 0; ISCED level 2 or 3 [secondary or upper secondary education] = 1; ISCED level 4 or 5B [non-tertiary post-secondary or vocational tertiary education] = 2; ISCED level 5A or 6 [theoretically oriented tertiary or post-graduate education] = 3.
MSEI*	Mother's occupational status	Recode with syntax "Compute_SEI.SPS". Source: What is your mother's or <female guardian>'s main <job>? (e.g. school teacher, kitchen-hand, sales manager)
FSEI*	Father's occupational status	Recode with syntax "Compute_SEI.SPS". Source: What is your father's or <male guardian>'s main <job>? (e.g. school teacher, kitchen-hand, sales manager)
HOMELIT	Home literacy	About how many books are there in your home? 0-10 books = 1; 11-25 books = 2; 26-100 books = 3; 101-200 books = 4; 201-500 books = 5; More than 500 books = 6.

Note: * indicates ICCS-constructed variables. See the ICCS 2009 User Guide for the International Database–Supplement 3.

Table S2

Three-level Linear Multilevel Models Predicting Attitudes Toward Gender Equality Among 8th Grade Students in 36 Countries—Complete table

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	50.032*** (0.609)	51.050*** (1.292)	3.945* (1.723)	5.506** (1.719)	3.090 (1.646)	4.409** (1.688)
Gender Inequality Index		-14.353*** (3.198)	-11.342*** (3.033)	-11.365*** (3.024)	-6.825* (2.874)	-12.244*** (2.963)
Gender (Young woman)		5.707*** (0.052)	5.194*** (0.047)	2.811*** (0.129)	9.370*** (0.648)	5.193*** (0.047)
Mother's education (r.c. ISCED 0-1):						
ISCED 2-3		1.087*** (0.093)	0.181 (0.096)	-1.154*** (0.124)	0.062 (0.095)	-0.145 (0.338)
ISCED 4-5B		2.103*** (0.113)	0.513*** (0.110)	-1.193*** (0.143)	0.398*** (0.109)	0.383 (0.435)
ISCED 5A-6		2.603*** (0.106)	0.437*** (0.110)	-1.253*** (0.139)	0.303** (0.109)	-0.317 (0.456)
Gender × mother's education:						
Young woman × ISCED 2-3				2.412*** (0.144)		
Young woman × ISCED 4-5B				3.160*** (0.173)		
Young woman × ISCED 5A-6				3.168*** (0.163)		
Gender Inequality Index × gender:						
Gender Inequality Index × Young woman					-10.286*** (1.607)	
Gender Inequality Index × mother's education:						
Gender Inequality Index × ISCED 2-3						0.541 (0.657)
Gender Inequality Index × ISCED 4-5B						-0.085 (0.976)
Gender Inequality Index × ISCED 5A-6						1.692 (1.000)
<i>Control variables</i>						
Age			-0.127** (0.042)	-0.141*** (0.042)	-0.180*** (0.042)	-0.118** (0.042)
Respondent's expected education (r.c. ISCED 2):						
ISCED 3-4-5B			0.455*** (0.103)	0.477*** (0.103)	0.469*** (0.103)	0.471*** (0.104)
ISCED 5A-6			1.080*** (0.105)	1.130*** (0.105)	1.191*** (0.104)	1.100*** (0.105)
National civic knowledge scale			0.234*** (0.003)	0.234*** (0.003)	0.235*** (0.003)	0.234*** (0.003)
Support for democratic values			0.209*** (0.002)	0.209*** (0.002)	0.208*** (0.002)	0.209*** (0.002)

1	Native			0.600***	0.586***	0.635***	0.617***
2				(0.104)	(0.104)	(0.103)	(0.105)
3	Father's education						
4	(r.c. ISCED 0-1):						
5	ISCED 2-3			0.220**	0.222**	0.215**	0.199**
6				(0.073)	(0.073)	(0.073)	(0.074)
7	ISCED 4-5B			-0.051	-0.053	-0.052	-0.050
8				(0.075)	(0.075)	(0.074)	(0.075)
9	ISCED 5A-6			-0.229**	-0.225**	-0.234**	-0.218**
10				(0.076)	(0.076)	(0.076)	(0.077)
11	Mother's ISEI (r.c.						
12	Third quintile):						
13	Missing			-0.454***	-0.439***	-0.415***	-0.445***
14				(0.082)	(0.081)	(0.081)	(0.082)
15	First quintile			-0.291**	-0.273**	-0.285**	-0.289**
16				(0.088)	(0.088)	(0.088)	(0.089)
17	Second quintile			-0.104	-0.098	-0.094	-0.106
18				(0.084)	(0.084)	(0.084)	(0.084)
19	Fourth quintile			0.122	0.126	0.130	0.122
20				(0.082)	(0.082)	(0.081)	(0.082)
21	Fifth quintile			0.153	0.144	0.139	0.154
22				(0.092)	(0.092)	(0.091)	(0.092)
23	Father's ISEI (r.c.						
24	Third quintile):						
25	Missing			-0.244*	-0.243*	-0.226*	-0.248*
26				(0.097)	(0.096)	(0.096)	(0.097)
27	First quintile			-0.170*	-0.174*	-0.158*	-0.163*
28				(0.075)	(0.074)	(0.074)	(0.075)
29	Second quintile			-0.058	-0.057	-0.047	-0.059
30				(0.081)	(0.080)	(0.080)	(0.081)
31	Fourth quintile			0.092	0.090	0.097	0.091
32				(0.076)	(0.075)	(0.075)	(0.076)
33	Fifth quintile			0.201*	0.193*	0.202*	0.202*
34				(0.087)	(0.086)	(0.086)	(0.087)
35	Home literacy			0.191***	0.188***	0.179***	0.193***
36				(0.020)	(0.020)	(0.020)	(0.020)
37	Years of			0.049**	0.049**	0.040*	0.044**
38	democracy			(0.017)	(0.017)	(0.016)	(0.016)
39							
40	Random effects						
41	(variance)						
42	School	6.605	4.694	1.832	1.805	1.777	1.796
43	Country	13.262	8.137	5.988	5.951	5.358	5.595
44	Respondent	75.309	68.047	57.313	57.097	56.286	57.279
45	Gender (Young					1.996	
46	woman)						
47	Mother's						
48	education:						
49	ISCED 2-3						0.111
50	ISCED 4-5B						0.347
51	ISCED 5A-6						0.466
52	BIC	810,825	798,748	777,890	777,483	775,973	777,970

Note: N respondents = 112,493; N schools = 5,009; N countries = 36.

r.c. = reference category.

BIC = Bayesian Information Criterion.

Note. ISCED 0-1: incomplete or complete primary education. ISCED 2-3: secondary or upper secondary education. ISCED 4-5B: non-tertiary post-secondary or vocational tertiary education. ISCED 5A-6: theory-oriented tertiary or postgraduate education.

Sig.: * < p = .05; ** < p = .01; *** < p = .001.

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Table S3

Three-level Linear Multilevel Model Predicting Attitudes Toward Gender Equality Among 8th Grade Students in 36 Countries. Random-slope model for gender

	Model 4B
Intercept	2.970 (1.646)
Gender Inequality Index	-6.538* (2.872)
Gender (Young woman)	5.524*** (0.352)
Mother's education (r.c. ISCED 0-1):	0.064
ISCED 2-3	(0.095) 0.399***
ISCED 4-5B	(0.109) 0.304**
ISCED 5A-6	(0.109)
<i>Control variables</i>	
Age	-0.179*** (0.042)
Respondent's expected education (r.c. ISCED 2):	
ISCED 3-4-5B	0.470*** (0.103)
ISCED 5A-6	1.190*** (0.104)
National civic knowledge scale	0.235*** (0.003)
Support for democratic values	0.208*** (0.002)
Native	0.635*** (0.103)
Father's education (r.c. ISCED 0-1):	
ISCED 2-3	0.215** (0.073)
ISCED 4-5B	-0.052 (0.074)
ISCED 5A-6	-0.235** (0.076)
Mother's ISEI (r.c. Third quintile):	
Missing	-0.415*** (0.081)
First quintile	-0.286** (0.088)
Second quintile	-0.094 (0.084)
Fourth quintile	0.131 (0.081)
Fifth quintile	0.139 (0.091)
Father's ISEI (r.c. Third quintile):	
Missing	-0.226* (0.096)
First quintile	-0.158* (0.074)
Second quintile	-0.048 (0.080)
Fourth quintile	0.097 (0.075)
Fifth quintile	0.202* (0.086)
Home literacy	0.182*** (0.020)
Years of democracy	0.040* (0.016)
Random effects (variance)	
School	1.775
Country	5.353
Respondent	56.287

Gender (Young woman)	4.376
BIC	775992

Note: N respondents 112,493; N schools 5,009; N countries 36.

r.c. = reference category.

BIC = Bayesian Information Criterion.

ISCED 0-1: incomplete or complete primary education. ISCED 2-3: secondary or upper secondary education. ISCED 4-5B: non-tertiary post-secondary or vocational tertiary education. ISCED 5A-6: theory-oriented tertiary or postgraduate education.

Sig.: * < p = .05; ** < p = .01; *** < p = .001.

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Compliance with ethical standards

Conflict of Interest: The authors declare that they have no conflict of interest

Statement of human rights: This article does not contain any studies with human participants performed by any of the authors.

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