

## Article

# Gender, Education, and Attitudes toward Women's Leadership in Three East Asian Countries: An Intersectional and Multilevel Approach

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**Abstract:** Despite their achievements in the past few decades, women remain largely excluded from impactful leadership positions in many countries and fields. In this research, we focus on how gender and education shape public opinions that favor men over women for political and economic leadership in three East Asian countries. Utilizing an intersectional theoretical framework and multilevel methodological approach to analyze the World Value Survey data, we investigate the heterogeneous effects of education on gender attitudes between men and women and how such heterogeneity is conditioned by national contexts. We found that the negative association between higher levels of education and traditional gender attitudes is much stronger among women than among men, especially in Japan. National contexts not only directly shape gender attitudes but also modify the main and interactive effects of gender and education on attitudes toward women leadership. This research contributes to the emergent literature on the contingency of intersectionality and highlights the utility of multilevel analysis in intersectional and/or comparative studies.

**Keywords:** intersectionality; multi-level modeling; women's leadership; gender attitudes; educational effect



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## 1. Introduction

As women have made strides in educational and economic achievements across the globe in the past few decades [1,2], they remain excluded from the most impactful leadership positions in many countries and fields [3–6]. Research indicates that gendered cultural scripts and public opinions are among the main obstacles that women face on their journey toward the top [7–9]. While they are encouraged to “smash the glass ceilings”, powerful women tend to be held at much higher standards than their men counterparts and face backlash against their challenge to patriarchal orders [10,11], a phenomenon vividly exemplified by the U.S. 2016 presidential election [12]. In this paper, we ask and seek answers to what shape public opinions towards women leadership and how national contexts condition this process.

Although an abundance of literature has posited an emergent and increasingly converging world culture [13] of which gender equality and women's leadership and empowerment are becoming integral elements [14,15], there exists significant heterogeneity in gender-related attitudes toward women's leadership among countries and depending on one's social and demographic characteristics within a society (e.g., [16–20]). For example, while women tend to hold more egalitarian attitudes than men [21–23], research has shown that women sometimes were no less likely than men to support ideas and practices that reinforce patriarchal social order and male supremacy, especially in Asian societies with strong legacy of Confucian patriarchy [19,24].

We utilize an intersectional approach to hypothesize and empirically examine how individual- and contextual-level factors may shape people's attitude toward women lead-

ership and how such multilevel effects may differ between men and women. At the individual level, we pay particular attention to how education—a major social institution that is often assumed to have a universal liberating effect on attitudes—may differentially shape men’s and women’s attitudes and beliefs about women’s leadership.

At the contextual level, we further emphasize how national contexts may condition the effect of education on gender attitudes and its interaction with gender. Inspired by the recent discussion on the contingent nature of intersectionality [25,26], we argue that major social institutions and social categories whose interaction produces co-constructed identities and experiences are context specific. Therefore, while any serious intersectional study should attend to its local context, comparative studies are especially valuable in understanding how variation in broader social environments might shape the intersecting processes that produce ideas about differences and inequality.

We situate our research in East Asia where rapid economic growth is contrasted with stagnant progress in gender equality [27], challenging the modernist notion that economic development “naturally” leads to women’s empowerment [28,29]. We focus on two attitudes, namely the gendered perceptions of political and business leadership. The three countries included in this study, Taiwan, Japan, and South Korea, are often considered comparable due to their geographic proximity, shared economic prosperity, similar welfare regime, and legacy of Confucius gender ideologies [30,31]. However, as documented by scholarship on East Asia [19,32–34] and shown in our analyses, important variation exists among the three societies. Using the 1994–2012 World Value Survey (WVS) data, we demonstrate that the three countries vary widely in not only their average rates of approval of women leadership and the effect of education on such gender attitudes but also the ways in which education interacts with gender in shaping people’s attitudes toward women leadership. Adding to an emergent body of quantitative intersectional research, our work extends the scholarship on attitudes about women leadership by examining the significant but understudied role of social context in shaping the intersectional processes of ideology (re)production.

## 2. Theoretical Motivation: Intersectionality and Gender Attitudes

Many studies on gender attitudes across the globe have documented a significant and consistent gender gap, with women showing overwhelmingly more egalitarian attitudes than men in the same society [16,23,35–37]. This gender difference is not surprising given that, in the context of patriarchy, gender equality resonates much more closely with the interests of women. However, as mentioned earlier, the general trend of women’s liberation and empowerment in recent decades is not without complication as gender reform challenges deep-rooted “traditions” in various societies, including in Asian societies where dominant philosophical traditions embrace patriarchy [33]. In some cases, defined within the heteropatriarchy primarily by their reproductivity and care work within the family, women may internalize their roles as gatekeepers of tradition and appear more defensive of the conservative values than do men [38]. We believe that intersectionality is the key to unraveling such complexity of gender gap in attitude toward women and their place in society.

Feminists of color and critical race scholars conceptualized intersectionality as a tool to understand the experience of the “multiply-marginalized,” emphasizing such experience cannot be reduced to merely adding up exploitation and oppression along multiple axes of inequality [39–42]. In the context of late 20th century U.S., gender and race constituted the primary building blocks in early discussions of intersectionality. For instance, in the germinal piece where she coined the term, Kimberlé Crenshaw highlights violence against women of color as qualitatively different from oppressions faced by either white women or men of color [41]. Yet the broad theoretical base of the concept lends itself easily to incorporate other dimensions of inequality such as class [43], sexuality [44], and disability status [45]. Since its conception, intersectionality has driven empirical research, theoretical debate, and practical application (for a review, see [46]).

A central argument of the intersectional approach is that traditional inequality research tends to neglect intra-group variation among major social categories such as gender and race [41]. Relevant to the purpose of this study, women are not a homogenous group with identical experiences or uniform identities and ideas. Therefore, scholars should attend to how other social institutions modify the effect of gender and gendered socialization and vice versa. In other words, an intersectional study of gender attitudes not only explores group differences between men and women but also within-group differences due to different social locations among women and why such differences might not find a parallel among men. For instance, race plays a more important role in lesbians' varying tendency to partake in activism that it does for gay men [47]. The combination of race and gender also has been observed to modify the influence of major life events on gender attitudes [48].

While prior research on the intersectional nature of gender attitudes has provided valuable insights into the complex nature of gendering and gendered social processes, insufficient scholarly attention has been paid to the national context under which these intersectional processes take place until recently. The significance of context is rooted in the very definition of intersectionality as the co-construction of social categories and identities through the interaction among social institutions. As both social institutions and social categories are context specific, intersectionality is, by nature, contingent [26]. While the seeding work in the tradition was specific to the context of post-Civil Rights United States, as a conceptual tool, intersectionality is useful in understanding complicated social relations and processes in other times/places. To do so requires the researchers to clarify the contexts to which they apply the concept and specify the relevant social institutions/categories of interest and how they are shaped by their broader contexts. This allows the researcher to return to the connection between intersectionality and structural inequality without reifying social categories and inequalities as static and unchangeable [49]. While contextual analyses can happen at various levels (e.g., [50–52]), we focus on cross-national comparison in this study as the starting point in understanding the variation in economic, political, and educational systems in East Asia. By incorporating cross-national analyses with an intersectional approach, we speak to the call for further advancing the intersectionality paradigm [53], both methodologically and substantively.

In the current research, we examine how education shapes attitudes toward women leadership in three major East Asian societies. Education is considered a major institution that shapes attitudes and beliefs in Western societies, but it remains unclear how education affects opinions about women leadership in societies where Confucian patriarchy has a strong hold. In the following two sections, we review existing literature on how education has been documented to influence gender attitudes and how the local contexts of the three countries included in this study might shape the interaction between gender and education in influencing the perception of women leadership, respectively.

### 3. Education and Gender Attitudes

Education is a major social institution that shapes attitudes and beliefs. Prior research has found that greater educational attainment is associated with less traditional attitudes [54–56]. Possible mechanisms for the education–attitude relationship include knowledge transmission, cognitive enhancement, and exposure to diversity [56–58]. Specifically, education enhances cognitive development, improves the ability to process information, and offers access to a diverse array of information and experience. As a result, the more educated are more likely to tolerate nonconformists and minorities, are more comfortable with critically assessing taken-for-granted and yet potentially unjust norms, and acquiring reasoning skills to question why women cannot be good leaders. Schools also represent a more diverse environment than homes, offering opportunities for women to demonstrate their competence, ability, and achievement.

However, the effect of education on gender-related attitudes is likely to differ between men and women. On the one hand, as Jackman and Muha argued, education may promote equal treatment of individuals rather than equality across groups [59]. That is, as the

male hegemony in education persists [60], education may not change biased views toward women—a minority group—in public life as much as it improves the ability of men—the privileged group—to develop sophisticated defenses of their dominant social status. As a result, education may produce the most sophisticated gatekeeper of the status quo among men, offering necessary resources to maintain the male-dominant views including unfavorable attitudes towards women leaders. More educated women, in contrast, may be more informed about gender inequality and more likely to express favorable attitudes toward women leaders. This dependence on education effect on gender is perhaps even more evident in East Asian societies of collectivism that emphasize the interest of social groups, especially family, than in Western societies of individualism.

On the other hand, Rodeghier, Hall, and Useem predicted that the effect of education on more liberal attitudes among women would be attenuated when such direct experiences provide knowledge of justification regardless of education level, which they called the “informal education” of direct exposure and experience [61]. That is, because women often experience gender related discrimination and injustice and are thus more aware and sympathetic to attitudinal equality toward women leadership than men, the effect of education on attitudes about women leaders may be less pronounced for women than men.

The education–attitude association may also be modified by the national context because schools and education institutes cannot effectively teach or encourage egalitarian attitudes if the broader social and national environment is not amenable [62]. While education generally improves socialization, knowledge, and skills, the knowledge and social norms transmitted by schools will also reinforce established norms, including unfavorable attitudes about women leaders, especially in societies with longstanding negative biases towards women and woman leadership.

In short, we expect the effects of education on attitude about women leaders to differ between men and women and among the three societies. In the section below, we review the status quo of women’s leadership and how education is organized in Taiwan, Japan, and Korea, focusing on women’s changing status, and explain our research objectives and expectations.

#### 4. Research Objectives and Expectations

In gender-related research, Japan, Korea, and Taiwan have conventionally been grouped together due to their geographic proximity, comparable levels of economic development [63,64], and cultural similarities, especially the shared legacy of Confucius gender ideologies [65]. Confucianism being a philosophy that is often understood as advocating rigid gender dichotomy and patriarchal social orders [66–68], many studies have concluded that, compared to western liberal democracies, these societies are more “traditional” in their gender ideology [17,38,69,70].

However, this grouping ignores important heterogeneity among these Asian societies, as they have negotiated their own unique cultural legacy of patriarchy and gender hierarchy. Research that compares these East Asian countries with other regions sometimes neglects or downplays the variation in the status quo of gender inequality in these countries. Such variation is meaningful in understanding the changing gender ideologies in these countries as they form reference points of public opinion. In addition, scholars have paid inadequate attention to how such important socializing institutions as education are organized differently across these societies, especially regarding the gendered and gendering nature of education. This omission masks the potential variation in the ways (1) education can shape gender ideology and (2) gender can interfere with education’s ideological impacts.

##### 4.1. Women’s Leadership in Taiwan, Japan, and Korea

Even though women’s participation in paid labor has increased steadily in Taiwan, Japan, and South Korea, they still face daunting obstacles in attaining leadership positions in all three countries. For example, a recent study shows that despite women outnum-

bering men as teachers in these countries, the ratios of women school principals remain strikingly low at all levels [71]. The same inconsistency is observed in other sectors such as corporate management [72] and public administration [73]. However, the three countries also vary considerably in both the political and economic leadership of women as well as the gendered culture of leadership.

Among the three, Taiwan appears to be the most committed to and successful in promoting not only women's participation in public life but also their leadership in it. Different from the other two countries, Taiwan's economy depends heavily on small family-owned companies. These companies depend on women for labor supply and are motivated to retain women employees [74,75]. As such, women are more likely to have uninterrupted careers in Taiwan and some even become owners of small companies [19,76,77]. Meanwhile, to encourage women to stay in the work force, Taiwan implemented work–life policies that are relatively gender neutral, encouraging both men and women to seek work–life balance (e.g., equal-length parental leave despite the gender of parent [78]). These policies and laws are both shaped by and shape the changing gender ideologies and realities in Taiwan, including the proper place of men and women in public life. In the political realm, Taiwan has a higher percentage of women representatives in both local and national parliaments than the other two countries, partially thanks to its electoral quota system [73]. As a result, Taiwan is recognized as one of the best places to be a woman politician across the globe, with a long and growing list of role models including the current president Tsai Ing-wen [79].

In contrast, large international corporations dominate Japan and Korea's economies. While these corporations provide security for their full-time and long-term employees, they also require long working hours and continuous commitment without career interruptions, posing serious challenges for women and men with familial responsibilities [80–82]. Meanwhile, even with increasing child-care support from the state and market, family remains at the center of caregiving in both countries. Relatedly, both Japan and Korea's family–work policies have focused on helping women reconcile their employment and domestic responsibilities (e.g., long paid maternity leave, [83]) while leaving men's responsibility in the household largely unaddressed. As such, they might further reinforce women's role as caregivers rather than leaders. As a result, such structures and norms reinforce rather than question gender stereotypes, decrease women's aspiration to work and assume leadership, and sort women into non-career track and/or low-paying clerical jobs [80,81,84,85]. Japan and Korea also linger far behind Taiwan in the percentage of women among political leaders. Although Korea elected its first woman president Park Geun-hye in 2013, Park is well known for her conservative gender ideology and policies and according to some observers and her later impeachment, exemplified and exacerbated the scrutiny and hostility women political leaders constantly face in Korea [86,87]. Historically, the strong military culture in Korea reinforces gender segregation and patriarchal orders at both national and organizational levels, excluding women from partaking in leadership training and networking [27,88].

In short, while in all three countries, women's increasing participation in public life is concentrated in areas with little or no power, they are gaining considerably more ground in leadership in Taiwan than in the other two countries. Meanwhile, women in Korea face the additional ideological obstacle of the military culture that is likely to disadvantage them in public opinion. Therefore, our first research objective is to:

1. *Examine whether and how the three countries differ in the public attitude toward. For reasons described above, we expect that among the three countries, people in Taiwan possess the most progressive ideas toward women leadership while those in Korea have most conservative attitudes.*

#### 4.2. Gender and Education in Taiwan, Japan, and Korea

We expect that the extent to which education facilitates or hinders people's acceptance of women leadership depends on the structure of the educational system and the content it delivers, which are closely linked to the broader gender ideology and status quo in a country.



In societies where education promotes progressive gender ideology and incorporates gender-neutral norms, highly educated women are likely to be empowered and thus strong advocates for women's leadership roles in public life. If the educational system is segregated and reinforces patriarchal gender norms, it is not as likely to liberate women from conservative attitudes.

According to the World Bank's (WB) Global Gender Gap Index, the United Nations Development Programme's (UNDP) Gender Inequality Index, and governmental statistics, the three countries under study are comparable with regard to their gender status quo. For instance, while Japan leads the other two countries with a smaller gender gap in educational attainment, Taiwan and Korea rank higher in women's participation in politics. Meanwhile, the overall structure of the educational system, especially higher education, exhibit considerable similarities across the three countries [89–91]. One might thus conclude that the effect of education will be consistent across the three countries.

Yet, these simple numbers may mask the complexity of educational institutions. For instance, even though men and women attend school at similarly high rates in Japan, women are likely to be sorted into "feminine" majors without long-term career prospects, such as home economics [92]. While gender segregation in education persists to various extents in all three countries, only in Japan are there educational institutions exclusively dominated by one sex such as the junior colleges [92]. Research also indicates that Korea has dedicated more resources and seen more progress in promoting women's careers in traditionally male-dominated domains such as STEM by desegregating higher education [93]. The different national contexts therefore lead to the second research objective:

2. *We aim to investigate the potentially differential effects of education on gender attitudes across the three countries.* With the assumption that education promotes egalitarian gender attitudes through exposing students to alternative gender scripts, we argue that in an educational system that is more segregated such as that of Japan, there is less likely to be discussion about gender equality and women's empowerment, and therefore, 2a: *Among the three countries, education has the smallest effect on attitudes toward women leadership in Japan.* Meanwhile, in a context where education affects gender norms to a lesser degree, the difference between men and women in their reaction to education might also be less visible. We therefore further anticipate, 2b: *The education–gender interaction effect on attitudes toward women leadership is least pronounced in Japan among the three countries.*

## 5. Data and Method

We evaluate our research expectations using World Values Survey (WVS) data. Started in the early 1980s, WVS is one of the most comprehensive surveys on human beliefs and values at a global scale. The survey contains nationally representative samples from more than 90 countries and attempts to maintain consistent measurement instruments across time and places, rendering it a useful tool for cross-national comparison ([www.worldvaluessurvey.org](http://www.worldvaluessurvey.org), accessed on 3 August 2021). We included in our analyses all datasets containing at least one of the two dependent variables and all key independent variables described below. As WVS data collection did not start at the same time for all countries and proceeds at different paces, the number of surveys available differs from country to country, as does the survey timing. Table 1 presents number of survey waves included for each country, the years in which the surveys were conducted, and the total sample size.

**Table 1.** Data Set Summary.

Country/Region	Number of Waves	Survey Years	Sample Size *
Taiwan	4	1994, 2006, 2012, 2019	4468
South Korea	5	1996, 2001, 2005, 2010, 2018	6094
Japan	4	2000, 2005, 2010, 2019	6254

\* These are total sample sizes across all available datasets. Sample size varies across models due to varying number of missing values of dependent and independent variables.

### 5.1. Dependent Variables: Measuring Public Perception of Women's Leadership

We look at two outcome variables measuring people's gendered perception of political and economic leaderships, respectively. Table 2 reports descriptive statistics for all variables in the analysis.

**Table 2.** Distribution for all analytic variables, the World Value Survey.

Description	Political Leader											
	Taiwan				Japan				South Korea			
	Grp 1	Grp 2	Grp 3	Grp 4	Grp 1	Grp 2	Grp 3	Grp 4	Grp 1	Grp 2	Grp 3	Grp 4
Men better political leaders (1 = strongly disagree or disagree; 2 = strongly agree or agree) *	64.2%	35.8%	—	—	61.0%	39.0%	—	—	47.5%	52.5%	—	—
Gender (1 = men; 2 = women)	49.3%	50.7%	—	—	46.3%	53.7%	—	—	48.6%	51.4%	—	—
Survey year (1 = 1996–99; 2 = 2000–2004; 2 = 2005–2009; 3 = 2010–2014; 4 = 2015–2019)	19.5%	31.8%	29.8%	18.9%	25.1%	20.3%	38.2%	16.4%	42.1%	21.6%	21.1%	15.1%
Education level (1 = low; 2 = moderate; 3 = high)	18.4%	40.8%	40.7%	—	8.7%	61.5%	29.8%	—	7.0%	49.8%	43.2%	—
Marital status (1 = not married; 2 = married)	34.6%	65.4%	—	—	23.3%	76.7%	—	—	31.6%	68.4%	—	—
Employment status (1 = not employed; 2 = part-time; 3 = full-time)	43.1%	6.5%	50.4%	—	43.9%	16.3%	39.8%	—	58.0%	6.6%	35.4%	—
Income level (1 = bottom 20; 2 = middle 20–80; 3 = top 20)	14.3%	79.6%	6.1%	—	30.9%	55.7%	13.4%	—	8.7%	87.9%	3.4%	—
N	3501				3073				3153			
Description	Business Leader											
	Taiwan				Japan				South Korea			
	Grp 1	Grp 2	Grp 3	Grp 4	Grp 1	Grp 2	Grp 3	Grp 4	Grp 1	Grp 2	Grp 3	Grp 4
Men better business leaders (1 = strongly disagree or disagree; 2 = strongly agree or agree) **	74.6%	25.4%	—	—	69.0%	31.0%	—	—	55.1%	44.9%	—	—
Gender (1 = men; 2 = women)	49.1%	50.9%	—	—	44.9%	55.1%	—	—	47.9%	52.1%	—	—
Survey year (1 = 2000–2001 or 2005–2007; 2 = 2010–2014)	—	39.3%	37.2%	23.6%	—	26.7%	51.1%	22.2%	—	37.4%	36.5%	26.1%
Education level (1 = low; 2 = moderate; 3 = high)	14.5%	45.3%	40.2%	—	7.5%	61.7%	30.8%	—	6.3%	46.1%	47.6%	—
Marital status (1 = not married; 2 = married)	37.5%	62.5%	—	—	23.4%	76.6%	—	—	32.4%	67.6%	—	—
Employment status (1 = not employed; 2 = part-time; 3 = full-time)	42.6%	6.4%	51.0%	—	41.2%	16.9%	41.9%	—	55.9%	6.4%	37.7%	—
Income level (1 = bottom 20; 2 = middle 20–80; 3 = top 20)	12.6%	86.8%	0.6%	—	33.1%	54.7%	12.2%	—	8.4%	90.6%	1.0%	—
N	2848				2442				2329			

\* Question text: “On the whole, men make better political leaders than women do.” \*\* Question text: “On the whole, men make better business leaders than women do.” Note: All analyses include age at time of survey as a continuous variable. For the analysis on women business leaders, the age variable has a mean and standard deviation of 43.37 and 14.34 in the Taiwanese sample, 49.64 and 14.62 in the Japanese sample, and 41.41 and 13.88 in the South Korean sample. For the analysis on women political leaders, the age variable has a mean and standard deviation of 43.96 and 14.81 in the Taiwanese sample, 49.99 and 14.33 in the Japanese sample, and 43.36 and 14.56 in the South Korean sample.

The questions used to obtain these measures explicitly put men and women in competition. Note that the wording implicates hegemonic patriarchal culture as it is phrased such that men are privileged by default. It is evident that respondents who agree with such statements hold views that favor men over women. We categorize such views as consistent with traditional gender ideology. In this paper, we define traditional gender attitudes as favoring the status quo of gender inequality and male control.

To maintain consistency across different variables and for the simplicity of interpretation, we dichotomized both dependent variables, assigning 1 to respondents answering either “agree” or “agree strongly” to either question or 0 to those answering otherwise.

Contrary to popular belief that gender equality has become agreed-upon common-sense [15], as shown in Table 2, in the three societies under study, there are considerable

portions of the populations who still subscribe to the idea that men are superior leaders. In comparison to one another, Taiwanese respondents express the most egalitarian perceptions about gendered leadership. Sub-group analyses (results not shown; available upon request) indicate that, while there appear to be some decreasing trends in traditional gender attitudes, the change is inconsistent. Additionally, on average, women are consistently less likely to agree with this conservative statement than men. However, there is no easily perceptible difference in time trends between the two genders.

### 5.2. Analytical Strategy

We used two analytical strategies—a multilevel varying-intercepts and varying-slopes model and two-way interaction logistic models—to evaluate our research expectations. While most germinal work on intersectionality employed qualitative methods (e.g., [39–41]), emerging literature suggests a range of quantitative methodologies that are suitable for studying intersectionality [53]. For example, Scott and Siltanen discussed how multilevel models and interaction models may be used to test intersectionality theory [94]. They highlighted three ways that quantitative methods may contribute to intersectionality research, including the ability to test “the significance of context; a heuristic orientation to the relevant dimensions of inequality; and embracing the complexity of the multidimensional structuring of inequality” [94] (pp. 374–375).

We first utilized a multilevel model with varying intercepts and slopes to test the extent to which the effects of education on attitudes toward women leadership differ among the three countries. A multilevel approach is suitable for the WVS data because it recognizes the dependence of observations within countries to ensure accurate and efficient estimates of the standard errors [95]. Moreover, the varying-slopes for the key variable education allows us to formally test whether its effects vary across the three countries. Such testing is not possible using fixed-effects models. We then use logistic regression models with two-way interaction terms to quantify the magnitude and test the significance of intersectionality between gender and education within each country. Such an interaction approach to subsample analysis facilitates unpacking the meaning, magnitude, and directions of the varying slopes of education in the multilevel model. A significant education–gender interaction term would suggest that the effects of education on attitudes toward women leadership differ between men and women within a country. A non-significant interaction term would imply that the education–attitude association is the same for men and women. As our interaction logistic models are nonlinear, we follow the recommendations to report the average marginal relative effects of each gender-education group in each country [96–98].

### 5.3. Key Independent Variables

We used the self-reported dichotomous sex variable from WVS as our measure for *gender*. Aware of the distinction between sex and gender, we chose this measurement because (1) this is the best measurement available and (2) self-reported sex is likely a mix of biological sex and self-identified gender.

To avoid mis-categorization due to cross-national variation in educational systems, we used the standardized and thus most comparable measure of education across countries and waves. It is a relative measure with three categories for *education* (high, middle, low).

### 5.4. Control Variables

We include survey waves to adjust for a general historical trend in gender ideology globally. Respondents’ age (linear and nonlinear terms), employment status, and income are also included as control variables. We dichotomized the eight-category (fulltime, part-time, self-employed, retired, housewife, student, unemployed, other) employment status variable to indicate whether a person is working fulltime. We recoded the ten categories for income (1 through 10 percentiles) into three categories (high, moderate, and low) by collapsing the third through eighth percentiles and those below and above. Because people



who choose to marry and/or stay in marriage might hold distinct ideas regarding gender and family, we also included a dichotomous variable for marital status with 1 indicating being currently married or in a stable relationship and 0 for otherwise.

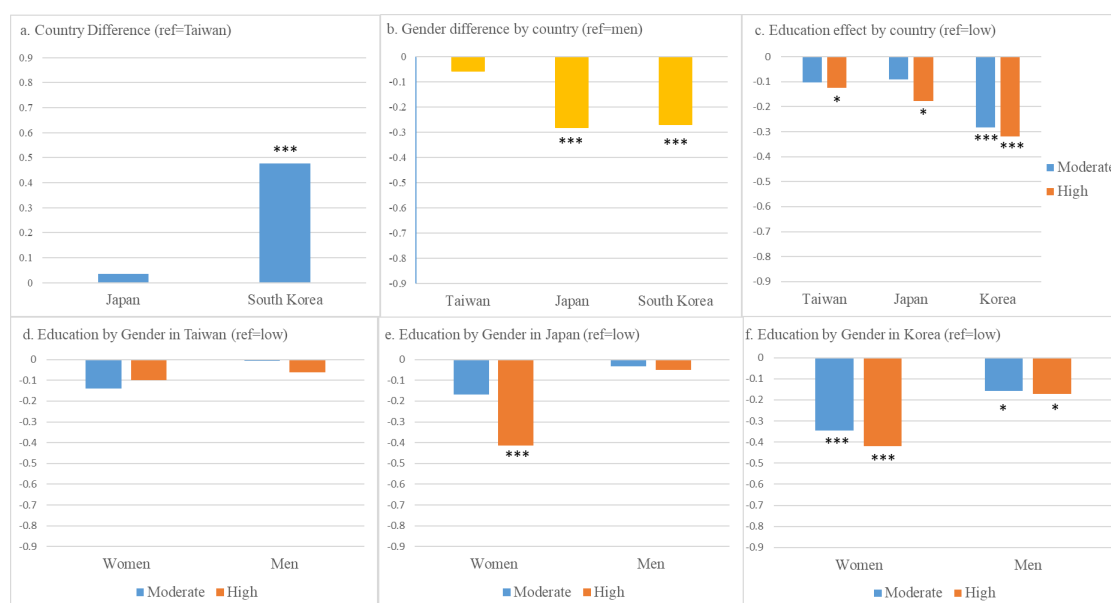
## 6. Results

Table 3 reports the variance estimates and test results for the varying-intercepts and varying-slopes multilevel model. The deviance test about the varying intercepts suggests significant variation in attitudes toward women as political leaders and as business leaders among Taiwan, South Korea, and Japan. The test about the varying slopes of education implies that the effects of education on women's political leadership significantly differ among the three countries, but such effects on women's business leadership appeared similar across the three countries. While these global tests attest to our general expectation that national context plays a significant role in shaping the intersectional processes of gender ideology (re)production, the two-way interaction logistic regression models for each country (Figures 1 and 2, Tables 4–6) reveal the ways in which these processes vary across the three countries. Because it is difficult and sometimes even misleading to directly interpret interaction effects in non-linear models, we follow the recommendation to calculate the average marginal relative risk and visualize them as bar graphs in Figures 1 and 2 [96–98].

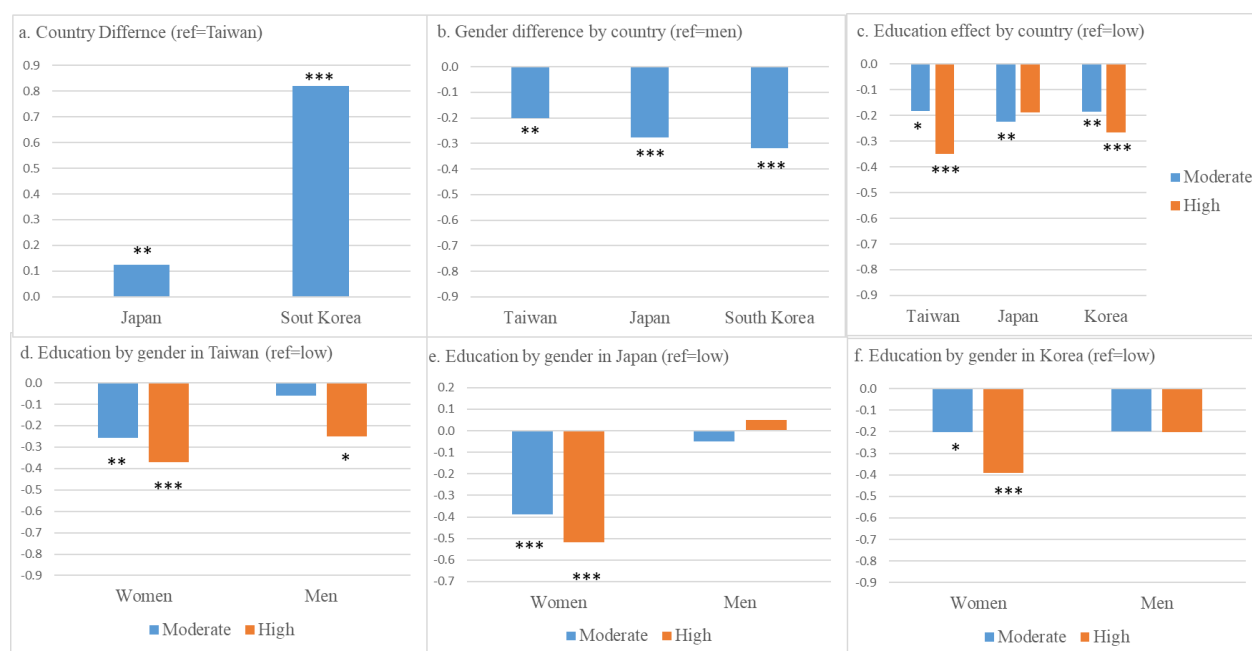
**Table 3.** Variance estimates and tests of the multilevel varying-intercepts and varying-slopes models, the WVS.

Description	Political Leader				Business Leader			
	Variance	Deviance	DF	p-Value	Variance	Deviance	DF	p-Value
Country	0.159	283.639	1	<0.001	0.133	323.240	1	<0.001
Education	0.036	17.237	2	<0.001	0.010	1.224	2	0.542
N		12,020				8443		

Note: Multilevel analyses are based on the pooled WVS waves X data from Taiwan, Japan, and South Korea. The effects of age, age squared term, time periods, gender, marital status, employment status, and income levels are modeled fixed; countries are modeled level-2 random intercepts; education effects are allowed to vary between countries (i.e., varying slopes of education).



**Figure 1.** Gender and education effects on attitudes toward women political leadership in three Asian countries, the WVS. Note: \*  $p < 0.05$ ; \*\*\*  $p < 0.001$ . Figure presents average marginal effects of each factor based on logistic regression models. Positive estimates indicate higher likelihood of supporting traditional attitudes that favor men over women in political leadership. (a) shows the main effect of country; (b) shows the main effect of gender in each country; (c) shows the main effect of education in each country; (d) shows the interaction between education and gender in Taiwan; (e) shows the interaction between education and gender in Japan; (f) shows the interaction between education and gender in Korea.



**Figure 2.** Gender and education effects on attitudes toward women business leadership in three Asian countries, the WVS. Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . Figure presents average marginal effects of each factor based on logistic regression models. Positive estimates indicate a higher likelihood of supporting traditional attitudes that favor men over women in business leadership. (a) shows the main effect of country; (b) shows the main effect of gender in each country; (c) shows the main effect of education in each country; (d) shows the interaction between education and gender in Taiwan; (e) shows the interaction between education and gender in Japan; (f) shows the interaction between education and gender in Korea.

**Table 4.** Fixed-effect multilevel logistic model results, the WVS 1990s–2010s.

Description	Political Leader			Business Leader		
	b	se		b	se	
Intercept	−0.691	0.211	**	−0.795	0.265	**
Japan (Ref = Taiwan)	0.069	0.057		0.202	0.070	**
Korea (Ref = Taiwan)	0.749	0.049	***	1.021	0.060	***
Age Linear	0.022	0.010	*	−0.009	0.012	
Age Quadratic	0.000	0.000		0.000	0.000	**
Mid-2000s (Ref = 1990s)	−0.044	0.053				
Early-2010s (Ref = 1990s)	−0.527	0.053	***	−0.157	0.056	**
Late-2010s (Ref = 1990s)	−0.542	0.063	***	−0.462	0.067	***
Women (Ref = Men)	−0.482	0.040	***	−0.544	0.050	***
Married (Ref = Not Married)	0.093	0.052		−0.054	0.065	
Education Middle (Ref = No or Little Education)	−0.364	0.069	***	−0.372	0.088	***
Education High (Ref = No or Little Education)	−0.467	0.075	***	−0.580	0.095	***
Part-time Employment (Ref = Unemployed)	−0.108	0.072		−0.182	0.092	*
Full-time Employment (Ref = Unemployed)	0.012	0.044		0.042	0.057	
Income Higher 20% (Ref = Lower 20%)	−0.053	0.057		0.057	0.070	
Income Moderate (Ref = Lower 20%)	0.094	0.091		0.112	0.137	
N		12,020			8443	

Note: Multilevel analyses are based on the pooled WVS data from Taiwan, Japan, and South Korea from the 1990s and the 2010s. The effects of age, age squared term, time periods, gender, marital status, employment status, and income levels are modeled fixed; countries are modeled level-2 random intercepts; education effects are allowed to vary between countries (i.e., varying slopes of education). \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

**Table 5.** Country subsample logistic model results for attitude about women political leaders, the WVS 1990s–2010s.

Taiwan									
Description	Country Sample		Women Sample		Men Sample				
	b	se	b	se	b	se			
Intercept	−0.370	0.387	−0.062	0.559	−0.927	0.542			
Age Linear	0.011	0.018	−0.012	0.026	0.029	0.025			
Age Quadratic	0.000	0.000	0.000	0.000					
Mid-2000s (Ref = 1990s)	−0.186	0.113	−0.334	0.163	*	−0.058	0.160		
Early-2010s (Ref = 1990s)	−0.961	0.122	***	−1.121	0.175	***	−0.851	0.173	***
Late-2010s (Ref = 1990s)	−0.961	0.139	***	−1.222	0.202	***	−0.793	0.196	***
Women (Ref = Men)	−0.095	0.074		—		—			
Married (Ref = Not Married)	0.090	0.093		0.346	0.134	**	−0.122	0.136	
Education Middle (Ref = No or Little Education)	−0.176	0.110		−0.244	0.155		−0.011	0.160	
Education High (Ref = No or Little Education)	−0.219	0.117		−0.172	0.172		−0.103	0.165	
Part-time Employment (Ref = Unemployed)	−0.231	0.158		−0.166	0.210		−0.209	0.243	
Full-time Employment (Ref = Unemployed)	−0.029	0.083		−0.010	0.121		0.009	0.117	
Income Higher 20% (Ref = Lower 20%)	−0.062	0.108		−0.214	0.150		0.089	0.156	
Income Moderate (Ref = Lower 20%)	0.090	0.186		−0.070	0.271		0.247	0.258	
N		3501			1775			1726	
Japan									
Description	Country Sample		Women Sample		Men Sample				
	b	se	b	se	b	se			
Intercept	−0.513	0.444	−0.892	0.656	−0.790	0.620			
Age Linear	0.010	0.020	0.000	0.029	0.026	0.028			
Age Quadratic	0.000	0.000	0.000	0.000					
Mid-2000s (Ref = 1990s)	0.011	0.112	−0.031	0.154	*	0.048	0.165		
Early-2010s (Ref = 1990s)	−0.193	0.099	−0.318	0.143	**	−0.093	0.139		***
Late-2010s (Ref = 1990s)	−0.708	0.131	***	−0.569	0.183		−0.781	0.198	
Women (Ref = Men)	−0.567	0.086	***	—		—			
Married (Ref = Not Married)	−0.014	0.102		0.136	0.142		−0.070	0.156	
Education Middle (Ref = No or Little Education)	−0.166	0.140		−0.301	0.199		−0.065	0.196	
Education High (Ref = No or Little Education)	−0.331	0.156	*	−0.768	0.247	**	−0.097	0.208	
Part-time Employment (Ref = Unemployed)	−0.084	0.116		−0.060	0.139		−0.007	0.231	
Full-time Employment (Ref = Unemployed)	−0.097	0.099		0.174	0.149		−0.311	0.140	*
Income Higher 20% (Ref = Lower 20%)	0.038	0.091		0.025	0.126		0.054	0.133	
Income Moderate (Ref = Lower 20%)	−0.053	0.133		−0.032	0.187		−0.046	0.191	
N		3073			1649			1424	
South Korea									
Description	Country Sample		Women Sample		Men Sample				
	b	se	b	se	b	se			
Intercept	0.100	0.344	−0.315	0.479	−0.133	0.495			
Age Linear	0.038	0.016	*	0.036	0.023	0.025	0.024		
Age Quadratic	0.000	0.000		0.000	0.000	0.000	0.000		
Mid-2000s (Ref = 1990s)	−0.085	0.077		−0.089	0.110		−0.090	0.110	
Early-2010s (Ref = 1990s)	−0.601	0.080	***	−0.514	0.116	***	−0.684	0.111	***
Late-2010s (Ref = 1990s)	−0.192	0.092	*	−0.092	0.128		−0.303	0.136	*
Women (Ref = Men)	−0.705	0.059	***	—		—			
Married (Ref = Not Married)	0.072	0.085		0.026	0.120		0.139	0.124	
Education Middle (Ref = No or Little Education)	−0.796	0.138	***	−0.915	0.175	***	−0.455	0.221	*
Education High (Ref = No or Little Education)	−0.864	0.148	***	−1.013	0.194	***	−0.495	0.230	*
Part-time Employment (Ref = Unemployed)	−0.114	0.119		−0.212	0.160		0.054	0.179	
Full-time Employment (Ref = Unemployed)	−0.017	0.064		−0.217	0.097	*	0.151	0.089	
Income Higher 20% (Ref = Lower 20%)	−0.021	0.106		−0.183	0.151		0.141	0.149	
Income Moderate (Ref = Lower 20%)	0.331	0.188		0.427	0.259		0.215	0.271	
N		5446			2779			2647	

Note: Logistic regression analyses are based on the pooled WVS data from Taiwan, Japan, and South Korea, respectively, from the 1990s and the 2010s. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

**Table 6.** Country subsample logistic model results for attitude about women business leaders, the WVS 1990s–2010s.

Taiwan									
	Country Sample		Women Sample			Men Sample			
Description	b	se		b	se		b	se	
Intercept	−0.791	0.455		−1.754	0.704	*	−0.404	0.612	
Age Linear	0.007	0.021		0.032	0.032		−0.016	0.029	
Age Quadratic	0.000	0.000		0.000	0.000		0.000	0.000	
Mid-2010s (Ref = Early 2000s)	−0.065	0.101		−0.127	0.150		−0.036	0.139	
Late-2010s (Ref = Early 2000s)	−0.685	0.129	***	−0.778	0.191	***	−0.608	0.176	
Women (Ref = Men)	−0.320	0.091	***	—			—		
Married (Ref = Not Married)	−0.062	0.112		0.034	0.162		−0.119	0.162	
Education Middle (Ref = No or Little Education)	−0.289	0.133	*	−0.419	0.184	*	−0.088	0.195	
Education High (Ref = No or Little Education)	−0.592	0.148	***	−0.623	0.221	**	−0.409	0.209	
Part-time Employment (Ref = Unemployed)	−0.645	0.217	**	−0.721	0.302	*	−0.472	0.315	
Full-time Employment (Ref = Unemployed)	−0.139	0.102		−0.241	0.154		0.007	0.142	
Income Higher 20% (Ref = Lower 20%)	−0.226	0.130		−0.135	0.186		−0.335	0.184	
Income Moderate (Ref = Lower 20%)	0.115	0.560		0.121	0.867		0.078	0.742	
N		2848			1451			1397	
Japan									
	Country Sample			Women Sample			Men Sample		
Description	b	se		b	se		b	se	
Intercept	−0.396	0.567		−0.372	0.840		−0.886	0.782	
Age Linear	−0.017	0.025		−0.025	0.036		−0.006	0.034	
Age Quadratic	0.001	0.000	*	0.001	0.000		0.000	0.000	
Mid-2010s (Ref = Early 2000s)	−0.113	0.106		−0.061	0.150		−0.189	0.153	
Late-2010s (Ref = Early 2000s)	−1.037	0.148	***	−0.661	0.202	**	−1.399	0.234	***
Women (Ref = Men)	−0.510	0.103	***	—			—		
Married (Ref = Not Married)	−0.147	0.120		−0.112	0.166		−0.134	0.185	
Education Middle (Ref = No or Little Education)	−0.410	0.170	*	−0.760	0.236	**	−0.089	0.245	
Education High (Ref = No or Little Education)	−0.325	0.189		−0.985	0.292	***	0.088	0.259	
Part-time Employment (Ref = Unemployed)	−0.036	0.141		−0.038	0.167		0.069	0.283	
Full-time Employment (Ref = Unemployed)	−0.082	0.122		0.013	0.180		−0.218	0.174	
Income Higher 20% (Ref = Lower 20%)	0.149	0.107		0.013	0.149		0.282	0.157	
Income Moderate (Ref = Lower 20%)	0.130	0.161		0.231	0.220		0.043	0.237	
N		2442			1345			1097	
South Korea									
	Country Sample			Women Sample			Men Sample		
Description	b	se		b	se		b	se	
Intercept	0.108	0.443		−1.012	0.632		0.661	0.640	
Age Linear	−0.007	0.021		0.010	0.030		−0.029	0.030	
Age Quadratic	0.000	0.000		0.000	0.000		0.001	0.000	
Mid-2010s (Ref = Early 2000s)	−0.300	0.088	***	−0.014	0.128		−0.560	0.123	***
Late-2010s (Ref = Early 2000s)	−0.119	0.103		0.139	0.144		−0.341	0.151	*
Women (Ref = Men)	−0.742	0.078	***	—			—		
Married (Ref = Not Married)	−0.050	0.111		−0.189	0.160		0.030	0.159	
Education Middle (Ref = No or Little Education)	−0.407	0.175	*	−0.395	0.220		−0.500	0.297	
Education High (Ref = No or Little Education)	−0.600	0.188	**	−0.785	0.247	**	−0.514	0.306	
Part-time Employment (Ref = Unemployed)	−0.109	0.159		−0.163	0.209		−0.050	0.246	
Full-time Employment (Ref = Unemployed)	0.097	0.086		−0.118	0.128		0.276	0.122	*
Income Higher 20% (Ref = Lower 20%)	0.202	0.139		0.359	0.202		0.056	0.197	
Income Moderate (Ref = Lower 20%)	0.278	0.400		−0.014	0.635		0.657	0.569	
N		3153			1642			1511	

Note: Logistic regression analyses are based on the pooled WVS data from Taiwan, Japan, and South Korea, respectively, from the 1990s and the 2010s. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Three main findings emerge from our analyses. First, consistent with our expectation, Taiwanese respondents expressed the least male preference for leadership among the three countries, and Korean the most. Second, the effects of gender and education on the perception of leadership vary across the three countries and depend on the domains, i.e., political vs. economic, under discussion. Finally, the way in which gender interacts with education to produce gendered ideology also varies across countries and social domains. We describe the findings in more detail below.

### 6.1. Gender and Political Leadership

Figure 1 graphically represents the average marginal relative probabilities of a respondent agreeing to men being better political leaders depending on their nationality, gender, level of education, and various combinations of these factors. Among the three societies, respondents in Japan and South Korea showed a higher likelihood of agreeing to said statement compared to Taiwan, 3.6% and 47.6% ( $p < 0.001$ ), respectively (Figure 1a), although the difference between Taiwan and Japan is not statistically significant. Figure 1b shows that within country, Taiwanese women did not differ from Taiwanese men in this attitude. However, women in Japan and South Korea were significantly less likely than their male peers (28.2% and 26.9% respectively,  $p < 0.001$ ) to express male preference with this regard.

Figure 1c–f depicts the differential effects of education between men and women within each country. Education, as indicated by the global test, has different impacts on the respondents' perception of gendered political leadership across the three countries. However, inconsistent with what we expected (2a), where we predicted the effect of education to be weakest in Japan, our results in Figure 1c indicate that the impact of education was the smallest in Taiwan and the strongest in Korea. In general, the effect of education is consistent with existing research and our expectation that people with more education are more likely to reject explicit male preference in political leadership, although the effect is not always significant. In Taiwan and Japan, a significant difference only exists between those with highest and lowest levels of education. In these two countries, the highly educated are 12.6% ( $p < 0.05$ ) and 17.8% ( $p < 0.05$ ) less likely, respectively, than those with little or no education to agree with the traditional gender stereotype of women being worse political leaders. The moderately and highly educated Korean respondents are 28.2% ( $p < 0.001$ ) and 32% ( $p < 0.001$ ) less likely, respectively, to agree with the statement than their compatriots with little or no education.

A closer look at the interaction between education and gender reveals that the effect of education on attitudes towards women political leaders largely differ between men and women and this interaction plays out different across the three countries. Specifically, education appears to have little effect among either Taiwanese men or women (Figure 1d). The largest impact of education can be observed among Japanese and Korean women, especially those with high level of education, who were, respectively, 41.5% and 42% ( $p < 0.001$ ) less likely than women with low level of education to agree that men are better political leaders (Figure 1e,f). In contrast, there was little educational effect among Japanese men. In Korea, while the educational effect was larger among women, the gender gap is much smaller than that in Japan (Figure 1f). At least for this aspect of gender attitude, our findings contradict our expectation that the smallest gender–education interaction would be in Japan.

### 6.2. Gender and Economic Leadership

Figure 2 depicts the average marginal relative probabilities of a respondent agreeing to men being better business leaders depending on their nationality, gender, level of education, and various combinations of these factors. Similar to their attitude toward political leadership, Taiwanese respondents ranked the lowest in their preference for men as business leaders as well. Japanese and Korean respondents were, respectively, 12.5% ( $p < 0.01$ ) and 82.1% ( $p < 0.001$ ) more likely than Taiwanese respondents to agree that men



are better business leaders (Figure 2a), but the difference between Taiwan and Japan is not statistically significant. For this attitude, there exists a significant gender gap across all three countries; women in all countries were significantly less like than men to agree with the statement, and the gender gap is smallest in Taiwan (20.2%,  $p < 0.01$ ) and similar between Japan and Korea (27.4% and 32%, respectively, both  $p < 0.001$ ) (Figure 2b).

Consistent with the deviance test about varying effects of education (Table 3), the overall effect of education on the respondents' perception of gendered business leadership appears rather similar across the three countries (18.4% to 35%, all  $p < 0.01$ ), with the more educated population expressing a less explicit preference for men, indicating an association between greater education and more egalitarian gender attitudes (Figure 2c). There are minor variations in the size of the education effect across the countries, which lends partial support to our expectation (2a), as Japan seemed to show the smallest gap between those with various levels of education.

However, the gender–education interaction again adds nuance to the interpretation. The largest impact of education was observed among Japanese women, with moderately and highly educated Japanese women 38.8% ( $p < 0.05$ ) and 51.8% ( $p < 0.001$ ), respectively, less likely to agree that men are better business leaders than their peers with a low level of education (Figure 2e). In contrast, there was no significant educational effect among Japanese men with this regard. In Taiwan, education seemed to imply a significant difference in the gendered perception of business leadership among both men and women, especially between those with the highest level of education and those with little to none (Figure 2d). In Korea, similar to in Japan, education only seemed to have a significant effect among women (Figure 2f). Overall, while the size of the education effect appeared to be larger among women than among men in both Taiwan and Korea, this gender gap was more dramatic in Japan, contradicting our research expectation (2b).

## 7. Discussion and Conclusions

In this study, we utilized an intersectional theoretical framework and multilevel methodological approach to examine people's perception of gendered leadership in three East Asian countries. We focused on the interactive effects of gender and education on attitudes toward women leadership and how this process is conditioned by national contexts. We found that the effect of education on the perception of women leadership differs between men and women and varies depending on the national context. Our research bears several notable, substantive methodological and theoretical implications.

Substantively, we found that the gender gap in gender attitudes appears to be least pronounced in Taiwan, where public opinions are the most positive/least traditional towards women's leadership among the three countries. In addition, at least for one gender attitude under study, i.e., the perception of gendered political leadership, the effect of education appears to be the smallest in Taiwan. In contrast, Japan surprisingly stands out as the place where the effect of education differs most drastically between men and women. Highly educated Japanese men showed little difference from their uneducated fellow countrymen in their distrust in women's leadership, economically or politically. However, well-educated Japanese women exhibited significantly stronger resistance than their less-educated counterparts toward traditional gender stereotypes that question women's ability to lead. These findings contradict our expectations, suggesting that education can play a more important role in shaping gender attitudes in a relatively less egalitarian society with a remarkably gendered educational system, opening up the possibility for further investigation that includes more societies with varying forms of gender ideological terrains and educational institutions.

Methodologically, our research also demonstrates how multilevel models may be used in intersectional and/or comparative studies. The advantage of this multilevel approach is that it controls country-level heterogeneity and thus permits reliable and efficient estimation and testing of the effects of individual-level factors [94,95]. In other words, multilevel models can be useful tools for quantifying and testing the potentially

heterogeneous effects of individual-level socioeconomic factors such as education and employment across countries.

Theoretically, our study echoes the growing literature that views systems of inequality as interlocking and co-constructing. A brief glimpse at the data might lead to a simplified conclusion that women are more likely to reject a traditional stereotype that privileges men and that education also helps to mitigate such gender bias. However, our research indicates on the one hand that women in different geographic contexts and social positions vary considerably about women leadership. On the other hand, the liberalizing effect of education is more pronounced among women and also depends largely on national contexts. Such crosscutting effects of gender and education speak directly to the relevance of intersectionality as a conceptual tool well beyond the borders of the contemporary U.S.

Relatedly, national context emerges in our research as the most important factor in not only directly shaping public opinions but also indirectly affecting attitudes by modifying the impact of gender and education. These findings echo recent research on how broader social context conditions the impact of local institutions on gender attitudes [99]. More importantly, they attest to the urgency of theorizing and empirically examining the contingency of intersectionality. To do so, we emphasize that social institutions, in our case gender and education, that mold knowledge production are locally structured, and their effects are therefore locally produced. This point is especially relevant to the contemporary debate over how to maintain the political edge of intersectional analyses [49,100,101]. By acknowledging and attending to the contingency, or context-specificity, of the various axes that form an intersectional web of gender ideology (re)production, we avoid reifying social categories and explicate the materiality of these categories. In our analyses, gender and education are not only sources of varying attitudes and identities but are also important social structures with concrete material bases situated within each country's unique political economy. As such, it becomes clear that the gender-related ideology produced within their boundaries will likely (re)produce material inequalities and power imbalance, as insisted by women of color feminists at the cutting edge of intersectional research [102].

Our research offers important insights into social changes through policy making. Above all, the significance of context in shaping the effects of such core social institutions as education and gender suggests that projects aimed at empowering women should always prioritize local and grassroots knowledge. Additionally, while the overall association between more education and less male preference in leadership implies that increasing the population education level may be a critical venue for promoting women leadership and gender equality, the differential effects of education for men and women suggests that gender-specific programs are needed for better resources allocation. While educational campaigns are likely to encourage women to take on more leadership roles, they will still face resistance from elite men. Broader cultural changes are more likely to happen when there are complex community and social programs to reduce structural gender inequality and discrimination in multiple social domains including family and the workplace.

Our study has important limitations, but they point to exciting avenues for future research endeavors. First, as with any research conducted with cross-sectional data, the associations found in this study should be interpreted with caution in their causal relations. For instance, the negative relationship between education and traditional gender attitudes may be because either education leads to less traditional attitudes, or people (especially women) with less traditional attitudes more likely to obtain more education, or perhaps both ways. Future research should use longitudinal data to better discern the causal direction.

Second, with data from only three countries, this study is unable to statistically test the effects of country-level variables on gender attitudes and their interaction with individual level variables. Future research should compile data with a larger number of countries/societies to test hypotheses about important country-level factors including economic structure, demographic process, and family and childcare support. Such research will further contribute to nuancing a contextualized intersectional framework by

elucidating the mechanisms through which contextual factors shape the interaction of social institutions.

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