Change and continuity in gender ideology across different fertility contexts: Comparing Japan, Poland, Spain, Sweden, Taiwan, and the United States

Over the past two decades, demographers have demonstrated that levels of gender equity at the private and public spheres may affect various wellbeing aspects of a nation, ranging from democratic development, married women's employment welfare, to fertility levels (Anderson & Kohler, 2015; Inglehart & Norris, 2003; McDonald, 2013). In ultra-low fertility societies, persisting traditional gender ideologies may continue to discourage educated women from having children or having to choose between pursuing a career and entering a marriage (Raymo, Park, Xie, & Yeung, 2015).

Existing literature paid extensive attention to link gender equity theory to fertility rates or fertility intention, providing informative results that could contribute to the making of social policy (Arpino, Esping-Andersen, & Pessin, 2015; Myrskylä, Kohler, & Billari, 2009). However, little is known about the social patterns of gender ideologies and attitudinal changes over the past two decades across fertility contexts that are influenced by different cultures of gender and regional socioeconomic development. Using comparable questions on attitudes towards marriage, family and gender roles, and alternative family forms from the International Social Survey Program (ISSP) data in 2002 and 2012, we compare trends and changes in gender role attitudes across six countries: Japan, Taiwan, Spain, Poland, Sweden and the United States.

These six countries exemplify different stages of fertility change, socioeconomic development and the patterns of social inequalities, as well as the cultural contexts of marriage and the family. For example, post-industrialized countries like Sweden and the United States have gone through the phases of low fertility, while Japan's fertility rate remain very low. Taiwan, Spain, and Poland are transition economies that are dealing with demographic challenges including ultra-low fertility, widening socioeconomic equalities, aging and many others. Figure 1 provides the fertility rate and changes between 2002 and 2012. In 2002, Spain, Poland and Taiwan are considered as societies with ultra-low fertility, the fertility rates of both Spain and Poland increased in 2012, yet it continue to decrease in Taiwan.

Data and analytic strategy

We adopted a two-step analytical strategy. First, we performed latent class analysis (LCA) on the selected 12 questions. LCA allows us to identify unobservable subgroups (latent classes) within population according to their patterns of responses (Vermunt & Magidson, 2002). Different from factor analysis that estimates continuous latent variables, LCA estimates discrete latent classes. LCA is well suited to identify theoretically informed typologies (McCutcheon, 1987). Our analysis was conducted by the LCA Stata Plugin

Version 1.2 (Lanza et al., 2015).

We selected 12 statements on attitudes towards marriage, family and gender roles, and alternative family forms, the abbreviated versions of questions are:

1. A working mother can establish have warm relations with child (agree: more liberal).
2. Pre-school child suffers through working mother (disagree: more liberal).
3. Family life suffers through working mother (disagree: more liberal)
4. Women's preference: home and children (disagree: more liberal)
5. Being housewife is satisfying (disagree: more liberal)
6. Both should contribute to household income (agree: more liberal)
7. Men's job is earn money, women's job household (disagree: more liberal)
8. Married people are generally happier (disagree: more liberal)
9. People who want children should marry (disagree: more liberal)
10. Divorce is the best solution when marriage has problems (agree: more liberal)
11. Living together is ok without intention to marry (agree: more liberal)
12. Single parent can raise child as well as two parents (agree: more liberal)

To achieve more stable and more interpretable results in LCA, we dichotomize the variables as indicating "liberal" or "not liberal" based on the above criteria as used in previous research (Yamaguchi, 2000). Specifically, the "neither agree nor disagree" responses were classified as "less liberal". Following the analytic strategies by Knight and Brinton (2017), we conducted LCA on gender ideology responses with pooled data from six countries and two survey waves in 2002 and 2012. (Knight & Brinton, 2017). We compared different models with different numbers of latent classes based on goodness-of-fit statistics (Collins & Lanza, 2013). According to the BIC statistics, we chose the four-class latent class model as being most parsimonious and most interpretable to the theories we aim to formulate.

The γ and ρ parameters are the main estimates of LCA, where γ estimates indicate class membership probabilities and ρ estimates indicate item-response probabilities conditional on latent class membership. The fitted LCA model allows us to estimate the log odds that each observation falls in a specific latent class relative to the reference class. We assigned each respondent to its most likely latent class according to its membership probability to facilitate cross-wave and cross-country comparisons by gender and education (Brinton & Lee, 2016).

After identifying the four typologies, we further use logistic models to assess the effects of year, gender, education, marital status, and fertility contexts on two specific questions: women's career prospect: A job is alright, but what most women really want is a home and children; male breadwinner mindset: A man's job is to earn money; a women's job is to look after the home and family. Similar to the LCA analysis, we dichotomize those who chose disagree and strongly disagree as 1, referring to more liberal gender ideologies; those who chose strongly agree, agree, and neither agree nor disagree were recoded as 0, referring to

less liberal gender ideologies. I use a step-wise strategy to identify the different effects of social demographic variables, fertility contexts, and the four LCA typologies.

Preliminary results

Based on the Adjusted BIC, SIC, AIC, and Entropy values (not shown in Tables), we applied the four classifications and labeled them as: Liberal (class 1: 22%), Strict motherhood (class 2: 16%), Pro-marriage and pro-work (class 3: 33%), and Traditional (class 4: 29%) according to the response patterns provided by the ρ estimates. Class 2 put less value on marriage but believes that working mom harms the wellbeing of family and pre-school children; class 3 highly values marriage especially for women, but holds paradoxical beliefs that being housewives is fulfilling while both husband and wife should work.

Figure 2 illustrates the distributions of four identified classes of gender ideologies by gender and education (low versus high) in six selected countries in 2002 and 2012. The results indicate that higher education is an important determinant for the increase of more liberal gender ideologies in transition economies like Taiwan and Poland for both men and women. Yet there appeared little changes in industrialized Japan and US. Looking at results across two waves, the percentages of highly educated women in Taiwan who belongs to Class 1, the most liberal class, increased from 13 to 32 percent. However, the higher proportion of Class 3, which emphasizes that women should fulfill family roles and work roles in Taiwan across two waves regardless of gender and education (which is highest among 6 countries), may provide some clues on why fertility rate remain low and that highly educated women are delaying marriage in Taiwan. On the contrary, percentages of the most liberal class in Japan has not changed much across two time periods regardless of gender and education.

Appendix Tables 1 and 2 present the distribution of two questions on gender ideologies among men and women across Japan, Poland, Spain, Sweden, Taiwan, and the United States. The results present a very wide variations. For example, 73 percent of men and 82 percent of women in Sweden chose disagree or strongly disagree to male breadwinner mentality in 2002, yet in Taiwan, only 33 percent of men and 44 percent of women shared the same gender role attitudes. Speaking of whether what women really want is home and children, 59 percent of men and 65 percent of women in Spain would choose disagree or strongly disagree in 2012, however, in Taiwan, only 15.7 percent of men and 19.3 percent of women would choose disagree or strongly disagree.

Table 1 displays the demographic and country profile by gender ideology clusters, identifying the dominant typology of different fertility contexts, and variations across gender, education levels, and marital statuses. Not surprisingly, more females were classified as liberal than females (25 percent versus 19 percent), while those who fell into strict motherhood and traditional are similar, 33 percent of men were “pro-marriage and pro-work.” There is a clear age cohort pattern in the percentages classified as liberal: 32 percent among

respondents aged between 15 and 29, only 10 percent among those over 60. Again, cluster 3, the pro-marriage and pro-work cluster, shows a reverse age cohort pattern. Only 18 percent from the youngest cohort, 48 percent among the oldest cohort. Among the six selected countries, 43 percent were "liberal" in Sweden, while 58 percent were "traditional" in Taiwan. Japan, Poland, and the United States had the highest proportions in "pro-marriage and pro-work," a cluster that shows paradoxical expectations towards women's social and family role. Last but not least, those classified as "liberal" increased from 19 to 25 percent from 2002 to 2012, leading to a decrease in "pro-marriage and pro-work."

Table 2 presents the findings of stepwise logistic models of two selected gender role ideologies. Models 2 and 5 show that relatively to Sweden, Taiwan presented the most conservative attitudes towards women's career prospect, while Poland had the most conservative attitudes towards male breadwinner mindset. Based on Models 3 and 6, those who were classified as "pro-marriage and pro-work" demonstrate the most conservative attitudes towards both women's career prospect and male breadwinner mindset, after all other variables were held constant.

Discussion

In responding to the social patterns of "pro-marriage and pro-work" typology and the gaps between gender, education levels, and different fertility settings, the paper will end with discussions over the importance of offering a "choice" framework for women, and the dual-earner/dual-carer ideology that have been advocated by feminists demographers (Goldscheider, Bernhardt, & Lappegård, 2015), which may not only boost fertility but also increase population wellbeing in ultra-low fertility societies.

Figure 1 Fertility rate across six selected countries in 2002 and 2012

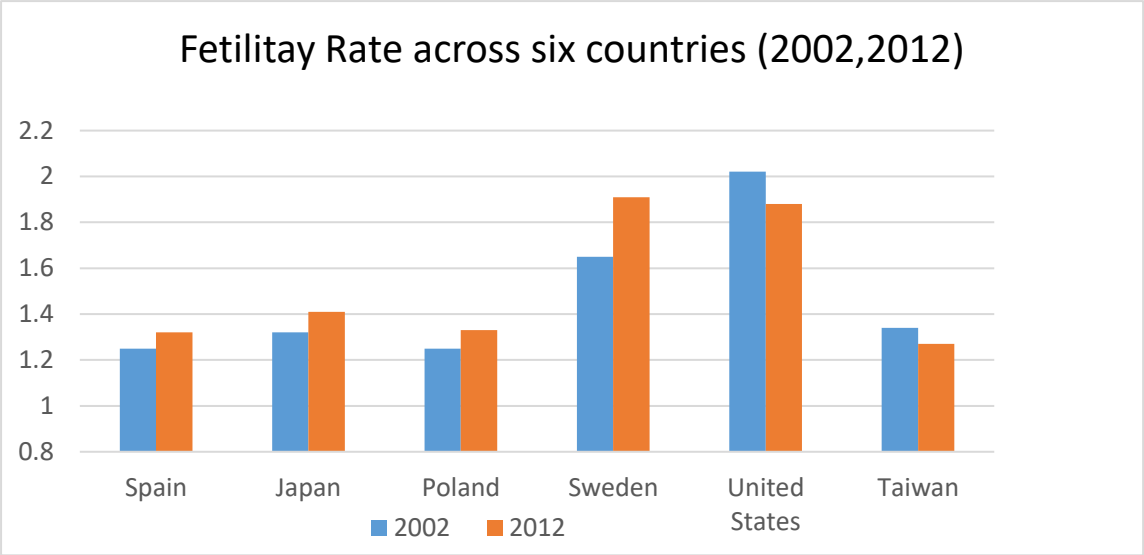

Figure 2. Changing gender ideologies by gender and education in Spain, Japan, Sweden, Taiwan, Poland, and the US, 2002 and 2012

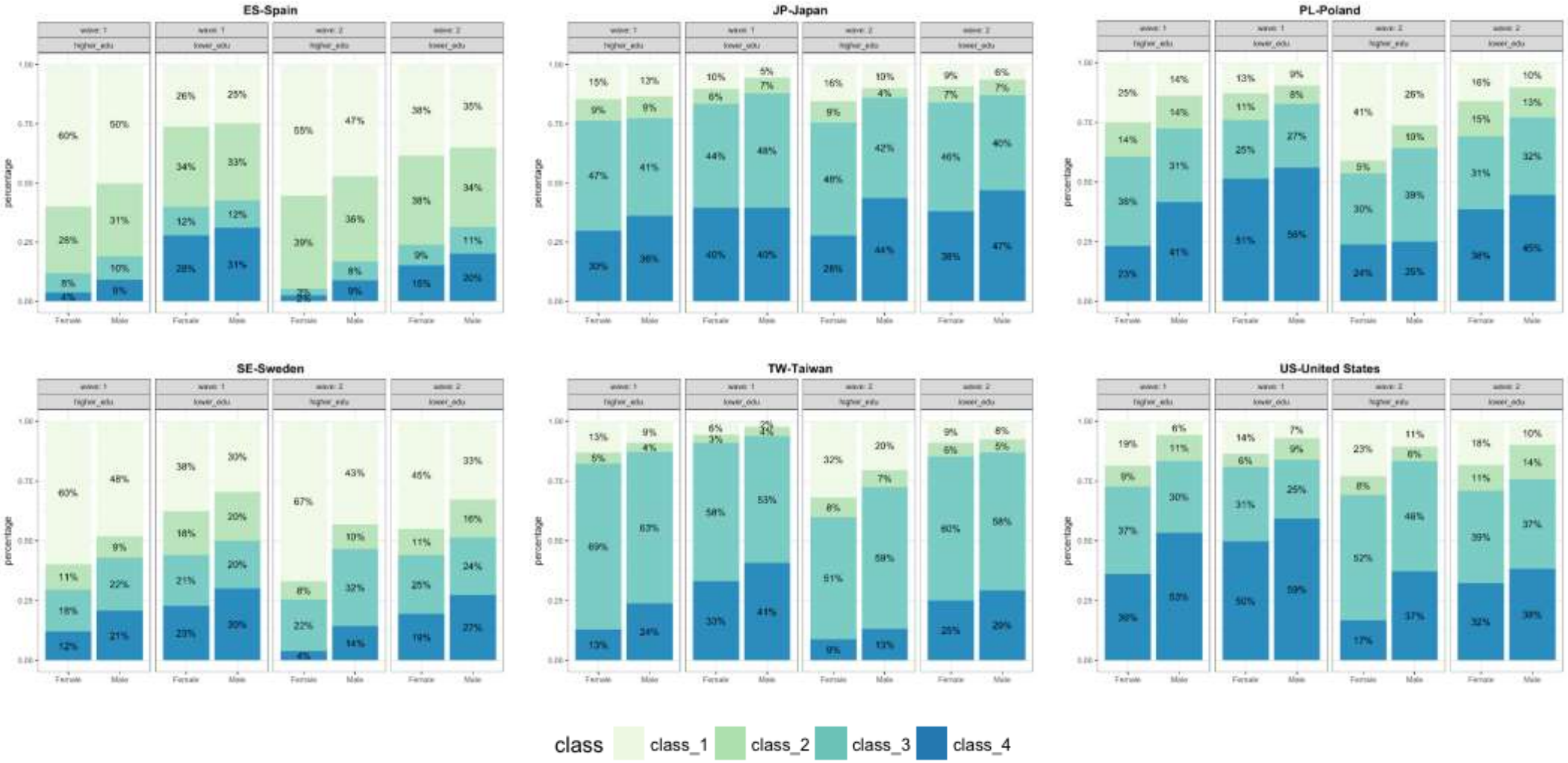

Table 1 Demographic and country profile by gender ideology clusters (%)

(%)	Cluster 1	Cluster 2	Cluster 3	Cluster4	*p-value*
	Liberal	Strict motherhood	Pro-marriage and pro-work	Traditional	
N	4,030	2,906	5,481	5,997	
Gender					
female	24.7	15.9	26.9	32.5	*p=0.000*
male	18.7	15.6	33.1	32.6	
Age					
15-29	31.6	16.7	18.2	33.5	*p=0.000*
30-44	27.4	19.3	21.2	32.1	
45-59	21.2	16.4	28.9	33.5	
over 60	9.9	10.8	47.7	31.5	
Education					
lower	14.3	16.9	40.1	28.7	*p=0.000*
middle	21.6	16.8	28.3	33.3	
higher	30.3	13.0	20.7	36.0	
Marital status					
married	19.0	15.3	31.5	34.2	*p=0.000*
single	32.1	17.6	19.5	30.8	
others	16.2	14.5	40.0	29.3	
Country					
Taiwan	10.0	5.0	26.7	58.3	*p=0.000*
Japan	9.2	6.9	39.4	44.4	
Poland	15.4	11.4	43.6	29.7	
Spain	35.3	34.3	20.4	10.1	
Sweden	43.2	13.9	20.4	22.4	
United States	13.8	9.7	39.8	36.6	
Survey Year					
2002	18.9	15.1	34.2	31.8	*p=0.000*
2012	24.8	16.5	25.5	33.3	

Table 2 Logistic regressions of women's career prospect and male breadwinner mindset on social demographic profiles, fertility contexts, and gender ideology clusters

	(support) Women's career prospect			(against) Male breadwinner mindset		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Survey Year (ref=2002)						
2012	1.561***	1.716***	1.370***	1.577***	1.772***	1.351***
	(13.48)	(15.35)	(8.04)	(13.99)	(16.29)	(7.32)
Gender (ref=female)						
male	0.711***	0.711***	0.864***	0.603***	0.557***	0.644***
	(-10.30)	(-9.72)	(-3.75)	(-15.43)	(-16.63)	(-10.70)
Education (ref=low)						
Middle	1.413***	1.802***	1.424***	1.494***	2.329***	1.932***
	(8.03)	(12.39)	(6.75)	(10.10)	(18.40)	(12.23)
Higher	2.321***	3.403***	2.508***	2.905***	4.706***	3.812***
	(17.93)	(23.15)	(15.78)	(22.88)	(28.60)	(21.21)
Age (ref=15-29)						
30-44	1.182**	1.052	1.130	0.951	0.824**	0.817**
	(3.13)	(0.91)	(1.95)	(-0.89)	(-3.25)	(-2.86)
45-59	1.086	0.974	1.215**	0.793***	0.700***	0.851*
	(1.40)	(-0.43)	(2.82)	(-3.88)	(-5.58)	(-2.13)
over 60	0.722***	0.600***	1.112	0.412***	0.327***	0.589***
	(-5.10)	(-7.62)	(1.41)	(-14.10)	(-16.43)	(-6.58)
Marital status (ref=single)						
married	1.321***	1.259***	1.101	1.202***	1.081	0.886
	(5.92)	(4.65)	(1.73)	(3.79)	(1.49)	(-1.94)
others	0.907	0.932	0.853**	0.804***	0.895*	0.800***
	(-1.93)	(-1.31)	(-2.66)	(-4.66)	(-2.16)	(-3.67)
Country (ref=Sweden)						
Taiwan		0.143***	0.283***		0.134***	0.216***
		(-28.14)	(-16.16)		(-28.08)	(-17.75)
Japan		0.478***	1.238**		0.189***	0.377***
		(-10.71)	(2.69)		(-21.83)	(-10.85)
Poland		0.541***	1.282**		0.106***	0.152***
		(-8.95)	(3.11)		(-28.96)	(-19.87)
Spain		1.292***	1.389***		0.773***	0.628***
		(4.37)	(4.86)		(-3.68)	(-5.31)
United States		0.454***	1.174*		0.188***	0.416***
		(-11.78)	(2.05)		(-21.79)	(-9.61)
LCA Cluster (ref=Cluster 1)						
Cluster 2			0.273***			0.048***
			(-22.80)			(-19.16)
Cluster 3			0.038***			0.004***
			(-48.26)			(-35.35)
Cluster 4			0.162***			0.022***
			(-32.77)			(-24.67)
r2_p	0.045	0.130	0.264	0.084	0.179	0.383
chi2	1030.616	2939.83	5980.919	2034.222	4348.063	9284.105
bic	21723.9	19863.5	16851.77	22327.725	20062.82	15156.14
N	17343	17343	17343	17815	17815	17815

Appendix Table 1 Gender ideologies on male breadwinner mindset by gender: ISSP 2002 and 2012
Q1: A man's job is to earn money, a women's job is to look after the home and family

	Male			Female		
	2002	2012	Change (%)	2002	2012	Change (%)
Taiwan						
disagree	30.8	39.1	8.3	38.9	44.9	6.0
strongly disagree	1.8	4.8	3.0	5.2	9.6	4.4
total	32.6	43.9	11.3	44.1	54.5	10.4
Poland						
disagree	27.3	32.2	4.9	30.1	34.0	3.0
strongly disagree	19.3	20.6	1.3	26.6	28.6	2.0
total	46.6	52.8	6.2	56.7	62.6	5.0
Japan						
disagree	10.2	12.8	2.6	12.8	13.7	0.9
strongly disagree	34.2	33.3	-0.9	39.4	39.8	0.4
total	44.4	46.1	1.7	52.2	53.5	1.3
Spain						
disagree	43.2	40.6	-2.6	41.8	34.3	-7.5
strongly disagree	20.4	36.9	16.5	27.3	50.4	23.1
total	63.6	77.5	13.9	69.1	84.7	15.6
United States						
disagree	28.9	29.8	0.9	31.2	29.7	-1.5
strongly disagree	20.4	24.7	4.3	27.6	35.3	7.7
total	49.3	54.5	5.2	58.8	65.0	5.2
Sweden						
disagree	32.7	30.5	-2.2	29.9	22.9	-7
strongly disagree	40.2	47.2	7	51.9	63.1	11.2
total	72.9	77.7	4.8	81.7	86	4.3

Appendix Table 2 Gender ideologies on women's career prospect by gender: ISSP 2002 and 2012
Q2: A job is alright, but what most women really want is home and children

	Male			Female		
	2002	2012	Change (%)	2002	2012	Change (%)
Taiwan						
disagree	8.7	15.1	6.4	11.5	18.0	6.5
strongly disagree	0.3	0.6	0.3	0.6	1.3	0.7
total	9.0	15.7	6.7	12.1	19.3	7.2
Poland						
disagree	20.2	24.1	3.9	21.0	27.7	6.7
strongly disagree	8.9	9.1	0.2	13.8	13.8	0
total	29.1	33.2	4.1	34.8	41.5	6.7
Japan						
disagree	11.8	10.2	-1.6	8.4	14.8	6.4
strongly disagree	21.0	18	-3	21.9	20.4	-1.5
total	32.8	28.2	-4.6	30.3	35.2	4.9
Spain						
disagree	35.5	41.9	6.4	32.9	41.7	8.8
strongly disagree	6.8	16.6	9.8	12.5	22.8	10.3
total	42.3	58.5	16.2	45.4	64.5	19.1
United States						
disagree	20.2	21.9	1.7	20.6	24.2	3.6
strongly disagree	9.1	11.1	2.0	14.4	17.7	3.3
total	29.3	33.0	3.7	35.0	42.1	6.9
Sweden						
disagree	24.7	23.4	-1.3	24.0	21.9	-2.1
strongly disagree	16.0	24.9	8.9	24.5	35.4	10.9
total	40.7	48.3	7.6	48.5	57.3	8.8

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