Cohort Analysis of Gender Role Attitudes: A Conservative Shift among the Younger Generation?

Kei Nagase
Hiroshi Tarohmaru

1. Issues

Traditional attitudes toward gender roles have promoted discrimination against women and are considered one of the reasons why the gendered division of labor persists (Davis and Greenstein 2009; Yamato 1995). A number of studies have analyzed trends in attitudes toward gender roles and their causes. Also, recent studies have come to considering attitudes toward gender roles as an important factor that significantly affects marriage-related behavior (Ono 2003) and husbands' distress (Bae 2007). Therefore, explaining changes in attitudes toward gender roles over time and their causes is an important issue in sociology.

According to Ojima (2000), in Japan, people became less attuned to traditional gender roles from the 1970s to the 1990s due to cohort replacement and individual change. However, changes in attitudes toward gender role since the mid-1990s have not been sufficiently analyzed. Although some studies have pointed out conservative tendencies observed in the 2000s among women in their 20s and 30s, these studies neither consider the effects of the women's life stage, employment status, or academic background, nor compare the conservative tendencies with the trends in the 1990s and before (Matsuda 2005; Yamada 2009).

In this context, this paper explains when and how attitudes toward gender roles have changed, what triggers such change, and whether new cohorts are indeed conservative.

2. Previous Studies and Questions Addressed in This Paper

This section first provides an overview of Ronald Inglehart's well-known theory on shifts in values. Then, previous studies on changes in attitudes toward gender roles are

summarized and the direction of this paper is discussed.

2.1 Theory on Shifts in Values

According to Inglehart and Baker (2000), as a society becomes economically prosperous, people shift from traditional values that emphasize religion, family, survival, and stable life to secular, rationalistic values that do not emphasize authority but prioritize quality of life and self-expression, although differences persist among societies depending on their cultural and historical backgrounds. It should be noted, however, that the shift to values prioritizing self-expression is strictly conditional on survival and stability. In other words, once people become able to lead a stable life thanks to economic prosperity, they start to prioritize quality of life and self-expression; however, without economic prosperity people prioritize survival and stability.

The inclination toward gender equality considered in this paper is a central component of values that prioritize self-expression (Inglehart et al. 2002).[1] It is thus conjectured that in Japan, too, people have become less attuned to traditional gender roles in recent years. It is possible, however, that the opposite case is true (i.e., people have become more attuned to traditional gender roles) because there have been significant changes in the areas of social security and labor that can directly affect people's lives. These changes include the promotion of neoliberal reforms in the 2000s (Nozaki 2008), reductions in public welfare benefits such as a reduction in the standard amount of welfare payments (Tabuchi 2011), and deregulation of labor laws and relevant systems such as the lifting of the ban on temporary staffing agencies in the manufacturing industry (Yamagaki 2008).

The situations in Japan in the 2000s are certainly different from events like a regime collapse, revolution, or civil war that Inglehart and colleagues assume in their theory. However, the possible scenario in Japan described above does not conflict with their theory as both are predicated on threats to people's livelihoods or their survival.

2.2 Studies on Changes in Attitudes toward Gender Roles

Studies that consider changes in the general values of society as a whole, including

attitudes toward gender roles, (below, "aggregate change") often discuss the effects of cohort replacement and individual change as factors leading to aggregate change (Firebaugh 1997). This subsection touches on these effects before reviewing previous studies on changes in attitudes toward gender roles.

The cohort replacement effect refers to a change in the general values of society as a whole that occurs as a consequence of the passing away of a generation with old values and the birth and growth of a generation with new values. Cohort replacement thus results in aggregate change as long as values differ from one cohort to another, even if the values of individuals do not change at all. The effect of individual change refers to a change in the general values of society as a whole that occurs as individuals' values change over their lifetime. Therefore, even if no one dies or is born in a given period, aggregate change occurs if individuals' values change during the period. The effect of individual change is sometimes referred to as the period effect or intra-cohort effect.

2.2.1 Studies Outside of Japan

Although a number of studies on attitudes toward gender roles have been conducted, there are not many studies on changes in attitudes toward gender roles in Japan or European countries. However, changes in attitudes toward gender roles have been extensively investigated in the United States in studies that use factor decomposition analysis and regression analysis (Brewster and Padavic 2000; Brooks and Bolzendahl 2004; Carter et al. 2009). Cotter et al. (2011) investigated long-term changes in attitudes toward gender roles and found that Americans did not constantly become less attuned to traditional gender roles over the period from 1977 to 2008. In fact, they became relatively conservative over the period from 1994 to 2000. The causes of this increased conservatism are thought to be the effects of individual change that cannot be explained by changes in the distribution of people's academic background and women's employment status, and changes in political ideology.

Little change in attitudes toward gender roles and increased conservatism were observed in the 1990s in West Germany, the United Kingdom, and China (Lee et al. 2007; Scott et al. 1996; Shu and Zhu 2012). In the case of the United Kingdom, Scott et al. (1996) show evidence of the effect of business cycles on attitudes toward gender roles.

2.2.2 Studies in Japan

In Japan, people became less attuned to traditional gender roles over the period from 1972 to 1995, and both men and women in newer cohorts are more likely to reject the idea of gendered division of labor (Ojima 2000). This shift in people's attitudes is attributable to the implementation of the Equal Employment Opportunity Act, a rise of ideologies that positively view women's work force participation and gender equality, and postwar school education. In addition, using data from the National Survey of Social Stratification and Social Mobility, Ojima (1998) shows that women became less attuned to traditional gender roles during the period from 1985 to 1995 due to the effect of individual change, which is separate from cohort replacement, higher educational attainment, and employment type.

As for subsequent changes in attitudes toward gender roles, Lee et al. (2010) use data from the International Social Survey Program and show that in general both men and women became less attuned to traditional gender roles over the period from 1994 to 2002. Based on data from the Japanese General Social Survey, Sasaki (2012) shows that both men and women became less attuned to traditional gender roles over the period from 2000 to 2010, but that no significant change in attitudes toward gender roles has been observed since 2006. However, based on data from the Public Opinion Survey on Gender-Equal Society, Yamada (2009) points out that among women in their 20s and 30s the proportion of those who agree with gendered division of labor increased during a 2002-07 period, and that among women in their 20s the proportion of those who agree with the idea of a woman becoming a housewife increased during the same period.

2.3 Research Questions

Previous studies in Japan tended to be limited to interpretations of descriptive statistics, did not consider long-term changes, or focused on women only. This paper therefore analyzes long-term changes in attitudes toward gender roles, taking into account cohort replacement, individual change, and other factors considered by previous studies to be associated with attitudes toward gender roles (i.e., years of education, employment status, and life stage). The analysis addresses the following three questions.

1. How did people's attitudes toward gender roles change from the 1970s to the

2000s? If changes in the general trend occurred, when did they occur? Was there increased conservatism in the 2000s, as discussed in Section 2.1?

2. What caused these changes? Was it cohort replacement, higher educational attainment, changes in labor force participation, changes in life stage distribution, or individual change not attributable to these other factors?

3. Are new cohorts more conservative?

It is surprising that despite the numerous studies on Japanese people's attitudes toward gender roles, these basic questions concerning long-term changes have yet to be addressed. This paper therefore aims to provide answers to these basic questions.

3. Data and Analysis Methods

3.1 Summary of Data and Factors Considered in the Analysis

This paper's analysis is based on data from the Survey on Japanese Value Orientations, 1973-2008 conducted by the Public Opinion Research Division of the NHK Broadcasting Culture Research Institute. This is an interview-based survey that has been conducted every 5 years since 1973, and its sample of 5,400 people aged 16 years or older (5,436 for the first survey) is obtained through two-stage stratified random sampling (Kawano and Takahashi 2009). The valid response rates for the first to eighth surveys are as follows: 78.1%, 78.5%, 75.3%, 71.4%, 70.6%, 67.1%, 61.5%, and 57.5%.

In the published data from the survey, a categorical variable with 5-year intervals is used to show each respondent's age. This paper considers men and women aged 16 to 74 years because ages 75 years or older are grouped into one category, making it impossible to consistently use 5-year intervals. Also, the survey does not ask about income or employment type. Despite such deficiencies, the data from the survey are valuable because examining the cohort replacement effect and the effect of individual change requires repeated survey data covering a long period.

3.2 Indicators of Attitudes toward Gender Roles

Three indicators of attitudes toward gender role are used in this paper's analysis: (1) opinion on men performing housework, (2) opinion on married women continuing to work, and (3) opinion on a couple's married name. These indicators are based on the following questions from the survey. (1) "Which of the following two opinions regarding a father helping his wife with kitchen work and babysitting do you agree with?" (2) "What do you think about married women who continue to work after their marriage?" (3) "Generally speaking, whose last name should married couples take?"

The above indicators may be different from indicators of attitudes toward gender roles that are often used. However, the first two indicators are considered appropriate because they are based on questions concerning whether the respondents agree with the traditional gendered division of labor. Also, even though the choice of married name is not related to the gendered division of labor, it is considered an appropriate indicator of attitudes toward gender roles in that it reflects the patriarchal system in Japan (Ida 1989). Although details are not discussed here, the results of multiple correspondence analysis shows that both men and women who have stronger preference for gendered division of labor are more likely to hold the conservative opinion that women should definitely take their husband's last name. Therefore, one's opinion on a couple's married name is included for analysis as an indicator of attitudes toward gender roles.

The analysis here uses unidimensional measures of attitudes toward gender roles, so it is also possible to use factor scores for the three variables as indicators of attitudes toward gender roles. However, convincing arguments have been made based on a multidimensional approach to attitudes toward gender roles (Yamato 1995; Lee et al. 2007). This paper therefore takes the cautious approach of separately analyzing the three indicators. Because the correlation coefficients among the three indicators calculated for men, women, and each survey year fall in a narrow range from 0.25 to 0.3, it is considered appropriate to assume that these indicators reflect people's attitudes toward gender roles. The correlations are not large and the variance of each indicator is large, and thus it is considered appropriate to separately analyze the three indicators.

3.3 Analysis Method and Variables

Linear decomposition is used to examine factors that affect people's attitudes toward gender roles (Firebaugh 1997). This method uses multiple regression results and divides the intertemporal change in the mean of the explained variable into parts attributed to cohort replacement, to changes in the means of other explanatory variables (e.g., years of education), and to individual change not attributable to these other factors. First, the following regression model, which has attitude toward gender roles (G) as the explained variable and survey year (P), birth year (C), and other control variables (X) as explanatory variables, is estimated using the dataset of samples for all survey years.

$$G = \beta_0 + \beta_1 P + \beta_2 C + \beta_3 X + e. \quad (1)$$

If the model (Equation 1) is correct, the following relationship holds:

$$G_2 - G_1 = \beta_1(P_2 - P_1) + \beta_2(C_2 - C_1) + \beta_3(X_2 - X_1) \quad (2)$$

where G_1, P_1, C_1, X_1, G_2, P_2, C_2, and X_2 denote the means of the above-mentioned variables in the first survey year (subscript 1) and the last survey year (subscript 2). The left-hand side of Equation 2 shows how much the mean value for attitude toward gender roles changes between the first year and the last year, and the right-hand side shows the sum of terms, each of which is a change in the mean of an explanatory variable multiplied by the corresponding coefficient from the regression model. The three terms on the right-hand side can be interpreted as the effects of individual change, cohort replacement, and the changes of the means of the other control variables. Put another way, the aggregate change in attitudes toward gender roles can be decomposed into three factors.

Also, in order to examine whether there are significant differences in attitudes toward gender roles between cohorts, binomial logistic regression is used for opinions on men performing housework, and ordinal logistic regression is used for the other two indicators.

With respect to the variables used in the analysis, the three indicators of attitudes toward gender roles are standardized so that they increase as one's inclination toward gender equality strengthens, between s minimum of 0 and s maximum of 1.[2] Years of education

is used as a measure of academic background.[3] For employment status, housewives, students, and unemployed workers are treated as unemployed, and others are considered employed. The life stage variable is a categorical variable with six categories: unmarried student; other unmarried person; married person with no child; married person whose youngest child is in junior high school or younger; married person whose youngest child is no longer in junior high school; and widow/widower. Table 1 shows the descriptive statistics of the variables.

Table 1: Descriptive statistics of variables used for analysis

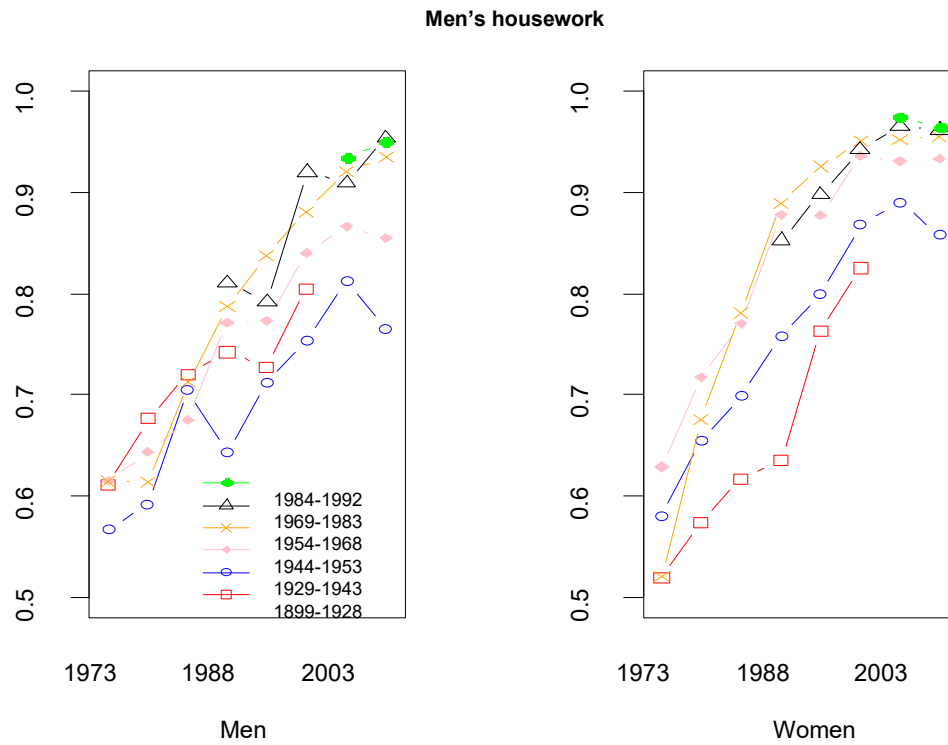|	Men			Women		
	1973	**2008**	**All periods**	**1973**	**2008**	**All periods**
Means of indicators of attitudes toward gender roles						
Opinion on men performing housework	.596	.891	.742	.566	.934	.784
	(.491)	(.312)	(.438)	(.496)	(.249)	(.411)
Opinion on married women continuing to work	.373	.677	.524	.464	.731	.613
	(.363)	(.353)	(.381)	(.369)	(.325)	(.371)
Opinion on a couple's married name	.279	.417	.332	.274	.412	.348
	(.301)	(.351)	(.324)	(.294)	(.334)	(.324)
Mean birth year	1933.3	1960.1	1945.8	1934.0	1959.3	1946.2
	(15.1)	(16.3)	(17.8)	(14.3)	(15.8)	(17.2)
Mean years of education	11.1	12.9	12.0	10.8	12.6	11.7
	(2.3)	(2.4)	(2.5)	(1.8)	(2.0)	(2.0)
Proportion employed (%)	87.3	76.8	82.0	39.9	53.4	47.7
Life stage (%)						
Student; unmarried	7.8	6.6	8.6	5.8	5.0	6.8
Non-student; unmarried	15.6	20.9	15.5	11.9	13.3	11.7
No child; married	6.5	5.5	5.4	5.9	5.9	5.4
Youngest child in junior high school or younger; married	41.4	20.4	30.7	44.1	20.7	32.0
Youngest child no longer in junior high school; married	26.8	41.5	36.9	23.0	43.9	34.9
Widow/widower	1.9	5.1	3.0	9.3	11.2	9.3
N	1696	1107	11571	1945	1368	13826

The larger the value of an indicator of attitudes toward gender roles, the stronger the inclination toward gender equality.

Values in parentheses are standard deviations.

4. Results

4.1 Changes in Attitudes toward Gender Roles for Different Cohorts

Let us first discuss the ways in which attitudes toward gender roles have changed. Figure 1 shows these changes for different cohorts.

Men's housework

	1984-1992
	1969-1983
	1954-1968
	1944-1953
	1929-1943
	1899-1928

Men   Women

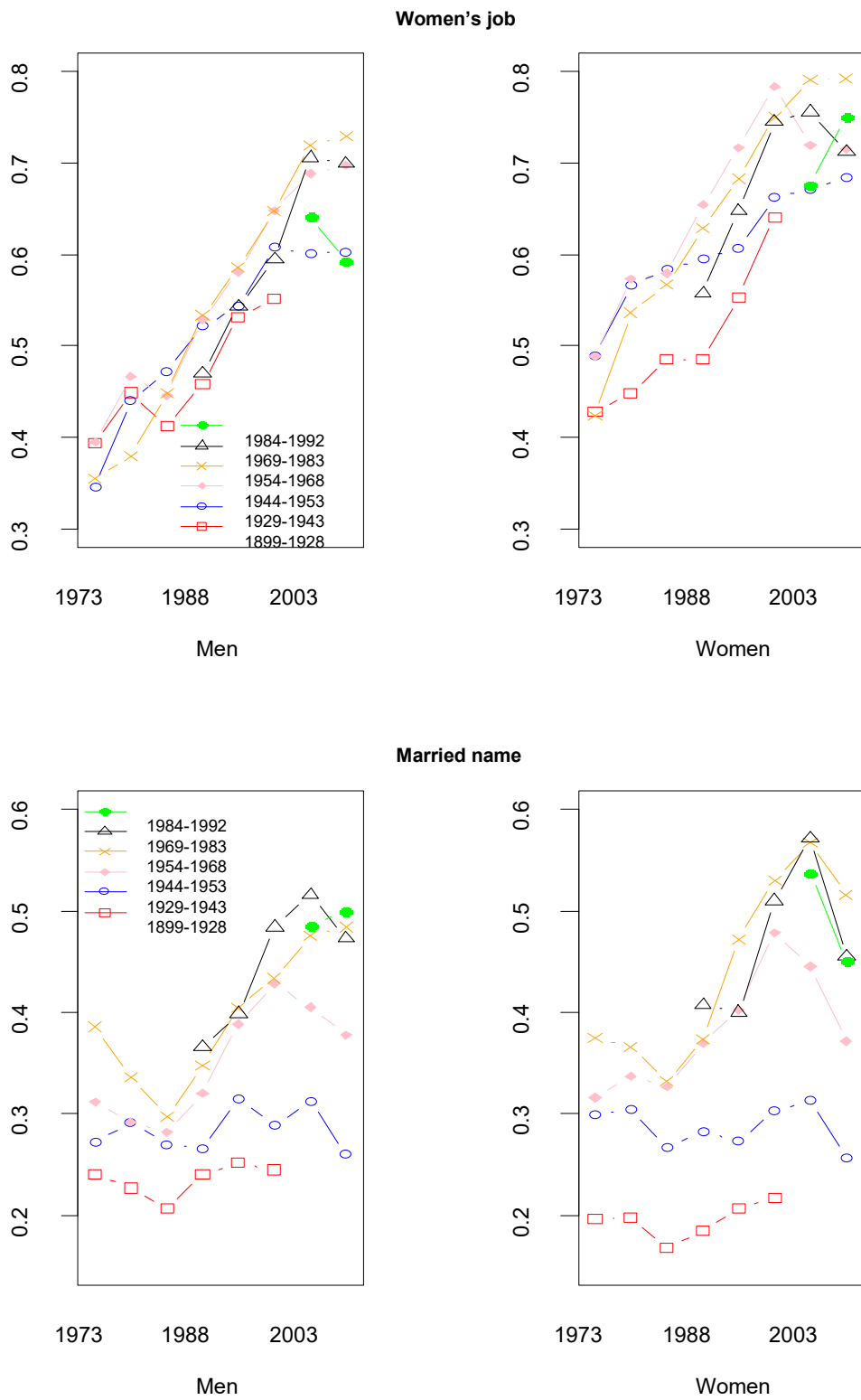**Women's job**

Married name

Figure 1: Mean values of the indicators of attitudes toward gender roles for different cohorts (Opinion on men performing housework, Opinion on married women

continuing to work, Opinion on a couple's married name)
The larger the value of an indicator of attitudes toward gender roles, the stronger the inclination toward gender equality.

All indicators show an increased inclination toward gender equality up to 2003 for both men and women. Around that time, however, the indicators start to show little change or a tendency toward conservative attitudes. This pattern is observed for almost all cohorts.

Inter-cohort comparisons show that compared with the 1954-68 birth cohort and the older cohorts, younger cohorts exhibit a greater inclination toward gender equality, but the inter-cohort differences are quite small between the 1969-83 birth cohort and the 1984-92 birth cohort. With regard to married women continuing to work, the 1969-83 and 1984-92 birth cohorts are more conservative than the 1954-68 birth cohort for both men and women. Women in the 1969-83 and 1984-92 birth cohorts are more conservative than women in the 1954-68 birth cohort regarding the couple's married name.

4.2 Linear Decomposition

Figure 1 shows that around 2003 the indicators of attitudes toward gender roles begin to show little attitude change or increased conservatism, so linear decomposition is performed for changes in the indicators between 1973 and 2003 and changes between 2003 and 2008.[4] Table 2 shows the results.

Table 2: Results of linear decomposition

Men		
	1973-2003	**2003-08**
Opinion on men performing housework		
Cohort replacement	.016	.011
Individual change	.257	-.001
Other factors	.013	.002
Aggregate change predicted by the model	.286	.012
Actual aggregate change	.283	.012

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Opinion on married women continuing to work

	1973-2003	2003-08
Cohort replacement	.017	.003
Individual change	.265	-.001
Other factors	.009	.002
Aggregate change predicted by the model	.292	.004
Actual aggregate change	.300	.004

Opinion on a couple's married name

Cohort replacement	.034	.006
Individual change	.103	-.018
Other factors	.021	.002
Aggregate change predicted by the model	.158	-.009
Actual aggregate change	.147	-.009

Women

	1973-2003	2003-08
Opinion on men performing housework		
Cohort replacement	.075	.009
Individual change	.282	-.013
Other factors	.027	.003
Aggregate change predicted by the model	.385	-.001
Actual aggregate change	.368	-.001
Opinion on married women continuing to work		
Cohort replacement	.033	.002
Individual change	.212	-.007
Other factors	.030	.005
Aggregate change predicted by the model	.275	.001
Actual aggregate change	.267	.001
Opinion on a couple's married name		
Cohort replacement	.070	.016
Individual change	.090	-.085
Other factors	.040	.010
Aggregate change predicted by the model	.201	-.059
Actual aggregate change	.197	-.059

Aggregate change presented in the table refers to the change in the mean of an indicator of attitudes toward gender roles during the relevant period. For example, the mean of the indicator of men's opinion on men performing housework increases by 0.283 between 1973 and 2003. Also, the model in Equation 1 predicts an increase of 0.286, of which 0.016, 0.013, and 0.257 are attributed to cohort replacement, other variables (years of education, employment status, and life stage), and individual change, respectively.

For both men and women, the aggregate changes in the indicators of attitudes toward gender roles are all positive between 1973 and 2003, showing that men and women became less attuned to traditional gender roles. Among the three factors, the effect of individual change is largest, and the effect of other variables is smallest. The pattern is seen for both men and women and all indicators. The result shows that, relative to cohort replacement and changes in other factors, individual change significantly contributed to the decline of traditional gender roles. Some researchers have discussed higher educational attainment and increased women's labor force participation as causes of changes in attitudes toward gender roles. While these factors certainly have an effect, the magnitude of their direct effects is small.[5]

In contrast to the above results, the aggregate changes in the indicators of attitudes toward gender roles are either close to zero or negative between 2003 and 2008. That is, there was little attitude change or increased conservatism. This results from two offsetting forces: the cohort replacement effect, which remains positive for all indicators, and the effect of individual change, which turns negative. Put differently, the result suggests that the post-2003 period saw little attitude change or increased conservatism in society as a whole, not because new cohorts were particularly conservative, but because there was little attitude change or increased conservatism in each cohort. In passing, although not shown here, a similar result is obtained from algebraic decomposition (Firebaugh 1997).

4.3 Logistic Regression Analysis

The results of the analysis discussed in the previous subsection shows that changes in attitudes toward gender roles are mainly attributable to individual change, and that their trends changed around 2003. However, it is unclear whether new cohorts are more

conservative. Logistic regression analysis is conducted separately for men and women to examine whether new cohorts (i.e., the 1969-83 and 1984-92 birth cohorts) are more conservative than the 1954-68 birth cohort.[6] The explanatory variables used in the analysis include the variables used in linear decomposition and a variable showing the magnitude of change in the period effect in the post-2003 period (a spline variable).[7] Tables 3 and 4 show the results.

Table 3: Logistic regression analysis of attitudes toward gender roles (men)

	Opinion on men performing housework		Opinion on married women continuing to work		Opinion on a couple's married name	
Period	.044	***	.048	***	.019	***
	(.003)		(.003)		(.003)	
Spline	-.011		-.029	*	-.019	
	(.023)		(.015)		(.014)	
Cohorts						
(Ref: 1954-68)						
1899-1928	-.085		-.072		-.315	***
	(.118)		(.093)		(.091)	
1929-43	-.463	***	-.119		-.268	***
	(.090)		(.069)		(.067)	
1944-53	-.241	**	.009		-.099	
	(.080)		(.060)		(.059)	
1969-83	.341	**	-.066		.200	**
	(.115)		(.072)		(.071)	
1984-92	.920	**	-.236		.362	*
	(.316)		(.147)		(.146)	
Years of education	.040	***	.034	***	.094	***
	(.010)		(.008)		(.008)	
Employed dummy	-.015		.180	**	.168	**
	(.082)		(.064)		(.064)	
Life stages						
(Ref: Youngest child in junior high school or younger; married)						
Student; unmarried	-.213		.038		.459	***
	(.143)		(.109)		(.108)	
Non-student; unmarried	-.010		.016		.075	
	(.081)		(.061)		(.060)	
No child; married	.125		.278	***	.144	
	(.108)		(.083)		(.081)	
Youngest child no longer in junior high school; married	-.108		.019		-.198	***
	(.069)		(.056)		(.055)	
Widow/widower	-.124		-.042		.079	

	(.140)	(.112)	(.111)
Deviance	12423.5	24055.9	28437.0
Nagelkerke R^2.	.097	.091	.076
N	11571	11571	11571

*** $p < .001$, ** $p < .01$, * $p < .05$. Values in parentheses are standard errors.
The larger the value of an indicator of attitudes toward gender roles, the stronger the inclination toward gender equality.

Table 4: Logistic regression analysis of attitudes toward gender roles (women)

	Opinion on men performing housework		Opinion on married women continuing to work		Opinion on a couple's married name	
Period	.065	***	.040	***	.019	***
	(.003)		(.002)		(.002)	
Spline	-.089	***	-.057	***	-.071	***
	(.026)		(.014)		(.013)	
Cohorts **(Ref: 1954-68)**						
1899-1928	-.736	***	-.313	***	-.876	***
	(.112)		(.081)		(.081)	
1929-43	-.595	***	-.105		-.511	***
	(.091)		(.060)		(.058)	
1944-53	-.266	**	.017		-.224	***
	(.085)		(.054)		(.052)	
1969-83	.430	**	-.058		.066	
	(.134)		(.069)		(.067)	
1984-92	1.218	**	.003		.251	
	(.431)		(.156)		(.152)	
Years of education	.108	***	.070	***	.176	***
	(.013)		(.009)		(.009)	
Employed dummy	.198	***	.607	***	.128	***
	(.048)		(.036)		(.035)	
Life stages **(Ref: Youngest child in junior high school or younger; married)**						
Student; unmarried	-.604	***	.171	*	.259	**
	(.119)		(.084)		(.081)	
Non-student; unmarried	-.255	**	-.489	***	-.254	***
	(.091)		(.061)		(.059)	
No child; married	-.219	*	.104		.047	
	(.106)		(.077)		(.074)	
Youngest child no longer in junior high school; married	-.122		-.094		-.200	***
	(.071)		(.052)		(.051)	
Widow/widower	-.222	*	-.146	*	-.155	*

	(.093)	(.071)	(.071)
Deviance	12613.1	27511.4	33009.0
Nagelkerke R^2	.189	.111	.133
N	13826	13826	13826

*** $p < .001$, ** $p < .01$, * $p < .05$. Values in parentheses are standard errors.

For both men and women, the 1969-83 and 1984-92 birth cohorts are not significantly more conservative than the 1954-68 birth cohort. In some cases, these younger cohorts are rather strongly inclined toward gender equality. Although some parts of Figure 1 may give an impression that the new cohorts are more conservative, this is probably an acceptable deviation or may be attributable to other control variables.

The coefficient of the spline variable is negative in all cases. Among men, the coefficient is not significant for the indicator of opinion on men performing housework or for the indicator of opinion on a couple's married name. A reason may be that since men tended to be conservative in the first place, there was still room for them to become more inclined toward gender equality. These coefficients aside, the results show that the period effect significantly changed in 2003 for one indicator among men (opinion on married women continuing to work) and for all indicators among women. Since the period effect shows the effect of individual change not attributable to other explanatory variables, these results provide further evidence of little attitude change or increased conservatism at the individual level.

5. Discussion

To summarize the results presented above, Japanese men and women became less attuned to traditional gender role over the period from 1973 to 2003; however, people's attitudes toward gender role tended to change little or to become more conservative in the post-2003 period. It should be noted that the post-2003 tendency arose not because new cohorts were particularly conservative, but because all cohorts became more conservative due to individual change. Also, the results of linear decomposition show that the individual change associated with changes in attitudes toward gender roles in the post-2003 period cannot be explained by changes in average years of education, employment rate, or life stage distribution.

What then are social and temporal factors that led to small change or increased conservatism at the individual level in the post-2003 period? Finding an answer to this question requires multi-level analysis with the survey year set as a grouping variable. However, because the dataset contains only eight survey years, such analysis is not practicable. One relevant hypothesis, however, can be proposed: The post-2003 period is when deregulation and other neoliberal policies were implemented, and increased competition and significant changes in labor conditions may have led to the small change in attitudes toward gender roles or increased conservatism.

Another possible factor is increased poverty. The period from 2003 to 2008 coincides with the longest postwar economic recovery (Cabinet Office 2012). According to Inglehart's theory, one would expect that people became less attuned to traditional gender roles. However, despite the expanding economy, people's lives did not improve over roughly the same period. A year-long employee's average annual salary decreased slightly from 5.48 million yen to 5.42 million yen for men and from 2.78 million yen to 2.71 million yen for women.[8] The proportion of salaried workers earning 2 million yen or less increased from 6.9%to 9.5% for men and from 39.8% to 43.7% for women (National Tax Agency 2012a, 2012b). The monthly number of households with a working head of household who received welfare benefits increased from approximately 80,000 to 120,000 (National Institute of Population and Social Security Research 2013). As people's survival or stable life were threatened, they may have become more attuned to traditional gender roles.

The above explanation is merely a hypothesis. Temporal factors that lead to individual-level changes in attitudes toward gender roles should be examined further, including cultural factors such as ideological change that have been considered in previous studies. Also, as mentioned earlier, little change in attitudes toward gender roles and increased conservatism were observed in the United States, the United Kingdom, Germany, and China 5 to 10 years earlier than in Japan. This difference in timing may be attributable to differences in the timing of neoliberal reforms or, as Cotter et al. (2011) point out, other aspects of cultural politics. Although the issue is quite interesting, it is beyond the scope of this paper and should be considered in future studies.

Acknowledgement

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Nagase, Kei and Hiroshi Tarohmaru, 2014, "Cohort Analysis of Gender Role Attitudes: A Conservative Shift among the Younger Generation?," *Soshioroji*, 58(3): 19-33.

Endnotes

1. The term "inclination toward gender equality" is treated as opposite in meaning to "traditional attitudes toward gender roles."
2. The following two statements were provided as response options for the question about men performing housework. (The values in parentheses are those assigned for the purpose of calculating the mean of each indicator.): "Providing help for kitchen work or babysitting is not something a man does as the head of the household." (0); and "Because a husband and wife should support each other, a husband should definitely help his wife with kitchen work and babysitting." (1). The following three statements were provided as response options for the question about married women continuing to work: "A married woman should focus on managing housework." (0); "A married woman should continue working until she has a child." (0.5); and "A married woman should continue working as long as possible even after she gave birth to a child." (1). The following four statements were provided as response options for the question about a couple's married name: "The wife should definitely take her husband's last name." (0); "Given the current environment, the wife should take her husband's last name." (0.333); "A married couple should have the same last name, but it does not matter whose last name is used." (0.667); and "There is no need to take a spouse's last name. The husband and wife should continue to use their own last names." (1).
3. A respondent whose highest level of education was attending high school or the first, second, or third year of vocational school is treated as having 10 years of

education; a respondent whose highest level of education was attending the fourth or fifth year of vocational school or junior college or higher is treated as having 13 years of education.

4. The respondents whose birth years range from 1899 to 1992 are divided into 20 groups based on 5-year intervals. The middle birth year of each group is treated as the birth year of the respondents in the group. However, 1991 is set as the birth year of the respondents in the 1989-92 group.

5. A direct effect is one where the level of adherence to traditional gender roles for society as a whole declines on average as the number of highly educated people increases because highly educated people are less attuned to traditional gender roles. An indirect effect is one where people (including men, workers, and people with low levels of education) who have seen a rising number of highly educated women and working women change their views and become less attuned to traditional gender roles. This type of indirect effect may be significant.

6. A book by the NHK Broadcasting Culture Research Institute (2010) was referred to in setting up the cohorts. Since the respondents in their 20s and 30s were born in 1968 or later, the 1969-83 and 1984-92 birth cohorts are considered as "new" cohorts in this paper. Also, since the 1954-68 birth cohort is generally most inclined toward gender equality for both men and women (as shown in Figure 1), it is used as the basis for comparison.

7. The value of the spline variable is 0 until 2003 and then increases by 1 in each of the following years (Cotter et al. 2011). Suppose that the coefficient of the period variable is b_1, and that the coefficient of the spline variable is b_2. The estimated period effect up to 2003 is b_1, and the subsequent estimated period effects are $b_1 + b_2$. In this analysis, the effect of individual change corresponds to the period effect.

8. The publication of average salary data for men and women began in 1978. Therefore, comparison with earlier years is not possible. A year-long employee refers to an employee who continuously worked from January to December of the given year and received a salary in each of the 12 months.

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