GENDER IDEOLOGY IN THE U.S. AND JAPAN: CROSS-CULTURAL MEASUREMENT EQUIVALENCE

Matthew Loyd

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Approved by
Glen H. Elder, Jr. (Chair)
Kathleen Mullan Harris
Catherine Zimmer

ABSTRACT

MATTHEW LOYD: Gender Ideology in the U.S. and Japan: Cross-Cultural Measurement Equivalence
(Under the direction of Glen H. Elder, Jr.)

This project compares the United States and Japan to test whether modern trends in family and work life have produced similar conceptions of gender ideology in both countries, or whether different cultural understandings of the same gender ideology questions remain. Differences in measurement between the two cultures must be taken into account before an accurate comparison of gender ideology in the U.S. and Japan is possible. This study uses eight items from the 2002 International Social Survey Program module "Family and Changing Gender Roles III" to test the measurement equivalence of gender ideology in the U.S. and Japan. Confirmatory factor analyses provide evidence of distinct underlying structures of gender ideology in the U.S. and Japan based on different ideas about the role of the housewife and personal fulfillment. However, a high level of measurement equivalence is found for the majority of gender ideology measures.

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CHAPTER I

INTRODUCTION

Traditional roles that center on the gender division of labor between a male breadwinner and a female homemaker have been challenged in many modern industrial nations by changes in women's social position after World War II. A convergence of trends, including increasing female wages and employment rates, decreasing fertility and family size, rising divorce rates and numbers of female-headed households, and increasing education and participation in women's movements, have undermined many of the incentives and requirements of a traditional family arrangement (Mason, Czajka, and Arber 1976; Mason and Lu 1988). Gender ideology operates at the center of these changes, simultaneously acting on gendered behavior of men and women and reacting to shifts in how they integrate their family and work obligations. Gender roles are sets of culturally defined behaviors for men and women that produce gendered relationships over the life course.

Gender ideologies are value judgments on these gendered behaviors – deciding what roles men and women *should* assume in society (Gibbons, Hamby, and Dennis 1997; Ferree 1990). This prescriptive element of gender ideology is used by researchers to measure both the individual's own view of gendered behavior (Greenstein 2000; Kroska 2002) and the aggregate level of gender egalitarianism or traditionalism in a society (Mason, Czajka, and Arber 1976; Mason and Lu 1988; Crompton and Harris 1997; Bumpass and Choe 2004). Investigating and adequately measuring gender ideology is important if we are to understand how people think about gender relations in their everyday lives, and if we are to know what

impact societal-level forces, either broad socio-economic trends or cultural traditions, have on people's opinions toward gender roles.

This project compares the United States and Japan to test whether modern trends in family and work life have produced similar conceptions of gender ideology in both countries, or whether different cultural understandings of the same gender ideology questions remain. Japan and the U.S. provide an engaging comparison for this study because both have undergone similar trends of industrialization, urbanization, and other modernization forces, yet each country retains a unique cultural history with respect to gender ideology (Mason and Lu 1988). Previous work argues that traditional gender ideology is more strongly enforced and encouraged in Japan than in the U.S.; the foundation for this argument comes from Japan's roots in Confucian ideology, patrilineal kinship ties, and approval of the housewife role, compared to the American emphasis on individualism, bilateral families, and low public esteem given to housewives (Kamo 1994; Davis and Greenstein 2004). Over and above these historical differences in the prevalence of traditional ideology, however, the conceptualization of gender ideology itself may vary between the countries.

Due to the separate cultural repertoires that Americans and Japanese have access to regarding the housewife role and the gender division of labor, the same questions purporting to measure gender ideology may not operate equivalently in both settings (Gibbons, Hamby, and Dennis 1997; McHugh and Frieze 1997). These gender ideology questions either may not be equally reliable measures of the same underlying concept, or they may capture different dimensions of gender ideology in each country (Johnson 1998). For example, distinct concepts of equality in the U.S. and Japan could lead to different understandings of an egalitarian attitude. In the U.S., the emphasis on equality of *opportunity* assumes that

individuals with an egalitarian ideology will embrace the role of work for women and downplay the importance of the housewife role, because this allows women to compete equally with men in the public sphere. However, the emphasis in Japan on equality of *results* means that housewives are often considered the equals of their working husbands because both spouses have control over separate domains, such that an egalitarian ideology does not necessarily devalue the housewife role (Suzuki 1991; Iwao 1993; LeBlanc 1999). Differences in measurement between the two cultures must be taken into account before an accurate comparison of gender ideology in the U.S. and Japan is possible.

The difficulty of comparing measures across cultures generally has not been addressed in the sociological literature on gender ideology, even though measurement equivalence is a central concern to psychologists who study gender ideology (Beere 1990; Gibbons, Hamby, and Dennis 1997; McHugh and Frieze 1997; Suzuki 1991). Despite the attention paid to measurement in the psychology literature, it is unclear if the factor structures and measurement equivalence results from these studies are applicable outside of the restricted samples that are surveyed, often undergraduate psychology students. This study uses eight items from the 2002 International Social Survey Program module "Family and Changing Gender Roles III" to test the measurement equivalence of gender ideology in the U.S. and Japan with nationally-representative, population-based samples. Measurement equivalence is not a monolithic concept; there are different levels of measurement equivalence that can exist between two populations (Smith and Davidson 1986). This paper applies multi-group confirmatory factor analysis to examine the equivalence of 1) the underlying factor structures, 2) the strength of the factor coefficients, and 3) the reliability of the gender ideology items across both countries (Watkins 1989).

CHAPTER II

BACKGROUND

Gender Ideology

Some form of a gender division of labor has been found to be nearly universal across societies; it follows that distinct patterns of gendered behavior are an essential component of social life (Basow 1992). Gender ideologies are beliefs about appropriate roles and activities for men and women in many different life domains, including family, politics, education, child care, employment, and romantic relationships (McHugh and Frieze 1997; Gibbons, Hamby, and Dennis 1997). This paper focuses on work and family gender ideologies, two domains that are central in defining gender role behaviors in modern industrial nations such as the U.S. and Japan. A bipolar dimension of gender ideology exists in many cultures that ranges from a traditional ideology on one pole to a modern, egalitarian ideology on the opposite pole (Gibbons, Hamby, and Dennis 1997).

A traditional work/family gender ideology often is centered on the family division of labor, especially the breadwinner/homemaker model, which defines the man's role as working outside the home to provide for his family and the woman's role as working inside the home to take care of her family (Mason, Czajka, and Arber 1976). Traditional beliefs are often justified by arguments for innate differences between sexes and the naturalness or importance of having the mother care for the children (Mason, Czajka, and Arber 1976). An egalitarian gender ideology emphasizes equality between men and women; this can be expressed through the belief that women should compete on equal footing with men in the

labor market, and through valuing domestic and care work in the household such that men should take part in these responsibilities (Suzuki 1991). Egalitarian ideology is supported by beliefs that men and women are equally capable at work and at home, and that both genders have rights as humans to equal treatment in society.

Gender ideology can target beliefs about the self or about others, depending on the research question of interest (Gibbons, Hamby, and Dennis 1997). Studies that conceptualize gender ideology as a motivation for individual behavior, such as a study about the gender division of household labor, emphasize the internalized acceptance of a gender ideology that resides closer to a person's definition of their self or identity (Greenstein 2000; Kroska 2000; Kroska 2002). Research that tracks aggregate-levels changes in gender ideology over time or across nations tends to present gender ideology as a concept that taps into a general social attitude, or belief about what roles "men in general" or "women in general" should have in society (Bumpass and Choe 2004; Crompton and Harris 1997; Mason, Czajka, and Arber 1976; Mason and Lu 1988; Brewster and Padavic 2000; Apparala, Reifman, and Munsch 2003; Baxter and Kane 1995). Despite the loose coupling between attitudes and behavior for many individuals, gender ideology remains an important component of family change because changing attitudes toward gender roles produce a social environment that is conducive to structural change in how gendered behavior is organized (Bumpass 2002; Thornton 1989; Rindfuss, Brewster, and Kavee 1996).

Indeed, more egalitarian gender ideologies are correlated with socio-economic development (Gibbons, Hamby, and Dennis 1997). Common trends in developed industrial nations reduce the benefit of a traditional gender ideology and create pressure for individuals to adopt more egalitarian attitudes (Mason, Czajka, and Arber 1976; Mason and Lu 1988).

Increases in female wages and female labor force participation after World War II have blurred the distinction between the separate spheres of work and family in many developed nations, and produced cognitive dissonance between traditional gender ideology and the reality of women working (Mason, Czajka, and Arber 1976; Thornton, Alwin, and Camburn 1983). Decreases in family size and growing acceptance of childcare facilities have alleviated some of the demands on women of raising children (Mason and Lu 1988; Rindfuss, Brewster, and Kavee 1996). Rising rates of divorce, female-headed households, and persons who never marry have created a large segment of the population for whom the traditional family division of labor is not even a possibility (Mason, Czajka, and Arber 1976; Thornton, Alwin, and Camburn 1983). The closing gap between men and women in education and the influence of various women's movements also open new opportunities for women and increases awareness of these trends (Tsuya et al. 2005; Mason, Czajka, and Arber 1976).

Most of these changes in family and workplace behavior are considered part of the "second demographic transition" (Lesthaeghe 1995; Raymo, Bumpass, and Iwasawa 2004). Gender ideology is an important factor in modernization theory and other theories that address the first and second demographic transitions. According to these theories, during the first demographic transition fertility fell from high to replacement levels because parents began to invest in child quality rather than quantity; ideally, the man worked outside the household sphere as a provider while the woman worked within the household to maintain the quality of life and childcare (Aries 1980). These asymmetrical gender roles were founded on what is now considered a traditional gender ideology. During the second demographic transition, the ideational system shifted to emphasize individual autonomy, self-

fulfillment, and adult relationship quality; these factors generally represent an egalitarian gender ideology because they focus on individual equality, including equal opportunities for men and women (Lesthaeghe 1983; Lesthaeghe 1995). Through the second demographic transition, fertility declines to below replacement levels as more individuals delay marriage or never marry (Lesthaeghe 1995). If the behaviors that fall under the second demographic transition are correlated with both economic development and an emphasis on individual autonomy and egalitarian gender ideology, then it is possible that countries with similar industrialization, urbanization, and demographic histories will also move toward similar concepts of gender ideology.

It is clear that the forces of economic and social change have eroded the average level of support for a traditional ideology across different national contexts (Brewster and Padavic 2000; Tsuya and Mason 1995; Bumpass and Choe 2004). However, it is less apparent whether these trends in family and work life have unified conceptualizations of gender ideology across different cultures, or whether distinct cultural understandings of what defines traditional and non-traditional gender ideologies persist despite these changes. A comparative analysis is necessary to address these questions about the cross-cultural equivalence of gender ideology.

Japan and the U.S. – A Valuable Comparison

This paper adopts a comparative design to examine whether a nation's cultural heritage mediates the impact of social and economic modernization on gender ideology. Attitudes toward work and family life, including gender ideology, change in response to the new work and family realities created by socio-economic development, but these ideological shifts are filtered through different cultural contexts (Rindfuss, Brewster, and Kavee 1996; Bumpass

and Choe 2004). Indeed, the percent agreeing with the traditional attitude that men should earn a living in the public sphere and women should care for the domestic sphere has decreased dramatically over the past 30 years – in the U.S. agreement dropped from 66 percent in 1977 to 38 percent in 1996, and in Japan from 83 percent in 1972 to 29 percent in 1990 (Brewster and Padavic 2000; Tsuya and Mason 1995). Yet the two nations still differ in family behaviors such as cohabitation and divorce, and ethnographic evidence of distinct concepts of equality, independence, and the role of the housewife in the U.S. and Japan suggests that important cultural differences in gender ideology persist (Tsuya and Bumpass 2004; Iwao 1993; LeBlanc 1999). The U.S. and Japan are unique cases especially suited to this analysis because of their similar industrialization, urbanization, and modernization experiences, and their distinct, preexisting cultural understandings of gender ideology (Mason, Tsuya, and Choe 1998; Tsuya and Bumpass 2004).

Industrialization and urbanization are two important potential mechanisms for the homogenization of gender ideologies between Japan and the U.S. during the 20th century. After World War II, Japan's economy grew at a rapid rate, with per capita GNP quadrupling every 10-15 years to become the second largest economy in the world, and the percentage of the population working in agriculture shrank from 49 percent in 1950 to 6 percent in 1995 (Tsuya and Bumpass 2004). The U.S. experienced a similar level of development, but not at such a rapid pace – the U.S. had the world's largest economy by the end of World War II, and the transition from agriculture to industry took place over an extended period of time, with only 3 percent of the workforce employed in farming by 1995 (Tsuya and Bumpass 2004). Japan also underwent rapid urbanization; the proportion living in an urban area increased from 37 percent in 1950 to 78 percent in 1995 (Tsuya and Bumpass 2004). In the

U.S., urbanization gained momentum before World War II, such that 76 percent of the U.S. population lived in urban areas by 1995 (Tsuya and Bumpass 2004). Even though the pacing and time frame of these industrialization and urbanization trends differ between the U.S. and Japan, as part of the modernization process they helped set into motion changes in family and work life that may have also made gender ideologies more similar between the two nations.

One of the most important modernization trends in both Japan and the U.S. has been the increasing number of women entering the workforce as the economy transitions from primary to secondary to tertiary industries (Tsuya and Bumpass 2004). Overall female labor force participation has risen in the U.S. from 44.3 percent in 1965 to 71.0 percent in 1996, and in Japan from 55.8 percent in 1965 to 62.2 percent in 1996[1] (Brewster and Padavic 2000). As the majority of women have entered formal jobs in both countries, the percentage of women with small children who work also has increased in recent decades (Nakamura and Ueda 1999; Tsuya and Bumpass 2004). Declining family sizes have relieved some of the burden of domestic labor – in Japan, the total fertility rate has declined from 4.5 per women in 1947 to 1.3 per woman in 1999, and in the U.S. the total fertility rate fell from its baby-boom peak of about 3.8 per woman in the late 1950s to around the current level of 2.0 per woman (Tsuya and Bumpass 2004).

Delayed marriage has been a prominent factor in this fertility decline. In Japan, the percent of women ages 25-29 who had never married increased from 21 percent in 1975 to 48 percent in 1995; increases in non-marriage at older ages also suggest an increase in the proportion of the population that will never marry (Tsuya and Bumpass 2004). U.S. men and

[1] This trend for female labor force participation in Japan is more substantial than it appears; even though there was only a 6.4 percent increase in overall participation, there was a 33 percent decline in the proportion of women employed in farm or family businesses and 37 percent increase in the proportion of employed women in formal sector jobs (Tsuya and Bumpass 2004).

women are also delaying marriage, even though they still marry at younger ages than the Japanese. Between 1975 and 1995, the proportion of U.S. women ages 20-24 that remained single increased from 40 to 67 percent (Tsuya and Bumpass 2004). The gender gap in education has closed in both countries as well, especially in the number of women pursuing higher education – college attendance increased dramatically in the U.S. and Japan over the past several decades, and now more women than men enter higher education in both nations (Tsuya and Bumpass 2004). The work/family balance has shifted significantly in both contexts, such that many more women are postponing the responsibilities of marriage and childbearing until later in the life course, and pursuing degrees and jobs that they will continue even after starting families. These behavioral changes help to undermine the traditional justifications of gender ideologies, and may also indicate a transformation of beliefs about gender roles that has created the context for changing behavior.

However, not all demographic trends fit nicely into the narrative of an increasing emphasis on individual autonomy and rejection of traditional gender roles. Rising rates of divorce, cohabitation, and non-marital childbearing are also changes in the family associated with the second demographic transition. These behaviors have increased substantially in the U.S. since World War II, but Japan has lagged behind in all three – divorce did grow some in the 1990s, but cohabitation and non-marital childbearing are almost nonexistent (Raymo, Bumpass, and Iwasawa 2004; Tsuya and Bumpass 2004).[2] Divorce, cohabitation, and having children outside of marriage are family behaviors that deviate further from traditional ideology than simply having fewer children or delaying marriage; the absence of these more deviant changes in Japan suggests that the growth of individualistic attitudes associated with

[2] Although, there is evidence that divorce, cohabitation, and non-marital childbearing are under pressure to increase in Japanese society (Rindfuss et al. 2004).

economic development still is constrained by the collectivist orientation and traditional gender role expectations of Japanese society (Raymo, Bumpass, and Iwasawa 2004; Atoh 2001).

Ethnographic accounts of women's lives in Japan also call attention to persistent differences in how the Japanese think about the role of the housewife and the concepts of equality and independence. In general, in Japan the family is assumed to exist as an independent entity that individuals must make personal sacrifices to maintain; in the U.S., the family nurtures and protects individual members, but does not exist separate from these individual relationships (Steinhoff 1994). Consequently, the role that women perform as housewives is more highly valued in Japan relative to the U.S., because Japanese housewives sacrifice career ambitions to function as the center of the family and serve as the representatives of their families who form and fulfill interpersonal obligations within the community (LeBlanc 1999). Japanese husbands are more likely to admit dependence on their wives, and "professional housewives" and employed men are culturally positioned as complementary and equal to each other (Iwao 1993).

Traditional gender roles are more often considered equal in Japan if the benefits and costs of each role offset each other over the long-term course of a relationship; this emphasis in Japan on the equality of resources or results differs from the typical U.S. focus on equality of opportunity (Iwao 1993; Suzuki 1991; Gibbons, Hamby, and Dennis 1997). For many Americans equality means that two individuals share the same opportunities and rewards in life; this concept is founded on the core American ideal that every person should have an equal chance at success and fulfillment (Iwao 1993; Suzuki 1991; Gibbons, Hamby, and Dennis 1997). These separate cultural understandings of equality mean that a Japanese

individual may believe that men and women should be treated equally in society, but not necessarily adopt what an American would consider an egalitarian gender ideology.

Another cultural fault line between the U.S. and Japan is the place of independence in gender ideology. Even though housewives do not earn nearly as much income as their husbands, most Japanese housewives control their household's budget, and forty percent of Japanese housewives consider themselves to be economically independent (Iwao 1993). Furthermore, a growing number of Japanese who hold otherwise egalitarian gender ideologies do not believe they will find independence by following men into the workplace, given the expected overtime hours and social obligations of a full-time job in Japan (Yamaguchi 2000). These individuals think that women should not be kept out of work and politics because of childcare or other household responsibilities, but they do not see the public sphere as offering the same opportunities for self-fulfillment as the private sphere; it is men's role as providers that is considered rigid and unrewarding (Yamaguchi 2000; Iwao 1993).

In the U.S., the concept of independence in relation to gender ideology is more closely tied to economic independence, such that earning power and the bargaining power that comes with money and public status are what determine an individual's sense of independence (Strober and Chan 1999; Brines 1994). It is therefore possible that questions addressing the link between work and independence may capture different dimensions of gender ideology in Japan and the U.S.

Similar trends in industrialization, urbanization, and family behaviors in the U.S. and Japan clearly have been linked to a fundamental shift away from traditional gender ideologies. What is less clear, however, is whether these shared histories of development in

the two nations have transformed the distinct cultural understandings of individual autonomy, the role of the housewife, equality, and independence in relation to gender ideology. Before mean differences in gender ideology can be compared between the countries, the measurement of gender ideology must be equivalent in the two cultures. If cultural differences remain strong between Japan and the U.S., measurement equivalence may not be achieved, even with the same survey items.

Cross-Cultural Measurement Equivalence

The different cultural repertoires that inform the gender ideologies of Americans and Japanese highlight the need to examine closely whether an equivalent concept of gender ideology can be constructed between the two countries. The same questions designed to measure gender ideology may operate differently across these cultural contexts. Many studies in the sociological literature on gender ideology pay little attention to the measurement of this attitudinal variable, simply adding together any gender ideology questions from the survey instrument to form a scale. This practice implicitly assumes that gender ideology is a single latent factor that is measured with equal reliability by all items – a questionable proposition especially when investigating gender ideology across cultures (Smith and Davidson 1986; Gibbons, Hamby, and Dennis 1997). Cultural differences in ideas about gender and the family may lead to nonequivalent measurement of gender ideology because the meaning of the questions, the relevance of questions, or the clarity of the question translation may vary between cultural contexts (Braun and Scott 1998).

Social psychologists have been much more attentive to the psychometric properties of gender ideology questions. They have constructed hundreds of scales, some of which have been proven to be equivalent across nations and cultural settings (Beere 1990; Suzuki 1991).

However, to achieve the measurement qualities desired, these scales can be quite lengthy, with even the shortened versions containing between 15 and 20 items. Often social psychology studies draw from a restricted sample of college undergraduates; therefore, it is difficult to determine if these established scales are valid for the broader population. The financial and logistical constraints of survey research generally prevent a complete, psychometrically sound scale of gender ideology from being included on a large omnibus questionnaire administered to a representative sample of the population. Instead, the items included in large-scale survey data are not designed as a specific scale of gender ideology. Since multiple indicators of a latent concept such as gender ideology are needed to account for measurement differences between groups, cross-cultural survey research generally has not had adequate data to address measurement issues. However, the generalizable nature of survey research provides a strong incentive to use the data despite the difficulties.

Equivalent cross-cultural measures of gender ideology are needed to ensure that the subsequent analyses reveal true differences in gender ideology between the populations, rather than differences due to measurement error in the items (Watkins 1989; Braun and Scott 1998). This measurement error can come from different reliabilities of the items in measuring the same latent dimensions of gender ideology, or from the fact that the same items may capture different underlying dimensions of gender ideology in the two nations (Smith and Davidson 1986; Johnson 1998). Measurement equivalence is not a monolithic concept, and these different types of measurement errors operate at separate levels of measurement equivalence. These multiple levels of measurement equivalence can be demonstrated through a series of increasingly strict assumptions about which specific parameters of the model are invariant between the two populations.

Configural invariance tests whether the dimensions of gender ideology specified in the model are the same across groups; factorial invariance tests whether the factor loadings of the items on the latent dimensions of gender ideology are equal across groups (Smith and Davidson 1986). Stronger tests of invariance check for equal variance of the factors and equal error variances of the indicators across groups; if this last condition can be met, then the items have equal reliabilities in both samples (Smith and Davidson 1986). When interpreting differences in gender ideology between the two cultures, the higher the level of measurement equivalence, the more confidence the researcher can have that measurement error does not bias the results.

Accounting for variance in measurement in cross-cultural research is not merely methodological. The forces of social change associated with industrialization and modernization have overcome strong cultural differences between the two nations if equivalence is found for gender ideology in the U.S. and Japan. If gender ideology is not equivalent between cultures, this also highlights valuable substantive information on differences in cultural understandings of gender ideology that might be missed in a study that does not examine measurement issues.

CHAPTER III

DATA, HYPOTHESES, AND METHODS

Data

The data for this paper come from the 2002 International Social Survey Programme (ISSP) module "Family and Changing Gender Roles III." The ISSP is a centralized effort among 39 countries to administer a set of questions on a specific topic every year in each country's equivalent of the General Social Survey. The questionnaire is originally drafted in British English and then translated into the languages of each country. The survey for Japan was administered in Japanese; the survey for the U.S. was administered only in English. The data collection took place in November 2002 in Japan and February-June 2002 in the U.S. The surveys were conducted by different research teams, but they shared similar designs; both stratified urban and rural areas based on similarities in local features and industrial structures, then selected sampling units (blocks or parts of blocks) within the strata and sampled respondents at random within the block units.

The samples from the U.S. and Japan are both representative of the non-institutionalized national population over 18 years old, and the demographic characteristics of each sample compare favorably with national population data. Surveys in both countries were conducted during face-to-face interviews, although GSS respondents in the U.S. were given a self-administered questionnaire for the ISSP module questions in the interview. There are 1132 cases for Japan, and there are 1171 cases for the U.S. I select only the respondents who gave valid responses to all eight gender ideology items. My final sample includes 1940

respondents – 1025 from the U.S. and 915 from Japan. These data were released in November 2004; previous cross-national work on the U.S. and Japan uses surveys from the mid-1990s, so this paper utilizes the most current data available. The Family and Changing Gender Roles module also provides more gender ideology items than many other surveys.

Gender Ideology Measures

Gender ideology is measured by a series of eight questions about gender role attitudes. Each gender ideology item is a five-point Likert scale from strongly agree to strongly disagree on the original questionnaire. For an unknown reason, the 2002 GSS omitted the category "disagree" from the gender role items on the ISSP questionnaire, so to maintain balance among the items, responses for "disagree" and "strongly disagree" are collapsed into one category in both countries, as are responses for "agree" and "strongly agree". This should also minimize the impact of different response styles that may be present in the two groups, with American respondents more likely to choose the extreme categories than Japanese respondents (Chen, Lee, and Stevenson 1995).

All items are recoded so that higher response categories represent more non-traditional or egalitarian gender ideologies. The items were translated from the English into Japanese by the research team and a translation bureau in Japan; my own informal back-translation with a native Japanese speaker revealed the questions to be clear and meaningful measures of gender ideology in Japan. The first two gender ideology items have been used in previous surveys including the General Social Survey and the National Fertility Survey, but to the best of my knowledge none of the eight items are part of a previously validated gender ideology scale.

Gi1: A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.

The core of this item and the following two items is that working does not harm the quality of the relationships a woman has with other family members, and that she can succeed in both her employee and mother roles. This item equates work with paid labor; it also fails to specify the age of the children, both of which may influence how a woman's work affects her relationship with her children (Brewster and Padavic 2000). In the Japanese version, work is specified as work outside the house, and "secure" translates roughly to our concept of "stable" in the U.S.

Gi2: A pre-school child is likely to suffer if his or her mother works.

This item specifies the age of the child, an improvement over the first item. Again, the nature of the work is not defined in the English version, and the seriousness of the suffering the preschooler will endure is somewhat ambiguous (Brewster and Padavic 2000). The Japanese translation of "suffer" provides a more precise interpretation: a mother who works will be unable to meet the mental/psychological needs of her preschool child.

Gi3: All in all, family life suffers when the woman has a full-time job.

This item distinguishes between the effects on the family of a woman's full-time job vs. a part-time job. Again, the seriousness of the suffering is unclear, as is whether or not the family includes children. In this item, "suffer" is translated into Japanese to connote a risk of a disturbance in family life.

Gi4: A job is all right, but what most women really want is a home and children.

This question and the following two questions probe work and household roles as sources of personal fulfillment for women. This fourth item compares the choice between work and family roles without assuming that women can choose only one. However, the item is also a

double-barreled question – respondents could agree that a job is all right, but disagree that most women care more about family.

Gi5: Being a housewife is just as fulfilling as working for pay.

This item does specify "working for pay" as opposed to simply "working." The term "fulfilling" in English could be interpreted as a sense of accomplishment, a source of happiness, personal satisfaction, or self-esteem. The Japanese term used for "fulfilling" (*jyuujitsu*) was difficult to translate back into English, but its meaning – filling up with personal, emotional satisfaction – does carry over into the Japanese version.

Gi6: Having a job is the best way for a woman to be an independent person.

This question does not clarify whether "independence" is financial, emotional, or independence from a husband, children, or household responsibilities. Independence is adequately translated into the Japanese, but as previously discussed the cultural understanding of independence can vary greatly between the two countries. A woman in Japan who still lives with her parents and takes care of family and friends may find independence in creating warm, close bonds with others rather than acting as an autonomous individual.

Gi7: Both the man and woman should contribute to the household income.

This item and the next tap into beliefs about the appropriate gender division of labor. The previous six items focused on exclusively on women's roles; these last two questions include men. However, this item does not specify whether a man should contribute to the household work, and this may miss an important aspect of the gender division of labor.

Gi8: A man's job is to earn money; a woman's job is to look after the home and family.

The final item is a version of one of the most widely tested aspects of gender ideology: the belief in separate spheres for men and women. This item tests the definition of a traditional gender ideology regarding work and family roles. It is unclear whether looking after the family implies childcare, and "look after" is an informal phrase that may downplay the work women are responsible for in the household.

Hypotheses

A series of hypotheses guides the analysis to test whether these eight survey items reveal a common concept of gender ideology between the U.S. and Japan, or whether country-specific differences remain in the measurement of gender ideology.

Each hypothesis specifies a factor structure for the latent dimension(s) of gender ideology captured by the eight items; each of these hypotheses is tested for increasingly strict definitions of measurement invariance.

Hypothesis 1: A single dimension of gender ideology exists that ranges from traditional to egalitarian attitudes and is equivalent in both the U.S. and Japan.

This hypothesis tests the assumptions made in many studies that create an additive scale of gender ideology items; if the reliabilities of the items measuring a unidimensional concept of gender ideology prove to be equivalent in both cultures, then creating a scale with these items would be justified. This first hypothesis also explores whether a common single dimension of gender ideology exists despite the preexisting cultural differences between the U.S. and Japan.

Hypothesis 2: Three dimensions of gender ideology are captured by the eight items: "working women and relationship quality," "personal fulfillment for women," and the "gender division of labor." This factor structure is equivalent in the U.S. and Japan.

This hypothesis relaxes the assumption that all eight items capture a single dimension of gender ideology. The items Gi1, Gi2, and Gi3 all load onto the first factor, which is labeled as "working women and relationship quality." The items Gi4, Gi5, and Gi6 are indicators of the second factor, "personal fulfillment for women." Items Gi7 and Gi8 load onto the third factor, "gender division of labor." There is evidence from previous research that Gi1 and Gi2 belong to a common dimension of gender ideology (Brewster and Padavic 2000; Mason and Bumpass 1975), but the designation of the other factors is based on arguments that women's movements have made. The first argument tries to undermine the belief that her working outside the home hurts a woman's family; the second argues that paid work is a more important source of identity and status for women than family work; and the third claims that the traditional gender division of labor is no longer valid. If these three dimensions of gender ideology are equivalent in the U.S. and Japan, it shows that gender ideology is a somewhat weaker concept broken up into separate dimensions, but that these feminist arguments associated with the entrance of women into the workforce have been equally influential in two very different cultural settings.

Hypothesis 3: Different dimensions of gender ideology are captured by the same questions in the U.S. and Japan. In Japan, the first factor "working women and relationship quality," remains the same, but the other two factors shift to become "valuing housewife role" and "valuing working woman role."

The assumptions of configural equivalence are abandoned here in an attempt to define different gender ideology models based on the distinct cultural contexts of the U.S. and Japan. For the U.S., the factor structure remains the same as in Hypothesis 2, under the assumption that these factors represent the American emphasis on the individual and gender

equality. For Japan, the first "working women and relationship quality" factor does not change, but Gi8 switches to a factor with Gi4 and Gi5 to capture all the questions about the value of the housewife role, and Gi6 now loads with Gi7 on a factor that measures the value placed on the working woman role. This separate model reflects the emphasis placed on the housewife role in Japanese culture, and makes the approval of household and work roles for women two independent dimensions of gender ideology.

Analysis

Confirmatory factor analysis (CFA) is used to test these hypotheses on the measurement invariance of gender ideology in the U.S. and Japan. Other methods such as multidimensional scaling and exploratory factor analysis also provide a picture of the latent factor structure underlying the gender ideology items, but these methods cannot incorporate formal hypothesis tests regarding the different levels of measurement invariance (Watkins 1989; Braun and Scott 1998). Because CFA uses theoretical knowledge to predict the covariance structure of the model, multiple indices are available to test whether the observed data fit the predicted model structure, including measurement invariance between different groups (Bollen 1989).

The multiple-group CFA model is specified by the equation:

$$\mathbf{x}_{(g)} = \mathbf{\Lambda}_{x(g)}\xi_{(g)} + \boldsymbol{\delta}_{(g)}$$

where $\mathbf{x}_{(g)}$ = vector of observed indicators
$\mathbf{\Lambda}_{x(g)}$ = vector of factor loadings measuring impact of latent factor on observed indicators
$\xi_{(g)}$ = vector of latent factors
$\boldsymbol{\delta}_{(g)}$ = vector of disturbance terms for observed indicators
$\mathbf{\Phi}_{(g)}$ = covariance matrix of $\xi_{(g)}$
$\mathbf{\Theta}_{\delta(g)}$ = covariance matrix of $\boldsymbol{\delta}_{(g)}$

and $_g$ denotes group membership, e.g., Japan or U.S.

Model fit is assessed by comparing the CFA model's implied covariance structure matrix $\boldsymbol{\Sigma}$ with the observed covariance structure matrix $\boldsymbol{\Sigma(\theta)}$, such that $\boldsymbol{\Sigma} = \boldsymbol{\Sigma(\theta)}$.

Different levels of measurement equivalence are tested by assuming that certain parameters are invariant across groups. To test configural invariance, only the pattern of fixed and free parameters in the covariance structure matrix, which defines the predicted factor structure of the model, is held constant across groups. To test factorial invariance, the vector of factor loadings $\boldsymbol{\Lambda_x}$ is held constant across groups. To test the equivalence of the factor variances and covariances, $\boldsymbol{\Phi}$ is assumed to be the same across groups; to test the equivalence of error variances, $\boldsymbol{\Theta_\delta}$ is forced to be equal across groups. If the model that includes all of these invariance restrictions still fits the data, this is evidence that the same latent factors are measured with equal reliability by the same indicators across different groups (Smith and Davidson 1986).

The eight gender ideology indicators selected for this analysis are ordinal variables instead of continuous variables, and this violates several assumptions of the typical CFA model. Because of the categorical nature of the observed indicators, the measurement model fails because $\mathbf{x}$ is assumed to be a vector of continuous variables (Bollen 1989). This problem is solved by introducing an auxiliary measurement model that includes continuous latent indicator variables ($\mathbf{x}^*$) between the latent factors ($\boldsymbol{\xi}$) and the observed categorical indicators ($\mathbf{x}$), so that each categorical indicator is an estimate of thresholds along a latent continuous indicator (see Figure 1; zigzag arrows indicate nonlinear relationship). Even if there is excessive kurtosis in the observed categorical indicators, the new latent continuous indicators ($\mathbf{x}^*$) can still have a multinormal distribution. The categorical indicators also violate the moment structure hypothesis, or $\boldsymbol{\Sigma} = \boldsymbol{\Sigma(\theta)}$, because of the nonlinear relationship between the

observed indicators and the latent factors. A polychoric correlation matrix containing estimates of the correlations between each pair of latent indicator variables ($\mathbf{x}^*$) is used to correct for this nonlinear relationship (Bollen 1989). Finally, the distributional assumptions of the maximum likelihood estimator used in traditional CFA no longer hold with categorical indicators; this can be fixed by using a diagonally weighted least squares estimator to produce the correct standard errors for the model, which are required to perform valid significance tests (Bollen 1989).

The CFA analyses for this paper are estimated using MPLUS software, which includes functions for incorporating multiple groups into the analysis and correcting for the violations of normal assumptions that occur when using categorical indicators in CFA models (Muthen and Muthen 1998-2004). MPLUS also produces multiple indicators of model fit. The chi-squared statistic can be used to test whether the implied covariance structure matrix is significantly different from the observed covariance structure matrix; if this null hypothesis is not rejected, then it is probable that the model fits the data (Bollen 1989). However, the chi-squared test is sensitive to sample size, with larger samples leading to larger test statistics. With a sample size of 1940 respondents for the analyses in this paper, it is likely that all models tested will have a significant chi-squared test statistic. However, a series of alternative measures of model-data fit are available that are not as influenced by large samples (Bollen 1989). The Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) both have a value of 1 with an ideal model fit, and values below 0.9 indicate inadequate model fit. The Root Mean Square Error of Approximation (RMSEA) has a value of 0 for a perfectly fitted model, and 0.10 or more for a poorly fit model. Rather than relying on a

single indicator, a case for whether or not a model fits can be made from looking at the array of available measures.

If all three hypothesized model structures fail to fit the data, exploratory factor analysis (EFA) will be used to further investigate differences in the factor structure of gender ideology in Japan and the U.S. The possibility that the underlying structure of gender ideology differs between men and women as well as by country will also be explored. Although EFA provides a useful picture of the correlations and possible factors that exist in the data, the model is indeterminate and unique estimates of model parameters cannot be obtained (Bollen 1989; Watkins 1989). Measurement invariance also cannot be determined using EFA (Watkins 1989). Therefore, revised CFA models can be tested for measurement invariance between the U.S. and Japan using the factor structures uncovered in the EFA analyses. However, if these revised models are necessary, they will be exploratory results with the possibility that they are capitalizing on correlations that exist within the one sample available, but not necessarily the population as a whole (Bollen 1989).

CHAPTER IV

RESULTS

Descriptive Analysis

The frequency distributions of the eight gender ideology items are presented in Tables 1 and 2 by country and gender, since responses are likely to differ between men and women as well as between the U.S. and Japan. Figure 2 also presents a picture of the average gender ideology responses for each group, where 0 represents all traditional responses and 2 represents all nontraditional responses. On the first gender ideology item, "A working mother can establish just as warm and secure a relationship with her children as a mother who does not work," the U.S. women give the most nontraditional responses with 79 percent, though Japanese women have a similar response. Japanese men are somewhat more traditional than women in both countries, and U.S. men are the most traditional, with about two-thirds providing a nontraditional answer. However, this question elicited the most nontraditional responses of all the gender ideology items in both the U.S. and Japan, perhaps because it affirms the positive aspects of a woman's ability to excel at work and in the home.

Japanese men and women are most likely to disagree with the second gender ideology statement, "A pre-school child is likely to suffer if his or her mother works," followed closely by U.S. women. The main distinction is between U.S. men, who give more traditional than nontraditional responses to this item, and the other three groups, who provide more nontraditional than traditional responses. The third gender ideology item, "All in all, family life suffers when the woman has a full-time job," shows a very similar pattern to the

second question, with U.S. men adopting more traditional attitudes and U.S. women and Japanese men and women giving more nontraditional answers. U.S. men appear to be retaining a more traditional gender ideology than the other three groups when the dimension is the consequences of women's work for family life, but in general it seems that egalitarian attitudes are prevalent in both countries. The results for Japan are intriguing because behavior contradicts these nontraditional attitudes; fewer women, especially mothers, work in Japan than in the U.S., and it is generally considered harder to combine work and family responsibilities in Japan than in the U.S. (Tsuya and Bumpass 2004; Rindfuss et al. 2004).

In response to the fourth gender ideology item, "A job is all right, but what most women really want is a home and children," U.S. women are the most nontraditional, with 37 percent disagreeing with the statement. U.S. men and Japanese women are both more traditional than U.S. women and Japanese men for this fourth item, although Japanese women are more polarized between traditional and nontraditional responses than the U.S. men. Many Japanese women still accept the centrality of the housewife role, even though Japanese men respond in less traditional ways to this item.

The responses to the fifth gender ideology question, "Being a housewife is just as fulfilling as working for pay," are most clearly split by country, with U.S. respondents more nontraditional than Japanese respondents. Overall, the majority of individuals from both nations affirmed this positive statement of the traditional housewife role. For the sixth gender ideology item, "Having a job is the best way for a woman to be an independent person," women hold slightly more nontraditional attitudes than men in both countries, but about half of all respondents agree with this nontraditional statement.

Responses to the seventh gender ideology item, "Both the man and woman should contribute to the household income," indicate that the majority of U.S. men and women agree that both should be working for pay. Over half of Japanese women also hold this nontraditional attitude; Japanese men are the least likely to agree that women should be contributing income. The eighth gender ideology item, "A man's job is to earn money; a woman's job is to look after the home and family," is a statement that has been used extensively to measure the separate spheres concept at the core of a traditional gender ideology. U.S. women are the most likely to reject this belief in separate spheres, with 60 percent giving a nontraditional response. Japanese women are more traditional than U.S. women, but it is the men from both countries who continue to express the most agreement with this traditional statement about gender roles. Men may now believe that women can work outside of the home, but many men are not relinquishing their claim to be the primary breadwinner.

These descriptive results demonstrate the importance of having multiple indicators of a broad concept like gender ideology, especially when considering different cultures. The average responses to the eight gender ideology items provide initial evidence that gender ideology is not a single unified concept, but may contain distinct dimensions. Respondents can hold views that would be contradictory if gender ideology was captured by a single dimension; those who agree that women can combine outside work and household work may not believe that paid work is essential to a woman's identity or independence, or that traditional gender roles are no longer valid. In general, respondents are the most nontraditional when being asked about the positive aspects of the working woman role (Gi1, Gi6) and most traditional when being asked about the positive aspects of the housewife role

(Gi4, Gi5). The complexity of these results for the eight gender ideology items when split by group indicates all that a single item measure of gender ideology would miss.

Confirmatory Factor Analysis Models

The first confirmatory factor analysis model tests hypothesis 1: a single dimension of gender ideology exists and is equivalent in the U.S. and Japan. All multiple group CFA models at first will only be held to configural invariance assumptions, the "lowest bar" for measurement equivalence. Identification for this model is established by the Three Indicator Rule (Bollen 1989). Figure 3 presents the factor loadings and r^2 values for the eight gender ideology items with the restriction of configural invariance; Table 3 provides fit statistics for the model.[3] The fit indices from the multiple group analysis indicate whether or not the measurement invariance assumptions tested by the model are appropriate across the groups.

The significant p-value of 0.00 suggests that the model does not fit the data, but this could be due to the large sample size rather than a poorly fitting model. Instead, this paper will focus on the Confirmatory Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Squared Error of Approximation (RMSEA). The CFI value of 0.773 and the TLI value of 0.797 both fall well below the accepted threshold of 0.900; the RMSEA value of 0.147 is also above the 0.100 threshold for a poorly fitting model. Therefore, all measures of model fit suggest that hypothesis 1 fails; a single dimension of gender ideology does not adequately fit the responses to the eight gender ideology items. Table 3 also provides fit statistics for the single dimension model run separately for each country; this model is not adequate in either nation, but it has a considerably poorer fit in Japan than in the U.S.

[3] All CFA models were run using the Categorical option in MPLUS, which includes the auxiliary measurement model with latent indicators, polychoric correlation matrix, and diagonally weighted least squares estimator to correct for the use of categorical indicators; the intermediary latent indicators are omitted from the CFA diagrams to simplify presentation of the results.

Hypothesis 2 relaxes the unidimensionality assumption of hypothesis 2 to predict three dimensions of gender ideology in the U.S. and Japan – "Working Women and Relationship Quality," "Personal Fulfillment for Women," and "Gender Division of Labor." This model is also identified based on the Two Indicator Rule. Figure 4 illustrates this three dimension gender ideology model; Table 4 presents the fit statistics for the multiple group CFA analysis under the restrictions of configural invariance. With a CFI of 0.835, a TLI 0.820, and an RMSEA of 0.132, there is some evidence that the three dimension model improves upon the fit of the unidimensional model across the U.S. and Japan. However, the failure of these fit indices to reach their accepted thresholds also suggests that the assumptions of configural invariance are violated by this three dimension model, and the factor structure of gender ideology must differ between the U.S. and Japan.

Hypothesis 3 abandons measurement equivalence between the U.S. and Japan, and tests the predicted country-specific gender ideology models. For the U.S., this model is the same as the hypothesis 2 model; in Japan, items Gi6 and Gi8 switch places to redefine the second two factors as "Valuing Housewife Role" and "Valuing Working Woman Role." The models in both countries are identified because of the Two Indicator Rule (Bollen 1989). Figure 5 and Table 5 present the results from these separate models. The fit statistics for the U.S. model – CFI of 0.873, TLI of 0.844, and RMSEA of 0.149 – again do not meet their accepted thresholds, which suggests that the hypothesized model is not adequate and another factor structure must underlie gender ideology in the U.S. The model predicted for Japan is more successful; the CFI value of 0.927 and the RMSEA value of 0.072 are both good enough to suggest an adequate model fit, although the TLI value of 0.887 indicates a poorer fit. Despite the improvements in model fit made by separating the models for the U.S. and Japan, there is

not strong evidence that any of the predicted models should be accepted as capturing the latent structure of gender ideology.

Exploratory Factor Analysis Models

Because the hypothesized factor structures did not adequately fit the gender ideology responses, further revision of the models is necessary. Tables 6 and 7 present the results of exploratory factor analyses conducted for the U.S. and Japan, respectively. For both countries, a three factor solution is most consistent with the data.[4] Although the exploratory factor model is underidentified and the parameters should not be interpreted directly, the relative magnitude of the factor loadings provides clues to the underlying dimensions of the eight gender ideology items in the U.S. and Japan.

The first three items (Gi1, Gi2, and Gi3) all load particularly well on the first factor in the U.S., with much weaker relationships to the second two factors. This aligns with the previous hypothesis that these items together capture a dimension of "Working Women and Relationship Quality." The second factor identified by the U.S. model has the strongest influence on Gi6 and Gi7, which appear to express a dimension of gender ideology first hypothesized to exist in Japan – "Valuing Working Woman Role." The largest factor loadings for the third factor belong to Gi4 and Gi5, as well as Gi8; these three items defined the "Valuing Housewife Role" factor in the previous Japan-specific model, but there is now exploratory evidence that this dimension exists in the U.S. data.

The final gender ideology item, Gi8, loads about equally on the first and third factors in the EFA model. Considering this separate spheres item as one of the most global statements of a traditional gender ideology, it is plausible that a more complex factor structure exists in

[4] In the U.S., the root mean square residual for a one factor model is 0.136, a two factor model is 0.090, and a three factor model is 0.025. In Japan, the value for a one factor model is 0.111, a two factor model is 0.060, and a three factor model is 0.037.

which Gi8 captures both the first and third dimensions. However, it is more theoretically compelling for the separate spheres item to be grouped with the third dimension and the other statements of support for the traditional housewife role (Gi4 and Gi5) than with the first dimension and the three items that measure the impact of a working woman on her family (Gi1, Gi2, and Gi3), because Gi8 lacks the component of relationship quality. In the revised gender ideology model for the U.S., the more complex factor structure must significantly improve the fit of the model to be accepted over the more parsimonious and theoretically plausible factor structure with Gi8 only included in the "Valuing Housewife Role" factor.

In the exploratory analysis for Japan, there are potentially five gender ideology items that fit the first dimension. As in the U.S., the first three items (Gi1, Gi2, and Gi3) have the largest factor loadings for this dimension, and the separate spheres item (Gi8) is connected to both the first and third dimensions in the EFA model. Also, as hypothesized previously for Japan, Gi6 and Gi7 capture the same factor, "Valuing Working Woman Role." The third dimension is most closely associated with Gi4, as well as Gi8; these two items measure not only approval of the housewife role, but also the primacy of household duties for women. The major difference between the EFA models for the U.S. and Japan is Gi5, "Being a housewife is just as fulfilling for pay," which loads most strongly in Japan on the first rather than the third dimension in Japan. The factor loading for Gi5 is negative, suggesting that Japanese respondents who believe working women can maintain the quality of their family relationships also believe that the housewife role is as fulfilling as working outside of the home.

It is less clear what the first dimension in the Japan EFA model measures if it includes Gi1, Gi2, Gi3, Gi5, and Gi8 – perhaps a more abstract notion of the choice between

housewife and employee roles. What is more likely is that Gi5 is a less reliable indicator of any dimension of gender ideology in Japan, switching factors and showing a negative coefficient because of cultural ambivalence towards the employee role as a source of personal fulfillment and ambition for Japanese women. These exploratory results suggest that the revised confirmatory models for Japan and the U.S. need to focus on Gi5 as a key indicator that may not measure the same aspect of gender ideology in both cultural contexts.

Revised Confirmatory Factor Analysis Models

Based on the results of the exploratory factor analysis models, reformulated gender ideology models are now tested separately in the U.S. and Japan using confirmatory factor analysis to produce identified model parameters. However, because these CFA models are based on the previous data exploration rather than prior theoretical knowledge, the revised CFA models may capitalize on correlations present in the sample and violate the assumptions of the hypothesis testing procedure (Bollen 1989). Therefore, the following results present a clearer picture of the measurement of gender ideology in this sample, but it is harder to know if these findings can be generalized to the larger populations. Further work can confirm or disprove these CFA models derived from EFA results.

Figure 6 and Table 8 present the results of the revised CFA models for the U.S. and Japan.[5] Both models are identified using the Two Indicator Rule (Bollen 1989). The revised U.S. model includes three dimensions of gender ideology: "Working Women and Relationship Quality," "Valuing Housewife Role," and "Valuing Working Woman Role." With a CFI of 0.932 and a TLI of 0.923, there is a much stronger case that the new U.S.

[5] CFA models for the U.S. and Japan that allowed Gi8 to load on both the first and second factors did not significantly improve the fit of the models. Also, possible violations of measurement equivalence between gender and age cohort groups within each country were tested; factor variance invariance was found for both multigroup analyses.

model – which is also the model formerly predicted for Japan – is a better fit than the former U.S. model. The RMSEA value of 0.105 does not quite reach the 0.100 threshold, so there remains some evidence that this model does not fit the data perfectly. All of the factor loadings are statistically significant at the 0.01 level, and all of the indicators have reasonably high r^2 values, with the exception of Gi5 and Gi6 which explain the least amount of variance in their latent factors. All three factors have positive and statistically significant correlations with each other, suggesting that the eight survey items measure separate but related dimensions of gender ideology (results not shown).

The revised gender ideology model for Japan also contains three factors: "Choice Between Housewife and Employee Role," "Primacy of Housewife Role," and "Valuing Working Woman Role." The CFI value of 0.939, TLI value of 0.919, and RMSEA value of 0.061 all show an improvement over the previous model for Japan, and these statistics suggest that the revised CFA model provides an adequate fit to the data. However, some reservations about this model remain. As in the U.S., Gi5 and Gi6 explain the least variance in their latent factors in Japan. Gi5, or "Being a housewife is just as fulfilling as working for pay," has the negative factor loading also found in the exploratory factor analysis. All factor loadings in the CFA model for Japan are statistically significant, with the exception of Gi6, "Having a job is the best way for a woman to be an independent person." Also, there is no significant correlation between the factors "Choice Between Housewife and Employee Role" and "Valuing Working Woman Role," which implies that these dimensions operate independently in Japan and may not represent a single underlying gender ideology.

Although the fit statistics suggest this revised CFA model provides an adequate fit to the data, there is evidence that the items addressing women's independence and fulfillment in the

housewife role are less dependable than other measures of gender ideology in Japan. One potential solution to this problem, and also to the lack of configural invariance between the U.S. and Japan models, is to exclude Gi5 from the analysis. This step eliminates the indicator that has the least explanatory power in both countries, and establishes the same factor structure for the U.S. and Japan, which allows further tests of measurement invariance.

The resulting model has the same three-factor structure in both nations: "Working Women and Relationship Quality," "Primacy of Housewife Role," and "Valuing Working Woman Role." This model is identified by the Two Indicator Rule (Bollen 1989). Figure 7 and Table 9 present the results for the revised CFA model that omits Gi5, run separately for each country. For the U.S., the CFI value of 0.982 and the TLI value of 0.978 provide strong evidence of good model fit; the RMSEA value of 0.062 also indicates an okay model fit. For Japan, a CFI of 0.957, TLI of 0.936, and RMSEA of 0.060 suggest that omitting Gi5 produces a model with good fit, which is an improvement over the model that includes Gi5.

Table 10 provides fit statistics for increasingly strict levels of measurement invariance between the U.S. and Japan with the revised gender ideology model omitting Gi5. These indices indicate the fit of the model in both countries given the measurement equivalence assumptions; evidence of good model fit demonstrates that measurement invariance is not violated at each level. Again, all chi-squared test statistics are significant, so I focus on the remaining three fit indices.

For configural invariance, the CFI value is 0.979, the TLI value is 0.974, and the RMSEA value is 0.056; therefore, there is evidence of good model fit and evidence that the imposed factor structure of gender ideology does not vary significantly between the U.S. and Japan. For factorial invariance, a CFI of 0.979, a TLI of 0.977, and an RMSEA of 0.053 indicate

that the magnitude of the factor loadings is invariant across the two countries. For factor variance invariance, a CFI of 0.977, a TLI of 0.977, and an RMSEA of 0.053 suggest that the variances of the latent factors are equivalent in both nations. Finally, for error variance invariance, a CFI of 0.976, a TLI of 0.976, and an RMSEA of 0.054 all provide sufficient evidence that the error variances of the gender ideology indicators do not significantly vary between the U.S. and Japan. This final step shows that all elements of the reliability coefficient are equivalent in both countries (Smith and Davidson 1986), and therefore the seven gender ideology indicators measure the same three dimensions of gender ideology with equal reliability in the U.S. and Japan when Gi5 is omitted from the model.

CHAPTER V

DISCUSSION AND CONCLUSION

The factor analyses conducted for this paper provide evidence of distinct cultural patterns of gender ideology in the U.S. and Japan, yet also leave open the possibility of a high level of measurement equivalence between the two cultures for seven of the eight gender ideology items tested. The assumption underlying the creation of a single gender ideology scale from the ISSP questions – that all eight items are equally reliable measures of a single latent dimension of gender ideology – is shown to be incorrect for Japan and the U.S. The three factors the questions appear designed to measure – "Working Women and Relationship Quality," "Personal Fulfillment for Women," and "Gender Division of Labor" – based on the values of individual autonomy and gender equality are also not equivalent between the two countries. This model is inadequate even in the U.S. The other country-specific gender ideology model for Japan, which redefines the second two factors as "Valuing Housewife Role" and "Valuing Working Woman Role" improves on the first model, but still does not provide a good fit with the data. From these confirmatory analyses, it is clear that the previous assumptions about the measurement of gender ideology in Japan and the U.S. are incorrect, but the results do not resolve whether equivalent concepts exist across the two countries or what cultural differences in gender ideology remain.

The exploratory analyses reveal more clues about the underlying structure of gender ideology in the U.S. and Japan. For the U.S., the dimensions of gender ideology measured by the eight survey items appear to be the same as the model hypothesized to exist in Japan,

with statements in support of the housewife role (Gi4, Gi5, and Gi8) and statements in support of the working woman role (Gi6, Gi7) loading on separate factors. For Japan, the Gi5 item – "Being a housewife is just as fulfilling as working for pay" – switches factors and groups with the three items measuring the impact working women have on their family relationships (Gi1, Gi2, and Gi3). Items Gi5 and Gi6 – "Having a job is the best way for a woman to be an independent person" – are also the weakest indicators of the underlying dimensions of gender ideology in Japan.

That these two items are the most problematic indicators of gender ideology is noteworthy. Both Gi5 and Gi6 include explicit statements regarding an area of gender ideology about which the Japanese are ambivalent: whether paid work is the route to personal fulfillment and independence. Japanese respondents who reject the workplace as a source of self-realization and give traditional responses to Gi5 and Gi6 may provide nontraditional answers to the rest of the questions (Yamaguchi 2000); different concepts of the role of the housewife, equality of men and women, and foundations of independence expressed in Japan may be the source of measurement inconsistency in gender ideology across the two cultures. However, items Gi5 and Gi6 are also the weakest indicators of gender ideology in the U.S. Either the questions are so poorly written that they are ineffective measures in both countries, or similar ambivalence toward the working role for women is also present in the U.S.

Despite the distinct factor structures uncovered by the exploratory analysis, the elimination of the less reliable Gi5 item produces a model with a surprisingly high level of measurement invariance between Japan and the U.S. Three dimensions exist in both cultures that capture attitudes toward working women and their family relationships (Gi1, Gi2, and Gi3), the primacy of the housewife role (Gi4 and Gi8), and the value of the working woman

role (Gi6 and Gi7). The cross-cultural equivalence of these results point to the converging life situations of many Japanese and American individuals, prompted by forces such as industrialization, consumerism, female labor force participation, fertility declines, and other family changes. That the same seven survey items administered in two very different societies produce the same latent dimensions of gender ideology and are equally meaningful across cultures is remarkable, and may result from many Japanese and American individuals facing similar life choices about balancing work and family responsibilities.

However, the final factor structure uncovered for gender ideology is not the original model hypothesized to be equivalent in the U.S. and Japan. This original model, as represented by the "Working Women and Relationship Quality," "Personal Fulfillment for Women," and "Gender Division of Labor" dimensions in hypothesis 2, is rooted in the concepts of individual autonomy and self-fulfillment that have been emphasized by theories of the second demographic transition (Lesthaeghe 1995). This understanding of gender ideology has not come to define the structure of beliefs about gender roles in Japan and the U.S., despite their common histories of industrialization, urbanization, and modernization – all of which have been linked to the second demographic transition.

Instead, respondents in Japan and the U.S. treat family relationship quality, the value of the housewife role, and the value of the working woman role as independent dimensions of gender ideology. Although these dimensions are connected, they are not neatly bundled together as a single concept of gender ideology. There is not strictly speaking a single choice between traditional and nontraditional roles for women; individuals who hold an egalitarian ideology toward paid work for women may not reject the belief that home and children are what is most important for women. These results complicate the clear traditional/egalitarian

split in gender ideologies, but it is plausible that people in both cultures support positive aspects of both the traditional housewife and nontraditional paid work roles for women.

Future cross-cultural work on gender ideology can confirm the exploratory results generated by the second half of the results in this paper. If items measuring the relation between women's work role and independence show the same measurement irregularities, or if the same factor structure is found to be equivalent in the U.S. and Japan as in this sample, the exploratory findings presented in this paper could be extrapolated to a larger population with much more confidence. If the dimensions of gender ideology that are invariant between the U.S. and Japan in this study are confirmed, then the final CFA model could be employed in larger structural models in which gender ideology is a factor, such as a model of the gender division of household labor. Also, future cross-national survey research could look to social psychology for shortened versions of gender ideology scales that have been validated previously in multiple cultural contexts (e.g., Suzuki 1991). Although the larger number of questions on even the condensed scales is cost prohibitive, the comparison of gender ideology across nations would be much more straightforward because the scales are designed to be unidimensional, or capture known dimensions of gender ideology. The inclusion of psychometrically sound attitudinal measures in survey research would also allow the replication, with a representative population-based sample, of results from psychology studies of gender ideology.

This study has demonstrated the importance of paying attending to measurement equivalence in cross-cultural research. Measurement is a methodological issue. Simply creating a single gender ideology scale from the available indicators in different cultural contexts can produce misleading results, whereas a reasonable level of measurement

equivalence ensures that differences between groups are not biased by measurement error. Measurement is also a substantive issue. Closely examining the structure of a concept and how that concept differs between groups provides insights into cultural dynamics that would be missed by studies that ignore measurement issues, such as the forces pushing cultures toward more equivalent concepts, or the strength of culturally distinct understandings to persist despite these homogenizing forces.

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Figure 1. Auxiliary measurement model for CFA with categorical indicators.

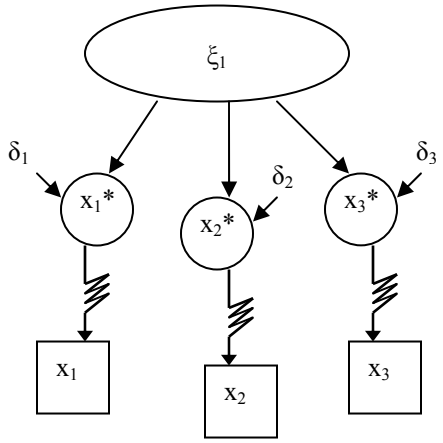

Table 1. Frequency distribution of gender ideology items for the U.S. by Gender.

Item	Women		Men		Total	
			"Working mom: warm relationship with child"			
Gi1	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	80	13.42	84	19.58	164	16.00
Neutral	46	7.72	62	14.45	108	10.54
Nontraditional	470	78.86	283	65.97	753	73.46
			"Working mom: preschool-child suffers"			
Gi2	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	203	34.06	192	44.76	395	38.54
Neutral	146	24.50	108	25.17	254	24.78
Nontraditional	247	41.44	129	30.07	376	36.68
			"Working woman: family life suffers"			
Gi3	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	227	38.09	178	41.49	405	39.51
Neutral	114	19.13	120	27.97	234	22.83
Nontraditional	255	42.79	131	30.54	386	37.66
			"What women really want is home and kids"			
Gi4	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	205	34.40	196	45.69	401	39.12
Neutral	169	28.36	135	31.47	304	29.66
Nontraditional	222	37.25	98	22.84	320	31.22
			"Housewife role satisfies as much as paid job"			
Gi5	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	383	64.26	257	59.91	640	62.44
Neutral	108	18.12	107	24.94	215	20.98
Nontraditional	105	17.62	65	15.15	170	16.59
			"Work is best for women's independence"			
Gi6	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	142	23.83	91	21.21	233	22.73
Neutral	132	22.15	122	28.44	254	24.78
Nontraditional	322	54.03	216	50.35	538	52.49
			"Both should contribute to household income"			
Gi7	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	68	11.41	35	8.16	103	10.05
Neutral	187	31.38	145	33.80	332	32.39
Nontraditional	341	57.21	249	58.04	590	57.56
			"Men's job is work, women's job is household"			
Gi8	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	120	20.13	119	27.74	239	23.32
Neutral	116	19.46	133	31.00	249	24.49
Nontraditional	360	60.40	177	41.26	537	52.39

Table 2. Frequency distribution of gender ideology items for Japan by Gender.

Item	Women		Men		Total	
			"Working mom: warm relationship with child"			
Gi1	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	61	11.91	56	13.90	117	12.79
Neutral	54	10.55	53	13.15	107	11.69
Nontraditional	397	77.54	294	72.95	691	75.52
			"Working mom: preschool-child suffers"			
Gi2	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	153	29.88	129	32.01	282	30.82
Neutral	132	25.78	90	22.33	222	24.26
Nontraditional	227	44.34	184	45.66	411	44.92
			"Working woman: family life suffers"			
Gi3	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	172	33.59	133	33.00	305	33.33
Neutral	117	22.85	85	21.09	202	22.08
Nontraditional	223	43.55	185	45.91	408	44.59
			"What women really want is home and kids"			
Gi4	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	246	48.05	168	41.69	414	45.25
Neutral	115	22.46	102	25.31	217	23.72
Nontraditional	151	29.49	133	33.00	284	31.04
			"Housewife role satisfies as much as paid job"			
Gi5	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	361	70.51	273	67.74	634	69.29
Neutral	90	17.58	85	21.09	175	19.13
Nontraditional	61	11.91	45	11.17	106	11.58
			"Work is best for women's independence"			
Gi6	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	119	23.24	91	22.58	210	22.95
Neutral	115	22.46	110	27.30	225	24.59
Nontraditional	278	54.30	202	50.12	480	52.46
			"Both should contribute to household income"			
Gi7	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	113	22.07	114	28.29	227	24.81
Neutral	131	25.59	117	29.03	248	27.10
Nontraditional	268	52.34	172	42.68	440	48.09
			"Men's job is work, women's job is household"			
Gi8	**Freq**	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Traditional	143	27.93	142	35.24	285	31.15
Neutral	101	19.73	92	22.83	193	21.09
Nontraditional	268	52.34	169	41.94	437	47.76

Figure 2. Average response to gender ideology items by country and gender.

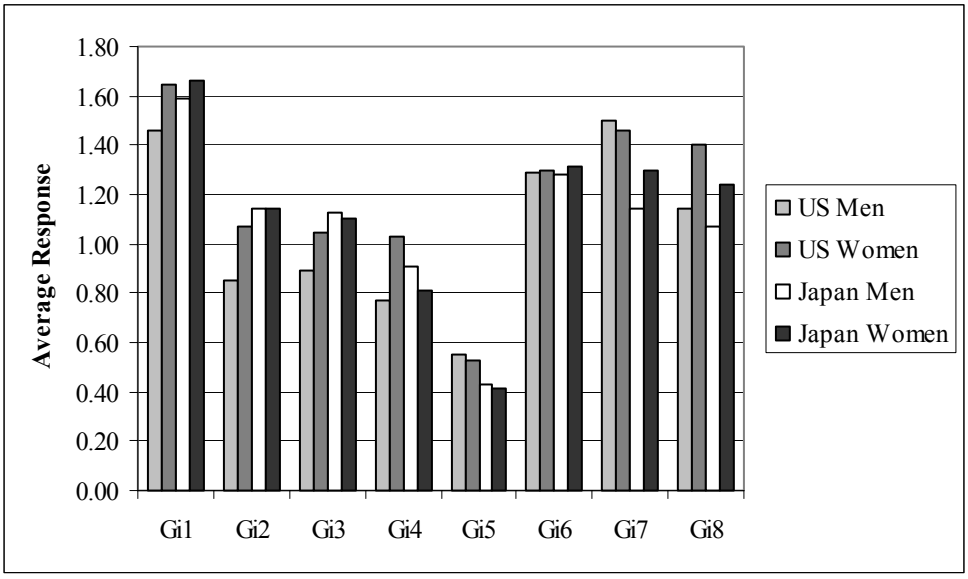

Figure 3. Unidimensional gender ideology CFA model with configural factorial invariance assumptions.

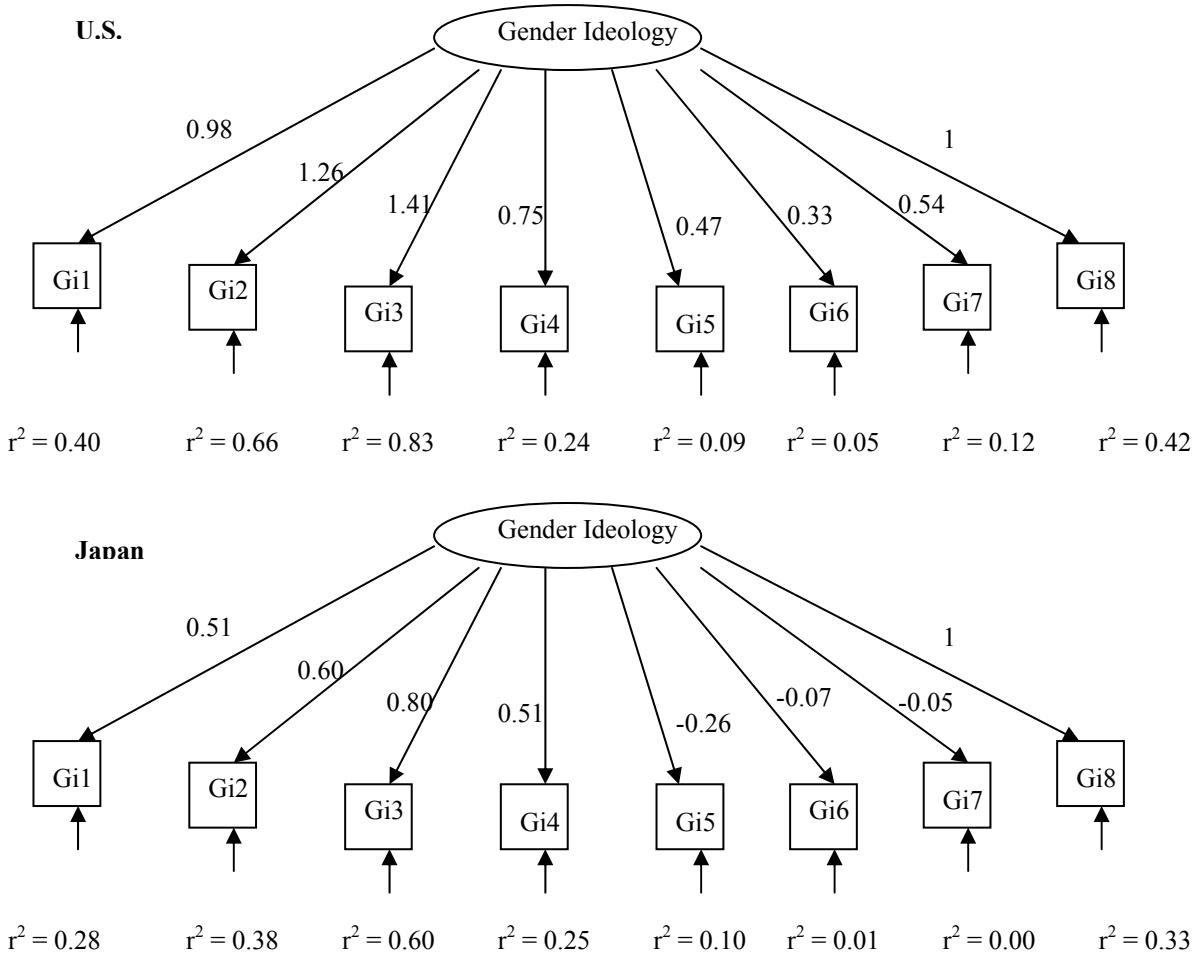

Table 3. Fit statistics for unidimensional gender ideology CFA models.

Multiple Groups		U.S. Only		Japan Only	
Chi-sq:	785.46	Chi-sq:	421.85	Chi-sq:	286.84
df:	39	df:	15	df:	17
p-value:	0.00	p-value:	0.00	p-value:	0.00
CFI:	0.773	CFI:	0.826	CFI:	0.681
TLI:	0.797	TLI:	0.814	TLI:	0.624
RMSEA:	0.147	RMSEA:	0.163	RMSEA:	0.132

Figure 4. Three dimension gender ideology CFA model with configural invariance assumptions.

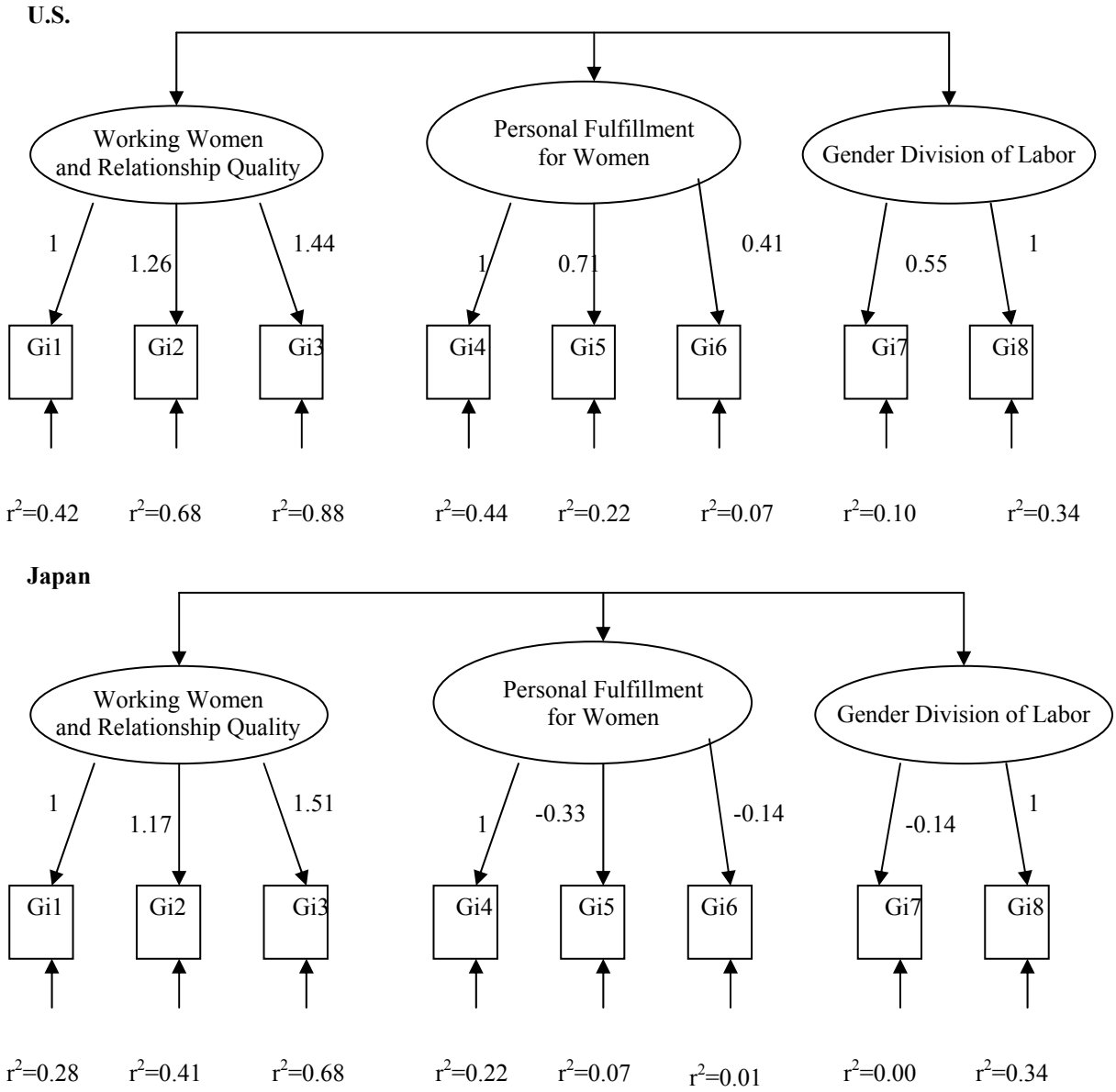

Table 4. Fit statistics for three dimensional gender ideology CFA model with configural invariance assumptions.

Multiple Groups	
Chi-sq:	574.59
df:	32
p-value:	0.00
CFI:	0.835
TLI:	0.820
RMSEA:	0.132

Figure 5. Separate three dimension gender ideology CFA models for the U.S. and Japan.

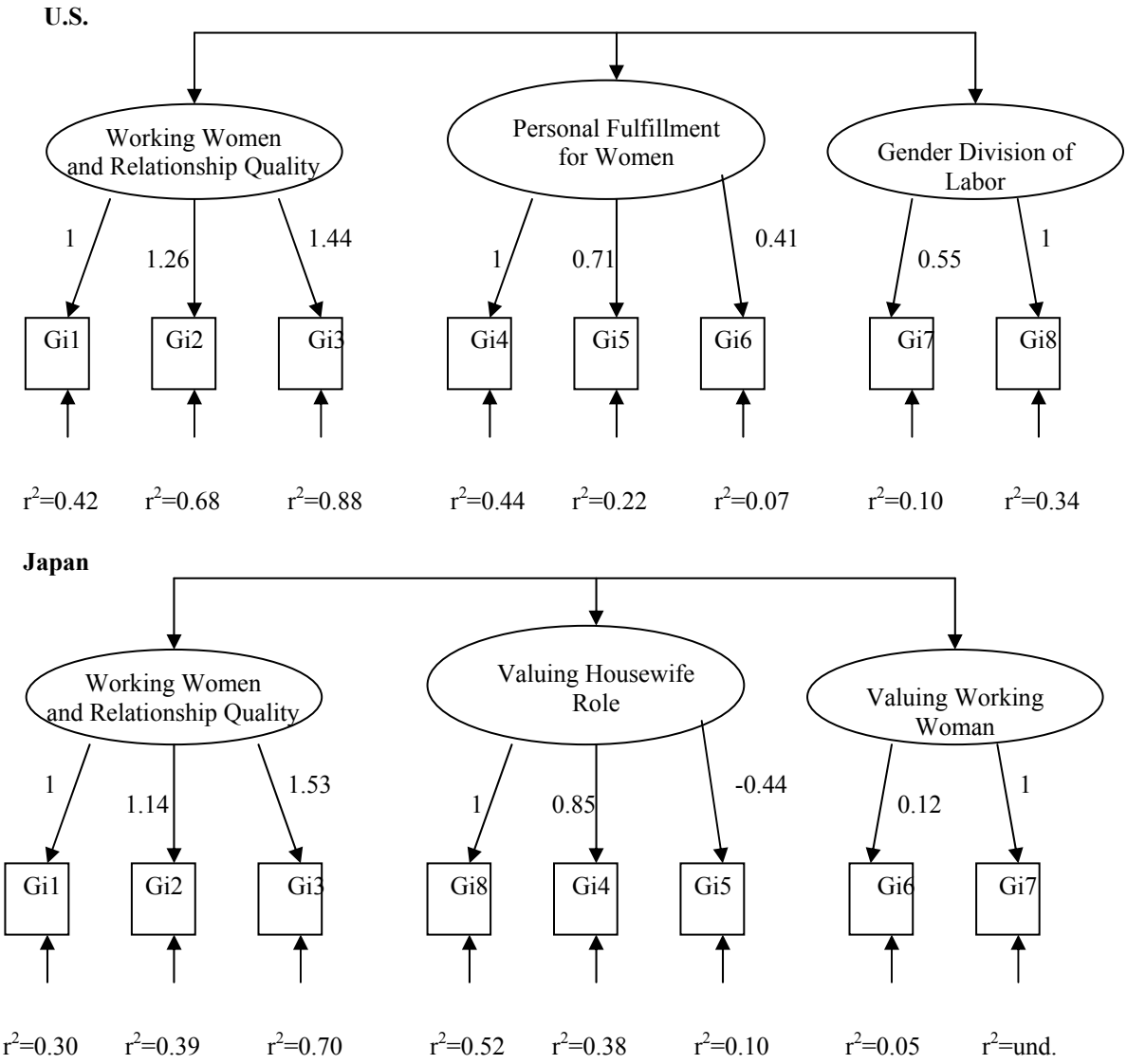

Table 5. Fit statistics for separate three dimensional gender ideology CFA models by country.

U.S. only		Japan only	
Chi-sq:	308.26	Chi-sq:	74.79
df:	13	df:	13
p-value:	0.00	p-value:	0.00
CFI:	0.873	CFI:	0.927
TLI:	0.844	TLI:	0.887
RMSEA:	0.149	RMSEA:	0.072

Table 6. Exploratory Factor Analysis – U.S.

	Factor		
Item	**1**	**2**	**3**
Gi1	0.714	0.182	-0.004
Gi2	0.851	0.047	0.140
Gi3	0.863	0.159	0.206
Gi4	0.278	-0.157	0.753
Gi5	-0.066	0.411	0.583
Gi6	0.036	0.685	0.010
Gi7	0.259	0.640	0.014
Gi8	0.497	0.009	0.427

Note: Varimax Rotated Factor Loadings

Table 7. Exploratory Factor Analysis – Japan.

	Factor		
Item	**1**	**2**	**3**
Gi1	0.618	0.179	0.025
Gi2	0.617	-0.175	0.133
Gi3	0.758	-0.109	0.176
Gi4	0.190	-0.074	0.980
Gi5	-0.326	-0.105	-0.075
Gi6	-0.031	0.681	-0.006
Gi7	0.064	0.598	-0.057
Gi8	0.427	-0.017	0.377

Note: Varimax Rotated Factor Loadings

Figure 6. Revised CFA models for the U.S. and Japan.

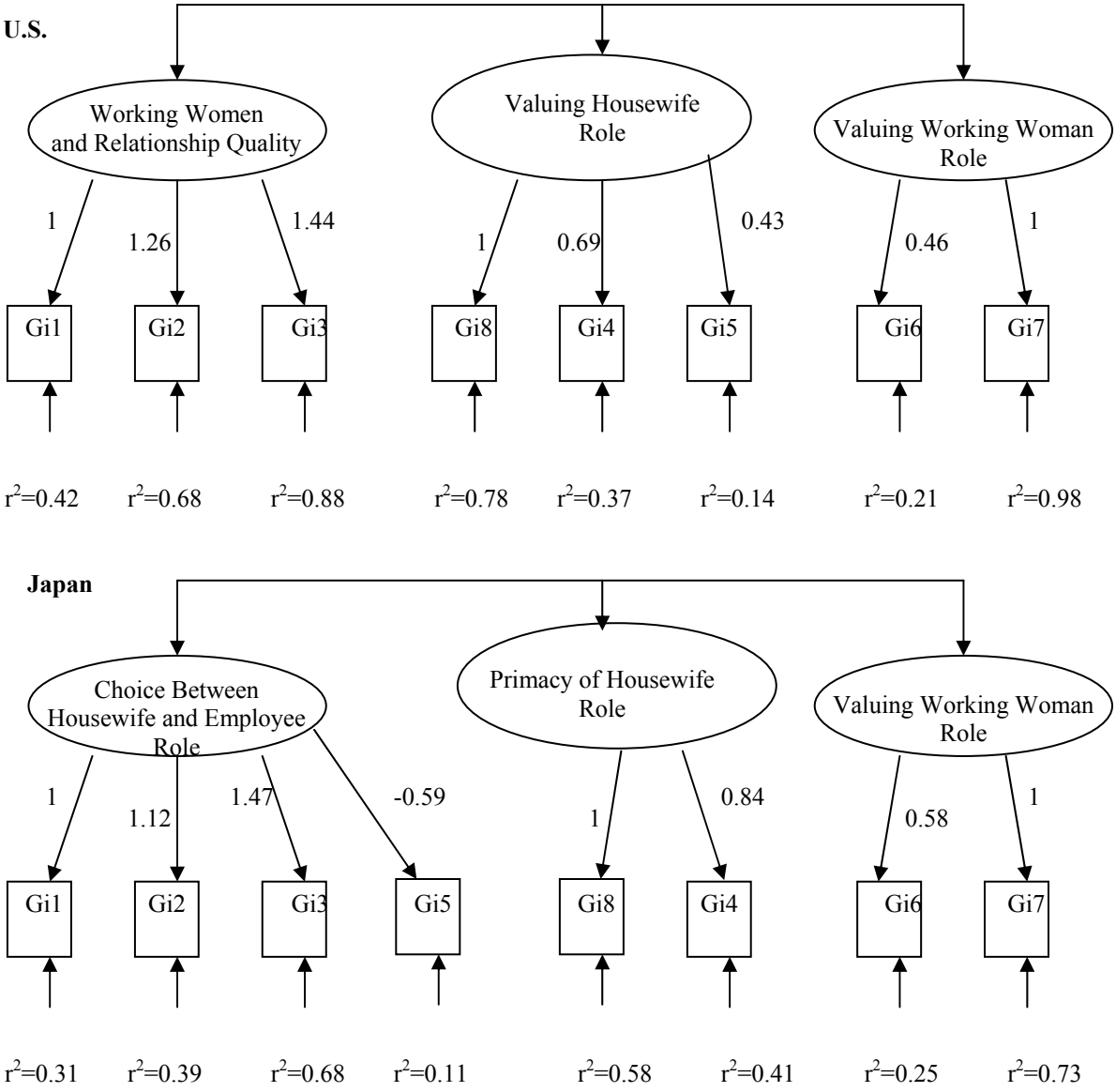

Table 8. Fit statistics for revised CFA models by country.

U.S. only		Japan only	
Chi-sq:	171.97	Chi-sq:	864.77
df:	14	df:	20
p-value:	0.00	p-value:	0.00
CFI:	0.932	CFI:	0.939
TLI:	0.923	TLI:	0.919
RMSEA:	0.105	RMSEA:	0.061

Figure 7. Revised CFA models for the U.S. and Japan, omitting Gi5.

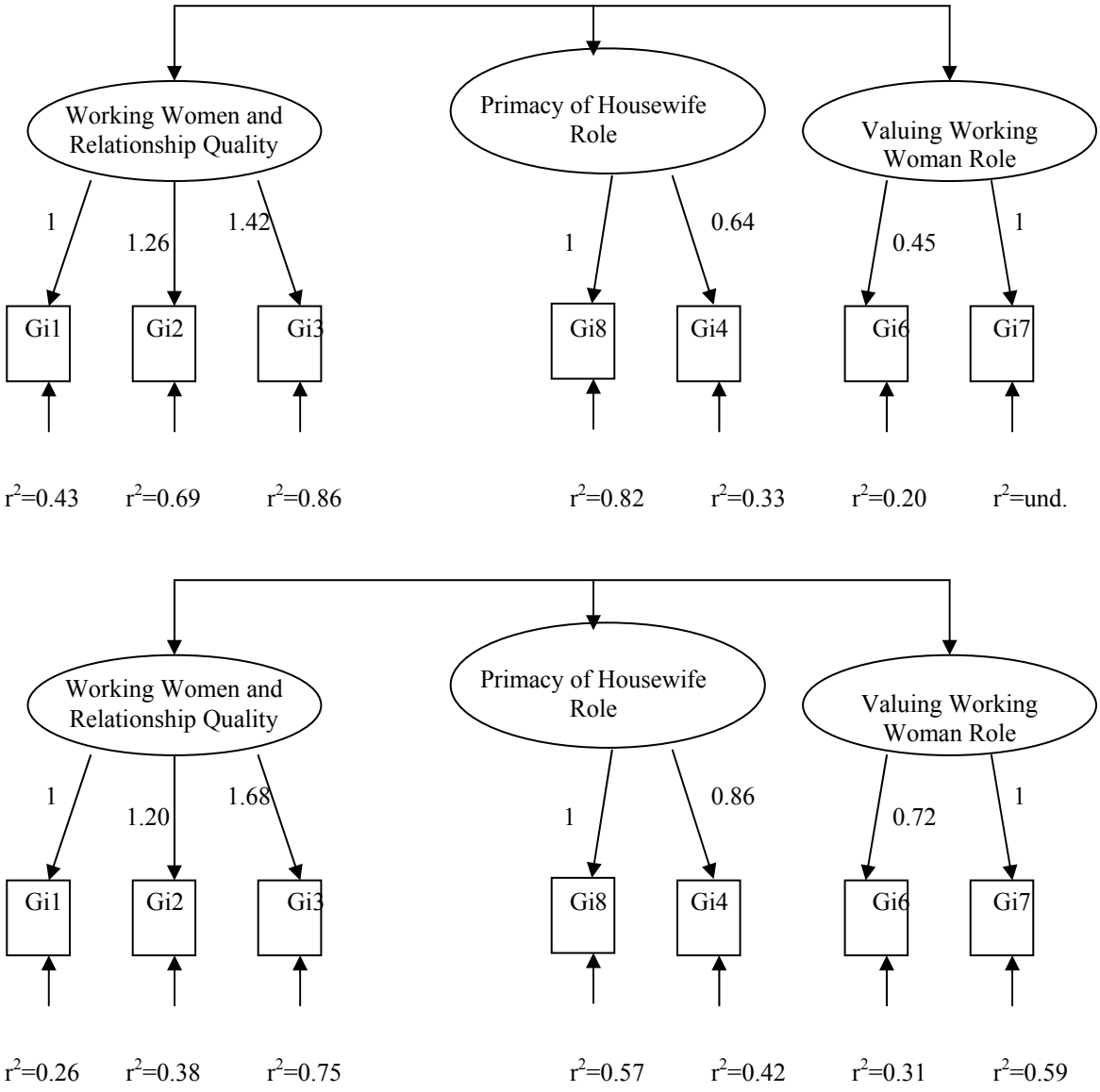

Table 9. Fit statistics for revised CFA models by country, omitting Gi5.

U.S. only		**Japan only**	
Chi-sq:	49.98	Chi-sq:	42.87
df:	10	df:	10
p-value:	0.00	p-value:	0.00
CFI:	0.982	CFI:	0.957
TLI:	0.978	TLI:	0.936
RMSEA:	0.062	RMSEA:	0.060

Table 10. Fit statistics for revised CFA model omitting Gi5: Testing measurement invariance across the U.S. and Japan.

Configural Invariance		Factorial Invariance		Factor Variance Invariance		Error Variance Invariance	
Chi-sq:	89.34	Chi-sq:	92.46	Chi-sq:	100.68	Chi-sq:	102.05
df:	22	df:	25	df:	27	df:	27
p-value:	0.00	p-value:	0.00	p-value:	0.00	p-value:	0.00
CFI:	0.979	CFI:	0.979	CFI:	0.977	CFI:	0.976
TLI:	0.974	TLI:	0.977	TLI:	0.977	TLI:	0.976
RMSEA:	0.056	RMSEA:	0.053	RMSEA:	0.053	RMSEA:	0.054