Psychological Motivations for Collectivist Behavior: Comparison between Japan and the U.S.

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Acknowledgements: We would like to thank Yasuhiro Arai and the participants in the workshop at Kochi University of Technology and Monetary Economics Workshop held at Kansai University for their helpful comments**.**

Funding: This work was supported by JSPS KAKENHI [Grant Number 26590052] and Center of Excellence Project of Osaka University

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Abstract

This paper explores the psychological motivations behind collectivist behavior in Japan and the U.S. Using data from a large-scale survey, we find different motivations for group conformity at workplace and at home between two countries: Japanese people conform to their groups because they consider that cooperation results in greater achievement; the U.S. people conform to their groups because behaving similarly to others makes them feel comfortable. We also find that both Japanese and U.S. people conform to their family's opinion at home because they value cooperation with family members. Thus, people's motivation for collectivist behavior varies between societies and circumstances.

Keywords: collectivism; conformity; efficiency; individualism; satisfaction; motivations

JEL Codes: D03, O57, P52, Z13

1. Introduction

For the last two decades, economics has drawn attention to the role of culture in understanding economic phenomena. Culture is defined as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso, Sapienza, and Zingales, 2006). Culture not only shapes people's preferences and expectations, but also influences law and political institutions in society, and therefore, it significantly affects economic behavior and outcomes (Aoki, 2010; Guiso, Sapienza, and Zingales, 2003, 2006, 2009; Tabellini, 2008; Zingales, 2015; Williamson, 2000).

While there are several dimensions that describe the elements of culture, individualism-collectivism (IC) is one of the most important dimensions that characterize the values of a particular society, as well as the beliefs and behavior of its people. Societies' degree of IC varies depending on factors such as affluence, geographical environment, social mobility, and cultural complexity (Hofstede, 1980). For instance, Brazil, India, Russia, and Japan are collectivist countries, whereas France, the U.S., England, and Germany are individualist countries, though to varying degrees (Triandis, 1995; Gelfand, Bhawuk, Nishii, and Bechtold, 2004).

There have been several studies showing that IC significantly affects economic activities.[1] Gorodnichenko and Roland (2011, 2017) provide empirical evidence that individualistic countries have experienced more technological innovation and higher economic

[1] Economic researchers have reported varied empirical evidence on the effect of IC on the management (esp. risk-taking) of banks and firms. Ashraf, Zheng, and Arshad (2016) and Kanagaretnam, Lim, and Lobo (2014) found that bank risk-taking is significantly higher in countries that have high individualism. Li, Griffin, Yue, and Zhao (2013) and Mihet (2013) found that individualism has a positive and significant association with corporate risk-taking. Van Hoorn (2014) found higher individualism is strongly associated with more sophisticated management practice. Financial behavior is another topic that is thought to be deeply associated with IC. Chui, Titman, and Wei (2010) found that individualism is positively associated with trading volume and volatility, as well as to the magnitude of momentum. Beugelsdijk and Frijns (2010) hypothesized that, in individualistic countries, performance is more directly attributed to a person and less to teams, causing these individuals to be more aggressive in their foreign asset allocations, and found support for this hypothesis (see also Dodd, Frijns, and Gilbert, 2013; Chui and Kwok, 2008).

growth rates than collectivist countries. They argue that individualism emphasizes personal freedom and achievement, which promotes innovation, but makes collective action more difficult. Conversely, collectivism emphasizes conformity to a group and loyalty, which inhibits innovation, but makes collective action easier. Therefore, individualistic countries have an advantage in discoveries and fundamental innovation, and collectivist countries have an advantage in coordinating production process and incremental innovation.

IC also varies widely within countries (Hofstede, 1980; Triandis et al., 1993; Triandis, 2001). In other words, individualist people exist in collectivist countries and vice versa. Comparing individuals in the U.S. and Japan, within-country variation in IC is substantially greater than between-country variation (Matsumoto, Kudoh, and Takeuchi, 1996). Personal individualist or collectivist tendency typically reflects traits such as age, social class, education, occupation, and sex (Triandis, 1995); however, we additionally propose that individuals' *internal* or *psychological* factors (e.g., mentality, cognition patterns, beliefs, and emotions) may predict individual IC behavior. For example, people who believe that cooperation promotes or inhibits outcomes may be more or less collectivist, respectively. To our knowledge, little empirical research has examined the association of these internal/psychological factors with individual IC behavior.

We propose that psychological motivation for collectivist behavior may be different among countries. For example, as argued by Gorodnichenko and Roland (2017), if collective action is easier in collectivist countries, people may behave in collectivist ways, expecting to achieve greater economic outcomes through cooperation in a group. Conversely, if collective action were more difficult in individualist countries, collectivist behavior would be caused by different psychological motivations than economic ones.

Therefore, the current study analyzes data from a large-scale questionnaire, conducted in Japan and the U.S., to examine the associations of various psychological factors with

collectivist behavior. In other words, we examine individuals' motivations for collectivist behavior and compare them between the two countries.

Following earlier research, we operationalize individual IC as individuals' self-reported group conformity (Bond and Smith, 1996; Schimmack, Oishi, and Diner, 2005; Takano and Osaka, 1999). Respondents rated their degree of following group opinion in their workplace and family, respectively, on a 5-point Likert scale. Responses are considered to indicate two factors: W-CONF (workplace conformity) and F-CONF (family conformity). Additionally, we examine the following psychological factors affecting conformity: EFFICIENCY refers to the individual's belief that cooperation in a group promotes achievement, COMFORT refers to comfort felt when behaving similarly to others, and SATISFACTION refers to satisfaction the individual feels in cooperating with others. We subsequently examine associations of W-CONF and F-CONF with EFFICIENCY, COMFORT, and SATISFACTION to examine individual motivations for group conformity.[2]

We expect differences to exist between Japanese and U.S. individuals' motivations for collectivist behavior; we therefore analyze Japanese and U.S. data separately. Research has often characterized Japan as a collectivist country (e.g., Hofstede, 1980; Takano and Osaka, 1999). Historically, most of the Japanese population was engaged in farming, which generally requires cooperation, and social mobility was very low. These circumstances may have fostered the belief that cooperation promotes achievement, and, in turn, promotes collectivist behavior. Indeed, traditional group orientation in Japan reflects the conviction that the group is the most effective working unit (Nakane, 1980). Additionally, Japanese collectivism may have promoted the economic success of Japan in the latter twentieth century (Ouchi, 1981). In this context, we conjecture that the EFFICIENCY factor predicts Japanese collectivist behavior.

In contrast, American society is often characterized as individualist, and as permitting

[2] Cross et al. (2017), Renkema et al. (2008), and Griskevicius et al. (2006) conduct laboratory experiments to examine individual motivations for conformity.

considerable occupational and social mobility. In highly socially mobile societies, relationships and interactions among people tend to be shorter-term than in low-mobility societies. Game theory has accurately predicted that individuals in short-term interactions with others may experience failures of coordination and socially inefficient outcomes (Bowles and Gintis, 2011). Therefore, individuals in the U.S. may behave individualistically, despite believing that collectivist behavior efficiently promotes outcomes, due to a perceived risk of exploitation by others. This suggests that EFFICIENCY will more weakly predict collectivist behavior in the U.S. than in Japan.

In this context, we examine whether the psychological factors predicting collectivist behavior vary between societies. We use regression analysis to separately examine the ability of the aforementioned psychological factors to predict conformity behavior in Japan and the U.S., and subsequently compare differences in individuals' motivation for conformity between those two countries.

The remainder of the paper is organized as follows. Section 2 describes our data and methods. Section 3 reports empirical results. Section 4 discusses the results and their implications. Section 5 concludes.

2. Method

2.1 Basic Data

This study used data collected in Japan and the U.S., during February 2006, in a survey conducted by the Center of Excellence (COE) project at Osaka University. The survey gathered data suitable for the analysis of human behavior and preferences in both countries, and particularly examined respondents' preferences (e.g., time discounting, risk aversion, personal values). The questionnaire contained 87 questions, some of which included sub-questions, and the same questions were asked in both countries. Questions were initially composed in Japanese, and subsequently translated into English by a Japanese person who had stayed in the

U.S. from ages 10 to 18 years. Translation was conducted with assistance from a specialist at a U.S. survey company. Finally, a prominent bilingual Japanese American economist assessed the semantic identities of the Japanese and English surveys. The survey was conducted from 2003 in Japan, and 2005 in the U.S., until 2013; however, five questions concerning IC were only included in 2006 and 2012.

This paper analyzed data collected in the 2006 survey from the five questions that concerned IC.[3] In Japan, 4879 people, aged 20–75, from all over the country, were selected using double stratified random sampling. Respondents were visited at their homes and handed the questionnaire. Completed questionnaires were collected several days later; 3763 questionnaires were returned (response rate: 77.1%). In the U.S., 4868 people, aged 15–99, were randomly selected from the registered membership of a large survey company, which covered all U.S. states, except Alaska and Hawaii. Questionnaires were distributed by mail; 3120 were returned (response rate: 64.1%).

2.2 Measurement of Collectivism

Definitions and measures of collectivism have varied between researchers; definitions used in earlier research have typically discussed certain individual behaviors and values related to the individual's group (e.g., emotional attachment, harmony, cooperation, obedience, prioritization of group interests, conformity; see Hofstede, 1980; Oyserman et al. 2002; Triandis et al., 1993). Among these behaviors and values, conformity is central to typical conceptions of collectivism (Schimmack et al., 2005, Takano and Osaka, 1999). Therefore, the current study considers levels of group conformity to indicate individuals' collectivism.

[3] We conjecture that analysis of the 2012 results would yield similar results, as the 2006 and 2012 surveys both collected large-scale data from a representative sample of the population of each country, and as the psychological motivations for collectivist behavior in two large populations seem unlikely to change over six years. Nonetheless, it remains possible that public attitudes toward IC in each country would have changed in the interim, particularly following the 2008 global financial crisis and the 2011 Great East Japan Earthquake. The financial crisis may have affected collectivism in both countries, and the earthquake may have promoted collectivism in Japan. Future research should examine the effects of these events on public IC in Japan and the U.S., and in other countries.

We assume that individuals' group conformity predicts their tendency to follow group decisions in their workplace and at home. Thus, we assume the following factors of conformity: (i) workplace conformity (W-CONF; i.e., the individual's tendency to follow group decisions in the workplace), and (ii) home conformity (F-CONF; i.e., the individual's tendency to follow family decisions at home). In our survey, respondents rated their conformity on these factors by responding to the following questions: "At work, I should follow opinion as a group" and "At home, I should follow my family's opinion." Responses to all questionnaire items used a 5-point Likert scale (1 = *this isn't true at all;* 5 = *this is particularly true for me*). Therefore, higher scores indicate greater conformity on each factor.

2.3 Psychological Factors

As discussed above, we assume that individual collectivism depends on psychological factors affecting the individual's relationships with others. The following factors are considered likely to affect group conformity and are therefore examined.

EFFICIENCY refers to the personal belief that cooperation more efficiently promotes desired outcomes. We measure respondents' prioritization of EFFICIENCY using the item "Working as a group results in greater achievement than working individually." Higher scores on EFFICIENCY indicate a stronger belief that cooperation more efficiently promotes outcomes.

COMFORT refers to the comfort an individual feels due to behaving similarly to others in one's group. This factor reflects the assumption that low self-confidence promotes conformist behavior (i.e., an unconfident person is more likely to follow other people's decisions). We measure respondents' prioritization of COMFORT using the item "Behaving similarly to people around me makes me feel comfortable." Higher scores on COMFORT indicate more comfort from behaving similarly to other group members.

SATISFACTION refers to the individual's enjoyment of cooperation itself. This factor

reflects the assumption that human beings naturally tend to enjoy cooperating. We measure respondents' prioritization of SATISFACTION using the item "I am more satisfied when I achieve a goal by cooperating with others than by myself." Thus, higher scores on SATISFACTION indicate greater satisfaction from cooperation itself.

2.4 Regression Equations for Conformity in the Workplace and at Home

We analyze the following ordered probit models to estimate respondents' psychological motivation to conform at work and at home:

$$\begin{aligned}\Pr(\text{W-CONF}_i = j) = \Pr(\kappa_{j-1} < \alpha \cdot \text{EFFICIENCY}_i + \beta \cdot \text{COMFORT}_i + \gamma \cdot \text{SATISFACTION}_i \\ + \text{CONTROL}_i \cdot \Theta' + \varepsilon_i \le \kappa_j),\end{aligned} \tag{1}$$

$$\begin{aligned}\Pr(\text{F-CONF}_i = j) = \Pr(\kappa_{j-1} < \alpha \cdot \text{EFFICIENCY}_i + \beta \cdot \text{COMFORT}_i + \gamma \cdot \text{SATISFACTION}_i \\ + \text{CONTROL}_i \cdot \Theta' + \varepsilon_i \le \kappa_j),\end{aligned} \tag{2}$$

In these models, i represents a respondent from either Japan or the U.S. and j represents the W-CONF or F-CONF score of 1–5. CONTROL_i represents a set of individual attribute variables such as sex, age, family structure, education, occupation, and religion.[4] Table 1 presents definitions and summary statistics of the variables. In models (1) and (2), underlying scores are estimated as the probability that the linear function of the three psychological factors, individual attributes, plus random error, is within the cutoffs. κ_j represents a set of cut-points corresponding to an ordinal value j. ε_i represents normally distributed random error. We estimate the ordered probit models (1) and (2) separately for the Japanese and U.S. samples, thereby examining the ability of EFFICIENCY, COMFORT, and SATISFACTION to predict

[4] Previous studies have shown that individual attributes (e.g., age, sex, social class) affect individuals' degree of collectivism (Triandis, 1995).

W-CONF and F-CONF among Japanese and U.S. respondents, respectively.

3. Results

3.1 Data Overview

Respondents did not necessarily answer all questions related to the variables we analyzed. We excluded responses without data for those variables. Thus, the final number of responses included in data analyses was reduced to 2,797 in Japan and 2,177 in the U.S. Table 1 summarizes statistics for all variables included in our analyses. Table 2-1 compares the mean values of conformity variables and psychological factors in the Japanese and U.S. samples. Mean W-CONF and F-CONF scores in the Japanese sample were significantly larger than in the U.S. sample, suggesting that Japanese people were generally more motivated to conform to their group than American people (Yamagishi et al. 2008).[5] Additionally, this inference remained supported after we controlled for differences in response style between the two countries, using a within-culture standardization procedure for each variable (Table 2-2).[6] Figure 1 presents response distributions for each conformity variable in the Japanese and the U.S. samples, respectively. The distributions of W-CONF and F-CONF were both skewed to the right for Japan, and to the left for the U.S. These results support the view that Japanese

[5] For W-CONF, some may wonder if the mean difference observed between Japan and U.S. samples stems from the fact that the proportion of specialists in the U.S. sample was twice as high as that of Japanese sample (Table 1), as specialists may respond with lower scores on the W-CONF than other occupations because they tend to work more individually than as a group. To check this possibility, we compared the W-CONF mean between the two countries, excluding specialists. We found that the W-CONF mean of the Japanese sample (3.103) was still significantly higher (at the 1% level) than that of the U.S. sample (2.131). Similarly, for F-CONF, the mean difference between Japan and the U.S. may have stemmed from the larger proportion of single individuals in the U.S. sample than the Japanese sample (Table 1), as many singles respond with lower scores on the F-CONF measure than those with larger family units. To check this possibility, we compared the mean of F-CONF between the two countries, excluding singles. We found that the F-CONF mean of the Japanese sample (3.202) was still significantly higher (at the 1% level) than that of U.S. sample (2.107).

[6] Previous literature has established the necessity of controlling for national differences in response style in cross-cultural research (Hofstede, 1980; Fisher, 2004; Schimmack, et al., 2005; Fisher and Milfont, 2010). We used within-culture standardization (i.e., the mean score across all variables and individuals within a country is subtracted from the individual's raw score on each specific variable and divided by the standard deviation across all variables and individuals), as this method is appropriate for mean comparison and regression analysis (Fisher, 2004).

people are more collectivist than American people (Hofstede, 1980, Triandis, 1995).[7]

Mean differences in psychological factors' scores were also found between the two countries (Table 2-1). EFFICIENCY and SATISFACTION scored significantly higher in Japan than in the U.S. ($p < .01$); however, COMFORT scored significantly higher in the U.S. than in Japan ($p < .01$). Mean comparison after within-culture standardization was consistent with these results (Table 2-2). Additionally, a considerable proportion of U.S. respondents assigned high scores to COMFORT (Figure 2), although individualism and independence are commonly regarded as representative American values.

A large amount of heterogeneity in conformity and psychological factors scores was observed within countries, in addition to differences between the two countries (Figures 1 and 2); this result allowed us to analyze the motivations of conformist behavior in each country.

3.2 Workplace Conformity

Tables 3 and 4 present the estimated results concerning the workplace and home conformity models, i.e., models (1) and (2), respectively.[8]

Table 3 shows the estimated results of the ordered probit regression of W-CONF in the Japanese and U.S. samples. EFFICIENCY had significantly positive estimates in Japan ($p < .05$), but non-significant in the U.S. The magnitude of the coefficient was significantly larger in Japan than the U.S.（$p < .05$）. This result suggests that Japanese people tend to conform in the workplace because they believe that cooperation more effectively promotes productivity, and that economic efficiency is less likely to motivate workplace conformity among Americans.

COMFORT had significantly positive estimates in both Japan and the U.S. ($p < .05$), suggesting that Japanese and American people tend to conform in the workplace because it makes them feel comfortable. Wald test revealed that the difference in both coefficients was

[7] Nonetheless, collectivism rates in the U.S. may sometimes exceed those in Japan (Oyserman et al., 2002).
[8] See the Appendix for discussion on the procedure for calculating the marginal effects in ordered probit models (1) and (2).

insignificant.

In contrast, non-significant estimates were obtained for SATISFACTION in both Japan and the U.S., suggesting that Japanese and American people do not tend to conform in the workplace because they find it satisfying.

Regarding individual attributes, the estimated coefficient of respondents' sex was significantly negative in the W-CONF regression in both Japan and the U.S. ($p < .05$). This result suggests that men in both countries are less likely to conform at work than women, supporting earlier research (e.g., Cross et al., 2017; Triandis, 1995). Except for Management, the other attributes were not significant for the Japanese sample, while some variables including occupation were significant in the U.S. sample. The last result suggests that degree of conformity in the workplace in the U.S. depends on occupation.

3.3 Home Conformity

Table 4 presents the estimated results of the ordered probit regression of F-CONF. The estimated coefficients of EFFICIENCY were significantly positive in Japan ($p < .05$) and non-significant in the U.S. This result suggests that Japanese, but not U.S. individuals tend to conform at home because they believe it promotes outcomes more efficiently.

The estimated coefficients of COMFORT were significant in both Japan and in the U.S. The U.S. coefficient was larger than the Japanese one ($p<.10$), suggesting that COMFORT is an important motivation for home conformity in the U.S. The results suggest that Americans tend to conform at home because it makes them feel comfortable.

The estimated coefficients of SATISFACTION were significantly positive in both Japan and the U.S. ($p < .05$); additionally, the Wald test indicated that the estimated coefficient was significantly larger in the U.S. than in Japan. These results suggest that both Japanese and American people tend to conform at home because they find it more satisfying; additionally, this tendency can be stronger among Americans than among Japanese people.

Regarding individual attributes, Sex was significantly positive, suggesting that men in both countries are *more* likely to conform at home than women are. This is an interesting phenomenon yet to be identified by previous research. Concerning other individual attributes, religion did not affect workplace conformity in the U.S. but affected home conformity. On the other hand, occupation affected workplace conformity but did not affect home conformity. These results suggest that in the U.S. religion is an important element for home conformity, while occupation affects workplace conformity.

The results of this research are summarized as follows:

1. In Japan, EFFICIENCY predicted conformity both in the workplace and at home, while this was not observed in the U.S.
2. Both in the U.S. and in Japan, COMFORT predicted conformity both in the workplace and at home,
3. Both in the U.S. and Japan, SATISFACTION predicted conformity at home, but not in the workplace.

3.4 Endogeneity

The above estimated coefficients for EFFICIENCY, COMFORT, and SATISFACTION in models (1) and (2) may partly reflect an endogeneity problem: conformist behaviors may have caused individuals to hold pro-conformist beliefs, such as “I don’t feel satisfied or comfortable working individually because I have cooperated with others for so long.” Therefore, we used the control-function instrumental variable estimation (CF) to manage potentially reversed causality among the conformity variables and psychological factors. CF provides consistent estimates for coefficients on endogenous regressors in parametric nonlinear models, including the ordered probit model, while the consistency is not warranted in the two-stage predictor substitution for nonlinear models (Vella, 1993; Terza et al. 2008; Wooldridge, 2014, 2015).

Thus, we used CF to estimate the two ordered probit models with the instrumental variables. In the first stage of estimation of CF, auxiliary regressions for endogenous regressors were conducted using instrumental variables. The second-stage regressions were subsequently performed by including the first-stage generalized residuals into the outcome equation of interest, that is, equations (1) and (2).[9] In CF, the significance of the first-stage residuals in the second-stage regression indicates the endogeneity of the regressors.

Tables 5 and 6 present the CF estimated coefficients for models (1) and (2). We adopted the individual attributes that were insignificant in Tables 3 and 4 as the instrumental variables in the first stage regressions and those that were significant as the control variables in the second stage regressions.[10] In these tables, $e^{\text{EFFICIENCY}}$, e^{COMFORT}, and $e^{\text{SATISFACTION}}$ indicate residuals for EFFICIENCY, COMFORT, and SATISFACTION in the first stage regression.

In Tables 5 and 6, the residuals of the first stage regression are all insignificant, suggesting that the three psychological variables were exogenous in all cases. As per the orthogonality conditions, Sargan's J-test statistics reported at the bottom of Tables 5 and 6 could not reject the validity of our instruments. As per the weak instruments problem, conventional tests in linear instrumental variable regression, such as the test of Stock and Yogo (2005) were not applicable to our non-linear regressions. Still, we confirmed that one or more instruments were significant at the 1% level in the first-stage regression for EFFICIENCY, COMFORT, and SATISFACTION, suggesting that the weak instruments problem was not serious in our case if it was present.

Accordingly, the estimates of psychological variables were qualitatively the same as

[9] See equation (18) in Vella (1993) for the definition of the first-stage generalized residuals in the ordered probit model.

[10] As per the dummy variables, such as age, we treated the whole variables together; e.g. since age 20 was significant for W-CONF in the U.S., none of the age dummy variables were included in the instrumental variables but were used as control variables in the second stage regression. For a robustness check, we also estimated the CF by treating each variable separately: e.g. only age 20 was excluded from and the other age dummies were included in the instrumental variables. However, the results were qualitatively unchanged.

those in Tables 3 and 4, except that COMFORT became insignificant in the F-CONF regression for the Japanese sample. Thus, the endogeneity problem was not serious in the estimation of equations (1) and (2).

3.6 Other Robustness Checks

Persons without a regular occupation (without a family) may not provide meaningful responses to the workplace (home) conformity questions. Therefore, as an additional robustness check, we conducted a subsample regression of W-CONF by excluding respondents with no regular occupation, and a subsample regression of F-CONF by excluding single respondents.[11] However, we found that the estimated results did not change substantially in the sub-sample regressions.[12]

We also used the ordered logit model instead of the ordered probit models; the estimated results on the three psychological factors remained qualitatively unchanged. Additionally, the estimated results remained qualitatively unchanged in the least-squared estimation. Furthermore, we repeated all estimations following application of a within-culture standardization procedure for each variable; the estimated results again remained qualitatively unchanged.

4. Discussion

We examined factors affecting individual collectivist behavior in Japan and the U.S. We particularly examined individual psychological factors, thereby analyzing motivations for

[11] We defined persons who have no regular occupation as students (Student = 1 in Table 1), the unemployed (Unemployment = 1 in Table 1), or retirees. We defined single persons as Single = 1 in Table 1.

[12] Considering the possibility of sample selection bias in conducting these subsample regressions, we also employed a Heckman two-step procedure: in the first step, we estimated a selection equation of employment participation choice for W-CONF and a selection equation for being a single person for F-CONF. Then, in the second, we ran the ordered probit regressions of W-CONF and F-CONF by including the inverse Mills ratio. The resultant estimation results remained qualitatively unchanged. In the selection equation for employment participation, we included the individual attribute variables except the job-status variables (as in Table 1) as explanatory variables, while, in the selection equation for being a single person, we included those except the family structure variables.

conformist behavior among Japanese and American people.

In Japan, EFFICIENCY significantly affects respondents' workplace and home conformity, suggesting that Japanese people tend to conform because they believe that it more effectively promotes outcomes. This may reflect the history of Japan, as most Japanese individuals in the past were farmers who needed to cooperate to survive due to scarce natural resources (Benedict, 1946; DeVos, 1973).[13] Additionally, Japanese elementary education encourages pupils to study in groups and teaches the restraint of egoism (Vogel, 1979). These social and educational traditions may particularly inculcate belief in the economic value of cooperation and conformity among Japanese people.[14] The result is also consistent with the argument that cooperation among employees contributes to operational efficiency in Japanese firms (Aoki, 1990).

If Japanese collectivism stems from pragmatism, Japanese people in an unproductive group will leave that group. Previous research has supported this conjecture. For instance, Triandis et al. (1993) show that scores on a particular cultural factor ("Task Emphasis") are highest in Japan among ten countries, and that scores on this factor are correlated with individuals' agreement with the statement, "If the group is slowing me down, it is better to leave it and work alone." Further, Japanese subjects are more likely to leave a poorly performing group than American subjects (Yamagishi, 1988). These results suggest that Japanese people particularly tend to leave groups that do not benefit them. Additionally, these results also support our inference that Japanese people behave in collectivist ways to pursue

[13] The efficiency motivation for Japanese collectivistic behavior may come from a history of farming rice. Talhelm et al. (2014) argue that farmers in rice villages needed to take more collectivistic behavior compared to farmers in wheat villages, because farming rice requires irrigation systems and an extraordinary amount of work that make cooperation more valuable. They predict that these agricultural legacies continue to affect people in the modern world and provide the empirical evidence that people from rice provinces (southern China) are more interdependent and collectivistic than people from wheat provinces (northern China).

[14] This argument implies that Japanese collectivism may be fundamentally motivated by self-interest. Indeed, Japanese people tend to commit and conform to their group expecting that they will benefit from it later (Hamaguchi, 1982). Additionally, many Japanese workers are self-interested and are willing to share in the fate of their company only to the extent that it promotes their own objectives (Befu, 1980).

efficiency.

In contrast, EFFICIENCY scores are not significantly correlated with conformity scores in the U.S. sample, supporting the proposition that people experience more difficulty achieving socially efficient outcomes through cooperation in highly mobile societies (Bowles and Gintis, 2011). Instead, regarding factor scores in the U.S. sample, COMFORT principally predicts conformity both at work and at home, indicating that Americans tend to conform because it makes them feel comfortable. This is interesting, as conformity is generally onsidered to indicate lack of individuality in U.S. society (Matsumoto et al., 1996), and the direct expression of individual opinions is valued. A considerable proportion of people in the U.S. feel comfortable when conforming (approximately a quarter gave scores of 4 or 5 in response to the COMFORT question; Figure 2). Additionally, those people tend to conform at home as well as at work (Tables 3–6). Thus, collectivist behavior among American people may generally reflect individuals who feel comfortable when conforming.

SATISFACTION does not significantly affect workplace conformity in Japan or the U.S., suggesting that Japanese and American people do not tend to conform at work because they find it satisfying. In contrast, SATISFACTION significantly predicts conformity at home in both Japan and the U.S., suggesting that Japanese and American people behave in collectivist ways at home, because they value cooperation with family members for its own sake. The psychological factors motivating collectivist behavior thus vary, depending on circumstances.

5. Conclusion

This research examined psychological factors motivating collectivist behavior in Japan and the U.S. The efficient achievement of outcomes was found to motivate Japanese respondents to conform both in the workplace and at home; this suggests that Japanese collectivism may reflect pragmatic considerations. It also supports previous research proposing

that Japanese people traditionally cooperated in order to increase agricultural production in a context of scarce natural resources (Benedict, 1946; DeVos, 1973), that cooperation among employees enhanced operational efficiency in Japanese firms (Aoki, 1990), and that group-oriented culture promoted the economic success of Japan in the late twentieth century (Nakane, 1980; Ouchi, 1981). Additionally, American respondents were found to conform because it made them feel comfortable. A considerable proportion of collectivist people were found to exist in the U.S. and these respondents indicated that comfort motivated their conformity. Further, respondents in both Japan and the U.S. were found to conform at home because they valued cooperation with family members for its own sake, suggesting that motivations for collectivism vary from home to the workplace in both countries. Thus, people's motivation for collectivist behavior varies between countries and depending on circumstances.

This paper exclusively analyzed group conformity as a measure of individual collectivism; however, other measures of collectivism are available. Therefore, future research should examine individual motivations for collectivist behavior using other measures.

Appendix: Calculating Marginal Effects in Ordered Probit Models

This appendix discusses the procedure for calculating the marginal effects of the estimated coefficients of independent variables in models (1) and (2). y ($y = 1, 2, \mathrm{K}, 5$) represents dependent variables; W-CONF, F-CONF, and X ($K \times 1$) represent independent variables. In this context, the expected value of the dependent variable $E(y \mid X)$ is defined as follows:

$E(y \mid X) = \sum_{j=1}^{5} j \cdot P(y = j \mid X)$.

A marginal effect of an independent variable x_k , ME_k is therefore defined as follows:

$$ME_k = \left.\frac{\partial E(y \mid X)}{\partial x_k}\right|_{X=\overline{X}} = \sum_{j=1}^{5} j \cdot \left.\frac{\partial P(y = j \mid X)}{\partial x_k}\right|_{X=\overline{X}} = \sum_{j=1}^{5} j \cdot ME_k^j \ , \qquad \text{(A-1)}$$

where $ME_k^j = \left.\frac{\partial P(y = j \mid X)}{\partial x_k}\right|_{X=\overline{X}}$. $\overline{X}$ denotes the sample means of the independent variables (X).

We used the delta method, thereby calculating the standard error of the marginal effect ME_k on the independent variable x_k as follows:

$$\sigma_{ME_k} = \sum_{j=1}^{5} j \cdot \sigma_{x^k}^{j} \ , \qquad \text{(A-2)}$$

where σ_{ME_k} indicates the standard error of the marginal effect ME_k , and $\sigma_{x^k}^{j}$ denotes the standard error of ME_k^j . We calculated the marginal effect (A-1) and its standard error (A-2) for each independent variable in our ordered probit models.

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Table 1: Summary Statistics

		Definition	Japan	U.S.
Conformity Variables	W-CONF	See Subsection 2.2	3.167 (0.850)	2.155 (1.017)
	F-CONF		3.170 (0.918)	2.469 (1.077)
Psychological Factors	EFFICIENCY	See Subsection 2.3	3.547 (0.838)	3.232 (1.113)
	COMFORT		2.676 (0.982)	2.817 (1.107)
	SATISFACTION		3.642 (0.927)	3.031 (1.097)
Attribute Variables	Sex	1 for Male	49.09%	45.84%
	Age 10	1 if age is 10 to 19	0.04%	0.60%
	Age 20	1 if age is 20 to 29	7.83%	12.95%
	Age 30	1 if age is 30 to 39	17.88%	17.50%
	Age 40	1 if age is 40 to 49	22.88%	20.17%
	Age 50	1 if age is 50 to 59	27.03%	21.13%
	Age 60	1 if age is 60 to 69	22.02%	12.68%
	Age 70	1 if age is 70 to 79	2.32%	8.31%
	Divorced	1 if the respondent has divorced	3.90%	9.05%
	Married	1 if the respondent has a spouse	80.05%	64.12%
	Not married	1 if the respondent has never married	12.37%	21.04%
	Widow	1 if the respondent is widowed	3.68%	5.79%
	No child	1 if the respondent has no children	17.66%	32.48%
	Single	1 if the respondent is a single person	5.43%	28.71%
	How many	The number of family members	3.562 (1.507)	2.684 (1.418)
	Junior highschool or lower	1 if the highest level of education is junior highschool or lower	10.44%	0.37%
	Highschool	1 if the highest level of education is highschool	50.09%	23.52%
	Junior college	1 if the highest level of education is junior college	15.55%	38.49%
	University	1 if the highest level of education is university	21.92%	17.50%
	Graduate	1 if the highest level of education is graduate school	2.00%	20.12%
	Housewife, house-husband or retired	1 if the respondent is a housewife, a househusband or retired	24.81%	28.43%
	Office	1 if the respondent is a office worker	13.34%	12.17%
	Shop	1 if the respondent is a shop worker	6.19%	2.71%
	Management	1 if the respondent is in a managerial post	8.51%	10.61%
	Specialist	1 if the respondent is a specialist	11.94%	23.29%
	Service	1 if the respondent is a worker in a service industry	9.62%	7.44%
	Field	1 if the respondent is a field worker	9.15%	5.88%
	Agriculture	1 if the respondent is an agricultural worker	2.36%	0.83%
	Part-time	1 if the respondent is a part-time worker	11.51%	2.34%
	Student	1 if the respondent is a student	1.25%	3.08%
	Unemployment	1 if the respondent is unemployed	1.32%	3.22%
	No religion	1 if the respondent has no religion	61.61%	16.46%
	Catholic	1 if the respondent is a catholic	0.39%	27.56%
	Protestant	1 if the respondent is a protestant	0.46%	39.86%
	Other christian	1 if the respondent belongs to other christian denominations	0.43%	7.03%
	Judaism	1 if the respondent is a judaist	0.00%	2.73%
	Islam	1 if the respondent is a muslim	0.07%	1.77%
	Hinduism	1 if the respondent is a hindu	0.00%	0.23%
	Buddhism	1 if the respondent is a buddhist	32.71%	0.41%
	Other religion	1 if the respondent belongs to other religions	4.33%	3.95%
	Alcohol	1 if the respondent drinks every day	28.46%	8.50%
	Tobacco	1 if the respondent smokes	26.64%	12.82%
	Gambling	1 if the respondent has a habit of gambling	15.73%	14.84%
	Number of Observations	-	2,797	2,177

Note: For conformity variables (W-CONF and F-CONF), psychological factors (EFFICIENCY, COMFORT and SATISFACTION), and the number of household member (How many), the number indicates the sample mean, while the number in a parenthesis indicates the standard deviation.

Table 2-1: Mean-Comparison Test Results for Collectivism Variables

		Japan		U.S.		t Test Statistics
Conformity Variables	W-CONF	3.167	(0.850)	2.155	(1.017)	28.77***
	F-CONF	3.170	(0.918)	2.469	(1.077)	21.41***
Psychological Factors	EFFICIENCY	3.547	(0.838)	3.232	(1.113)	6.988***
	COMFORT	2.676	(0.982)	2.817	(1.107)	-3.648***
	SATISFACTION	3.642	(0.927)	3.031	(1.097)	15.65***

Table 2-2: Mean-Comparison Test Results for Collectivism Variables: Within-culture Standardization

		Japan		U.S.		t Test Statistics
Conformity Variables	W-CONF	0.074	(0.020)	-0.599	(0.018)	24.63***
	F-CONF	0.142	(0.016)	-0.350	(0.019)	18.97***
Psychological Factors	EFFICIENCY	0.432	(0.017)	0.282	(0.020)	5.605***
	COMFORT	-0.251	(0.018)	-0.078	(0.020)	-6.237***
	SATISFACTION	0.505	(0.019)	0.119	(0.019)	13.98***
	Number of Observations	2,797		2,177		

1. t test statistics are based on mean-comparison tests for the difference between the sample mean of a Japanese collectivism variable and the sample mean of the U.S. one. The null hypothesis is that the difference is zero, and the alternative is that the difference is not zero.
2. For conformity variables (W-CONF and F-CONF) and psychological factors (EFFICIENCY, COMFORT and SATISFACTION), the number indicates the sample mean, while the number in a parenthesis indicates the standard deviation.
3. In within-culture standardization, we subtracted the mean across all variables and individuals within a country from the individual's raw score on specific variable, and then we divided this by the standard deviation across all variables and individuals.
4. *** indicates the 1% level of significance.

Table 3: Ordered Probit Regression for W-CONF with Individual Attribute Variables

Dependent Variables	W-CONF	Japan	U.S.	Wald Test Statistics
Psychological Factors	EFFICIENCY	0.159** (0.042)	0.082 (0.064)	4.265**
	COMFORT	0.274** (0.040)	0.140** (0.026)	2.649
	SATISFACTION	0.026 (0.033)	0.090 (0.128)	1.159
Attribute Variables	Sex	-0.074** (0.030)	-0.061** (0.025)	
	Age 10	reference	reference	
	Age 20	0.011 (0.383)	0.264** (0.119)	
	Age 30	0.048 (0.397)	0.097 (0.107)	
	Age 40	0.102 (0.407)	0.130 (0.110)	
	Age 50	0.107 (0.404)	0.009 (0.102)	
	Age 60	0.178 (0.421)	0.073 (0.113)	
	Age 70	0.274 (0.508)	0.024 (0.120)	
	Divorced	reference	reference	
	Not married	0.234 (0.193)	-0.053 (0.088)	
	Married	0.081 (0.129)	-0.094 (0.092)	
	Widow	0.068 (0.191)	0.133 (0.119)	
	No child	0.036 (0.115)	0.105 (0.161)	
	Single	-0.138 (0.112)	0.019 (0.087)	
	How many	0.003 (0.019)	0.056** (0.016)	
	Junior highschool or lower	reference	reference	
	Highschool	-0.084 (0.094)	-0.136 (0.284)	
	Junior college	-0.145 (0.100)	-0.228 (0.284)	
	University	-0.182 (0.195)	-0.229 (0.286)	
	Graduate	-0.198 (0.159)	-0.270 (0.285)	
	Housewife, house-husband or retired	reference	reference	
	Office	-0.049 (0.079)	0.372** (0.087)	
	Shop	0.034 (0.115)	0.092 (0.137)	
	Management	-0.121* (0.067)	0.154* (0.080)	
	Specialist	0.008 (0.089)	0.229** (0.069)	
	Service	0.019 (0.096)	0.265** (0.099)	
	Field	0.089 (0.114)	0.263* (0.116)	
	Agriculture	-0.064 (0.155)	0.311 (0.263)	
	Part-time	0.039 (0.086)	0.296* (0.165)	
	Student	0.173 (0.305)	0.294** (0.144)	
	Unemployment	-0.133 (0.208)	0.081 (0.147)	
	No religion	reference	reference	
	Catholic	0.078 (0.329)	0.069 (0.056)	
	Protestant	0.080 (0.428)	-0.023 (0.052)	
	Other christian	-0.004 (0.474)	-0.123 (0.083)	
	Judaism	- -	0.037 (0.127)	
	Islam	0.125 (0.698)	-0.082 (0.151)	
	Hinduism	- -	-0.161 (0.234)	
	Buddhism	-0.012 (0.054)	0.373 (0.516)	
	Other religion	0.166 (0.141)	0.187 (0.210)	
	Alcohol	-0.004 (0.060)	-0.163 (0.126)	
	Tobacco	-0.077 (0.055)	-0.248** (0.062)	
	Gambling	-0.023 (0.066)	-0.099 (0.062)	

1. Marginal effects on the independent variables are reported. See the Appendix for the procedure to calculate the marginal effects. * and ** indicate the 10% and 5% levels of significance, respectively. The number in a parenthesis is the robust standard error.
2. Age 10, Junior highschool or lower, Housewife, househusband or retired, and No religion are set as the reference variables of the age, education, occupation, and religion dummy variables, respectively.
3. The null hypothesis of the Wald test is that the difference of estimated coefficients between the U.S. and Japanese samples is zero.

Table 4: Ordered Probit Regression for F-CONF with Individual Attribute Variables

Dependent Variables	F-CONF	Japan	U.S.	Wald Test Statistics
Psychological Factors	EFFICIENCY	0.080** (0.038)	0.102 (0.129)	3.160*
	COMFORT	0.160** (0.031)	0.230** (0.029)	3.359*
	SATISFACTION	0.086** (0.033)	0.162** (0.031)	5.159**
Attribute Variables	Sex	0.115** (0.001)	0.196** (0.054)	
	Age 10	reference	reference	
	Age 20	0.052 (0.160)	0.210* (0.124)	
	Age 30	0.064 (0.177)	0.204* (0.122)	
	Age 40	0.042 (0.177)	0.161 (0.119)	
	Age 50	0.052 (0.176)	0.100 (0.117)	
	Age 60	0.118 (0.188)	0.030 (0.125)	
	Age 70	0.327 (0.307)	0.218* (0.119)	
	Divorced	reference	reference	
	Not married	0.055 (0.192)	0.023 (0.108)	
	Married	0.109 (0.123)	0.105 (0.105)	
	Widow	0.169 (0.212)	-0.221** (0.134)	
	No child	-0.054 (0.192)	0.048 (0.074)	
	Single	-0.190* (0.109)	-0.040 (0.100)	
	How many	-0.005 (0.018)	0.049** (0.020)	
	Junior highschool or lower	reference	reference	
	Highschool	-0.121* (0.068)	0.137 (0.499)	
	Junior college	-0.067 (0.098)	0.060 (0.048)	
	University	-0.043 (0.102)	0.053 (0.044)	
	Graduate	-0.041 (0.173)	0.011 (0.047)	
	Housewife, house-husband or retired	reference	reference	
	Office	0.019 (0.088)	0.022 (0.086)	
	Shop	0.030 (0.117)	0.227 (0.171)	
	Management	-0.021 (0.103)	-0.110 (0.086)	
	Specialist	-0.030 (0.090)	0.035 (0.076)	
	Service	0.033 (0.100)	-0.015 (0.102)	
	Field	0.131 (0.116)	0.028 (0.117)	
	Agriculture	0.031 (0.180)	-0.244 (0.215)	
	Part-time	0.015 (0.084)	0.017 (0.171)	
	Student	-0.185 (0.201)	0.143 (0.164)	
	Unemployment	-0.213 (0.193)	0.049 (0.161)	
	No religion	reference	reference	
	Catholic	-0.048 (0.348)	0.139** (0.067)	
	Protestant	0.027 (0.441)	0.120* (0.064)	
	Other christian	0.040 (0.200)	0.121 (0.106)	
	Judaism	- -	-0.126 (0.119)	
	Islam	-0.339** (0.108)	-0.282* (0.152)	
	Hinduism	- -	0.193 (0.158)	
	Buddhism	0.022 (0.053)	0.355 (0.636)	
	Other religion	0.246 (0.156)	0.105 (0.305)	
	Alcohol	-0.039 (0.059)	-0.187** (0.056)	
	Tobacco	-0.092* (0.056)	-0.100 (0.171)	
	Gambling	-0.048 (0.066)	-0.134 (0.141)	

1. Marginal effects on the independent variables are reported. See the Appendix for the procedure to calculate the marginal effects. * and ** indicate the 10% and 5% levels of significance, respectively. The number in a parenthesis is the robust standard error.
2. Age 10, Junior highschool or lower, Housewife, househusband or retired, and No religion are set as the reference variables of the age, education, occupation, and religion dummy variables, respectively.
3. The null hypothesis of the Wald test is that the difference of estimated coefficients between the U.S. and Japanese samples is zero.

Table 5: Control-function Regression for W-CONF with Ordered Probit Model

Dependent Variable	W-CONF	Marginal Effects		Wald Test Statistics
		Japan	U.S.	
Psychological Factors	EFFICIENCY	0.441** (0.194)	0.095 (0.163)	6.991**
	COMFORT	0.310** (0.110)	0.745** (0.130)	5.439**
	SATISFACTION	-0.022 (0.187)	-0.218 (0.206)	0.820
Fist-stage Residuals	$e^{\text{EFFICIENCY}}$	-0.293 (0.247)	0.005 (0.174)	
	e^{COMFORT}	-0.040 (0.090)	-0.339 (0.352)	
	$e^{\text{SATISFACTION}}$	0.129 (0.186)	0.564 (0.405)	
Control Variables	Sex	-0.074** (0.031)	-0.060** (0.023)	
	Age 10	-	reference	
	Age 20	-	0.263** (0.118)	
	Age 30	-	0.085 (0.111)	
	Age 40	-	0.129 (0.110)	
	Age 50	-	0.007 (0.104)	
	Age 60	-	0.079 (0.112)	
	Age 70	-	0.021 (0.118)	
	How many	-	0.059** (0.014)	
	Housewife, house-husband or retired	reference	reference	
	Office	-0.051 (0.080)	0.376** (0.088)	
	Shop	0.033 (0.116)	0.089 (0.139)	
	Management	-0.120* (0.068)	0.153* (0.082)	
	Specialist	0.005 (0.079)	0.232** (0.067)	
	Service	0.016 (0.094)	0.263** (0.105)	
	Field	0.089 (0.112)	0.260* (0.113)	
	Agriculture	-0.063 (0.155)	0.325 (0.270)	
	Part-time	0.042 (0.083)	0.302* (0.162)	
	Student	0.174 (0.306)	0.2884** (0.124)	
	Unemployment	-0.134 (0.205)	0.080 (0.145)	
	Tobacco	-	-0.243** (0.066)	
Sargan's J Test (P-value)		0.499	0.682	

1. The results are based on control-function instrumental variable estimation of equation (1).
2. Marginal effects on the independent variables are reported. See the Appendix for the procedure to calculate the marginal effects. * and ** indicate the 10% and 5% levels of significance, respectively. The number in a parenthesis is the robust standard error.
3. The null hypothesis of the Wald test is that the difference of estimated coefficients between the U.S. and Japanese samples is zero.
4. In the first stage regression, the psychological variables were regressed over the attribute variables that were insignificant in Tables 3. In the second stage regression, the attribute variables that were significant in Tables 3 were included as the control variables.
5. $e^{\text{EFFICIENCY}}$, e^{COMFORT} and $e^{\text{SATISFACTION}}$ are generalized residuals for EFFICIENCY, COMFORT, and SATISFACTION equations, respectively. See equation (18) in Vella (1993) for definition of the generalized residuals.
6. Sargan's J Test is conducted by running the OLS regression of the first-stage generalized residuals on the instrument variables. The test statistics are calculated as nR^2 where n is the sample size. The test has large-sample $\chi^2(13)$ and $\chi^2(19)$ distributions in the regressions for Japan and the U.S. See Arellano (2002) for details on Sargan's J test for nonlinear instrumental variables estimation.

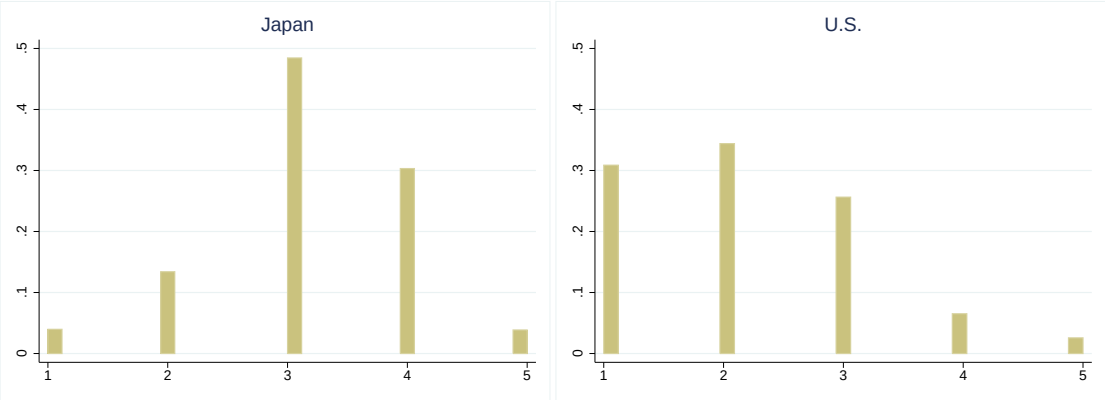
Table 6: Control-function Regression for F-CONF with Ordered Probit Model

Dependent Variable	F-CONF	Marginal Effects		Wald Test Statistics
		Japan	U.S.	
Psychological Factors	EFFICIENCY	0.459* (0.224)	-0.298 (0.223)	5.714**
	COMFORT	0.064 (0.112)	0.383** (0.138)	6.301**
	SATISFACTION	0.293** (0.124)	0.432** (0.212)	5.261**
Fist-stage Residuals	$e^{\text{EFFICIENCY}}$	-0.380 (0.331)	0.218 (0.221)	
	e^{COMFORT}	0.083 (0.110)	-0.145 (0.141)	
	$e^{\text{SATISFACTION}}$	-0.019 (0.194	-0.259 (0.223)	
Control Variables	Sex	0.116rlap** (0.001)	0.193** (0.058)	
	Age 10	-	reference	
	Age 20	-	0.204* (0.125)	
	Age 30	-	0.209* (0.120)	
	Age 40	-	0.153 (0.130)	
	Age 50	-	0.104 (0.119)	
	Age 60	-	0.031 (0.124)	
	Age 70	-	0.212* (0.119)	
	Divorced	-	reference	
	Not married	-	0.019 (0.132)	
	Married	-	0.132 (0.126)	
	Widow	-	-0.214** (0.114)	
	Single	-0.193* (0.111)	-	
	How many	-	0.047** (0.022)	
	Junior highschool or lower	reference	-	
	Highschool	-0.119* (0.065)	-	
	Junior college	-0.071 (0.103)	-	
	University	-0.038 (0.110)	-	
	Graduate	-0.042 (0.174)	-	
	No religion	reference	reference	
	Catholic	-0.050 (0.347)	0.140** (0.068)	
	Protestant	0.026 (0.438)	0.119* (0.067)	
	Other christian	0.042 (0.198)	0.130 (0.116)	
	Judaism	- -	-0.118 (0.125)	
	Islam	-0.413** (0.109)	-0.276* (0.152)	
	Hinduism	- -	0.188 (0.159)	
	Buddhism	0.019 (0.057)	0.357 (0.641)	
	Other religion	0.261 (0.159)	0.105 (0.311)	
	Alcohol	-	-0.186** (0.058)	
	Tobacco	-0.091* (0.059)	-	
Sargan's J Test (P-value)		0.739	0.822	

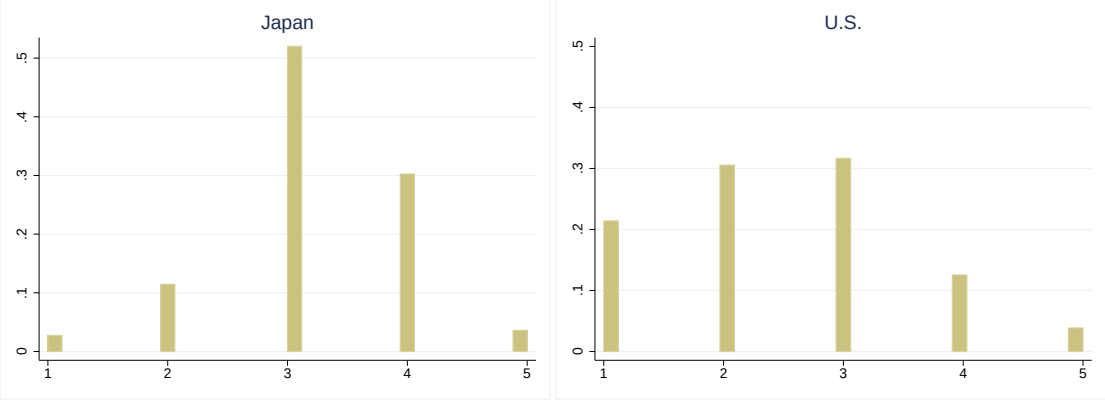
1. The results are based on control-function instrumental variable estimation of equation (2).
2. Marginal effects on the independent variables are reported. See the Appendix for the procedure to calculate the marginal effects. * and ** indicate the 10% and 5% levels of significance, respectively. The number in a parenthesis is the robust standard error.
3. The null hypothesis of the Wald test is that the difference of estimated coefficients between the U.S. and Japanese samples is zero.
4. In the first stage regression, the psychological variables were regressed over the attribute variables that were insignificant in Tables 4. In the second stage regression, the attribute variables that were significant in Tables 4 were included as the control variables.
5. $e^{\text{EFFICIENCY}}$, e^{COMFORT} and $e^{\text{SATISFACTION}}$ are generalized residuals for EFFICIENCY, COMFORT, and SATISFACTION equations, respectively. See equation (18) in Vella (1993) for definition of the generalized residuals.
6. Sargan's J Test is conducted by running the OLS regression of the first-stage generalized residuals on the instrument variables. The test statistics are calculated as nR^2 where n is the sample size. The test has large-sample $\chi^2(15)$ and $\chi^2(20)$ distributions in the regressions for Japan and the U.S. See Arellano (2002) for details on Sargan's J test for nonlinear instrumental variables estimation.

Figure 1: Conformity Variables: W-CONF and F-CONF

W-CONF



F-CONF

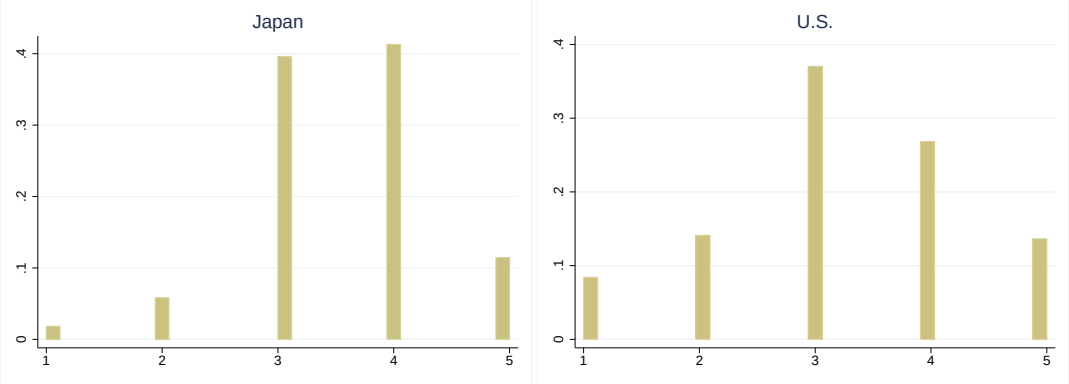


1. Each figure shows the histogram of answerers and respondents in Japan and the U.S.

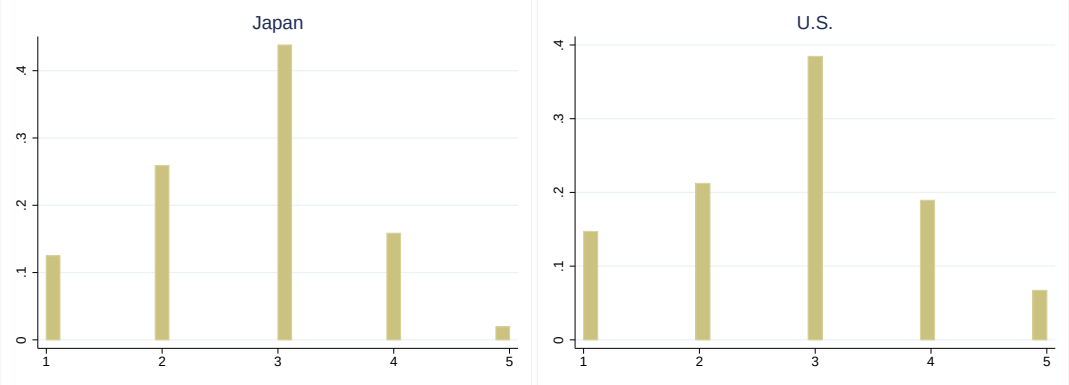
2. The vertical axis indicates the percentage number of answerers, and the horizontal axis indicates the responses from one to five concerning the questionnaires.

Figure 2: Psychological Factors

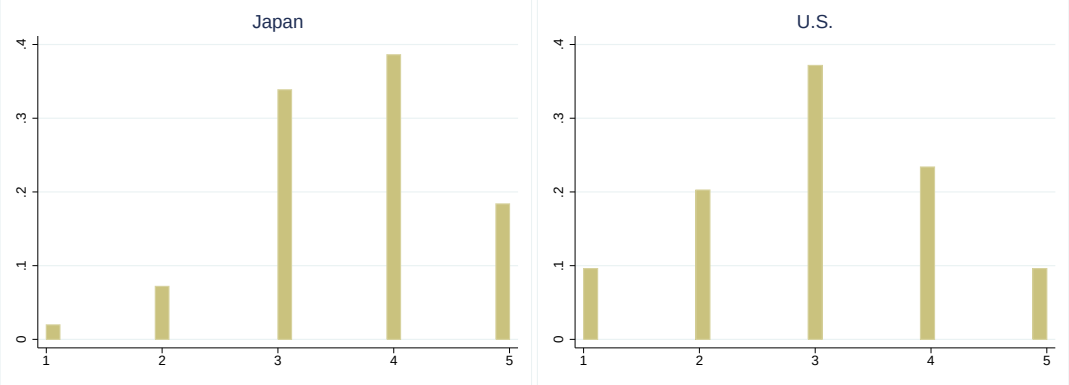
EFFICIENCY



COMFORT



SATISFACTION



1. Each figure shows the histogram of answerers and respondents in Japan and the U.S.

2. The vertical axis indicates the percentage number of answerers, and the horizontal axis indicates the responses from one to five concerning the questionnaires.