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Editors

Trust with Asian Characteristics

Interpersonal and Institutional

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Preface

The word "trust" has appeared a number of times on my academic research agenda. First, gauging the popularity of prime ministers in Japan interested me in the 1970s when it was linked with economic conditions. The mainstream view of economic policy and popularity of government was that government preference for sectoral and ideological interests given perceived economic conditions determined economic policy. This is the view that the government with some partisan-looking glasses takes the lead in determining economic policy. I hold a view dissonant with this and argue that the government attempts to surf over economic waves when it decides to call a general election. This type of economic management is seen in a regime where parliamentary democracy is practiced and bureaucratic autonomy is strong and legislative power is weak.

In the 1990s, the word "trust," in the name of social capital, kept my attention. The mainstream view of social capital at that time was generalized and provincial. The former means that trust is offered to everyone whereas the latter means that trust is restricted to those with similar backgrounds and inclinations. Evidence shown in experimental games of social psychology seems to show that that is the case. I hold a view dissonant with this and argue that methodologically face-to-face interviews should augment experimental games in gauging trust.

In the 2000s I carried out a quality-of-life focused survey in 32 Asian societies with face-to-face interviews of randomly sampled national populations, the size of which ranged from 1000 to 3000. This survey, called the AsiaBarometer Survey, is the only one of its kind that was systematically and scientifically assembled Asia-wide and that practiced open access to those seeking to use the data for academic purposes. Although my two previous encounters with trust, that is, government popularity in economic policy and generalized and provincial social capital, have not seen a final resolution on my part, the AsiaBarometer Survey has offered many splendid opportunities to examine trust of various kinds. This volume, coedited by Yasuharu Tokuda and me, focuses on interpersonal and institutional trust in 32 societies. East, Southeast, South and Central Asian societies, plus three adjacent societies, Russia, Australia, and the United States, are examined with 52,215 respondents in total.

Methodologically, both questionnaire interviewing strategies and experimental games have narrowly focused on West European and North American subjects. Quinn McNemar called the science of human behavior "largely the science of the behavior of sophomores." I concur with this argument. Using the AsiaBarometer Survey we have produced two volumes in the area of quality of life. This volume focuses on trust. The forthcoming volume examines human behavior in deteriorating organizational and societal conditions in Asian societies.

As stated above, Yasuharu Tokuda and I are the coeditors of this volume. Dr. Tokuda, a practicing medical doctor with a Harvard School of Public Health degree, and I, an academic with the Massachusetts Institute of Technology with a Ph.D. in political science, have worked together on the subject of trust. Dr. Tokuda focuses on (1) interpersonal trust and perceived health, and (2) institutional trust toward mass media and toward medical hospitals and perceived health. I focus on interpersonal and institutional trust Asia-wide.

It is my belief that in terra incognita what may be called the Dharmic orientation produces more gains than the Abrahamic orientation. In other words, the exploratory orientation with respect for differences and accommodation with diversity rather than the defining orientation with a unifying urge and standardizing impetus. In methodological parlance, it may be called Albert Hirschmann's principle of the hiding hand and Robert Merton's middle-range theory. Quality of life and comparative politics dealing with vast and diverse Asian societies, both of which may be judged as relative terra incognita in Western eyes, would welcome the Dharmic orientation at this stage of academic development both in quality of life and comparative politics covering Asia.

Tokyo, Japan   Takashi Inoguchi

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Acknowledgments

Takashi Inoguchi
Yasuharu Tokuda

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Part II   Institutional Trust

Chapter 1
Introduction

Takashi Inoguchi

Abstract Trust is not an easy word to use. A few examples are provided to see why trust is not easy to use. Nevertheless, when trust is used, three threads are often pointed and articulated by social scientists: 1) democracy (Putnam), 2) prosperity (Fukuyama), and 3) stability (Luhman). Yet gauging trust in relation is not easy either for three problems: 1) heavy use of national sampling theory. 2) face-to-face interviewing versus responses without face-to-face interactions, and 3) linguistic equivalence versus linguistic ambivalence. After discussing the conceptual and methodological issues, Part I, dealing with interpersonal trust, and Part II, dealing with institutional trust follow. Chapters 2, 3 and 4 examine components of what is called social capital across Asian societies using factor analysis. Chapters 6, 7 and 8 examine and analyse interpersonal trust in relation to unhappiness, interpersonal trust in relation to quality of life, and social trust in relation to happiness respectively. In Part II, Chaps 9 and 10 analyse trust in political institutions. Chapter 9 examines citizens' confidence in political and other institutions across 18 Asian and European countries. Chapter 10 examines the ways in which citizens express their preference in Japan: retrospective, prospective, sociotropic and/or pocketbook. Chapter 11 examines the working poor in Japan relating income to health and health utilization. Chapter 12 examines the relationship between trust in mass media and the health care system on the one hand individual health on the other. Given conceptual and methodological difficulties associated with trust, what might be viewed as the Procrustean practice of comparison and generalization should be moderated.

Trust is not an easy word to use (Hardin 2006). In medieval English, tryst, is used to denote something strong. In hare hunting, there are two kinds of roles: those who make noise to spook and drive hares from their forest hiding spots; and those who kill hares with sticks, that is, those who stand tryst off the forest and wait to deliver the fatal blow to the fleeing hares. It has a strong connotation. Without close cooperation and mutually well-timed action between drivers and hitters, hares cannot be caught successfully. Trust can mean something solid. When someone says that I

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trust that it will be fine tomorrow, trust means something very weak. Trust is used not to link something with something else. It is used simply to comment without giving a solid judgement or a prospective action.

Suppose that in the depth of evening a young man sings a love song from outside the window, "Open your window, my dear Maria, I will not leave here until you open the window." Three options are available to Maria. First, Maria opens the window immediately. Trust is perhaps strong. Second, Maria never opens the window. Trust does not exist. Third, Maria tries to ascertain whether the young man truly loves her. Maria must judge whether she can trust him or not.

In medieval Japan, young noble men traditionally expressed their affection toward their female counterpart through the composition of 31-character long poems. The female recipient, in return, would compose a poem of 31 characters to her admirer, replying to his romantic gesture either positively or negatively or in a way to baffle him without replying directly to him. This poem exchanges between the two were sometimes repeated not just twice but half a dozen times, as both tried to determine how good the counterpart was in poetry composition and thus how genuinely interested the other was in them. *The Tale of Genji* originally written by Murasaki Shikibu, a female writer of eleventh-century Japan, and translated in 2006, is a novel based on the exploits of Genji, a prince, and his numerous love conquests and poems exchanges. It is the game of gauging trust, focusing on love, emotion, and conviviality. Here, trust matters.

For organizations and institutions, trust carries some important meanings. When discussing public trust in organizations and institutions, the word, confidence is often used. Confidence in institutions usually implies that said institutions perform their functions properly. In turn, institutional functions can mean what people expect such institutions to do. If their functions meet people's expectation, they feel they have confidence in such institutions. Confidence in institutions has a stabilizing function. People's expectations of institutions vary from one person to another. Yet we ask respondents how much you have confidence in institutions.

On September 9–11, 2015, heavy rain fell on the northern Kanto plain surrounding Nikko, registering 500 mm in 1 h. Rivers overflowed their banks when half a year's volume of rain fell in 2 days. Rivers not only spilled their banks but embankments and levees failed. The River Kinu is one such example. In this instance, some two-dozen people were killed or went missing in the ensuing floods. Of the victims rescued by helicopters from the tops of flooded houses and buildings, almost all unanimously declared that they had trusted the strength of the banks and the Ministry of Land, Infrastructure, Transport and Tourism to ensure the safety of river ways and water systems.

Confidence in government often focuses on the prime minister or president. Thus pollsters ask: Do you approve or disapprove of the prime minister or president in her/his handling of foreign affairs? The Office of Prime Minister or President represents the institution called government.

In a flood scenario, the institutional bodies concerned are local governments and national government, depending on where the bank collapses, that is, upstream, mid-stream or downstream. In the River Kinu's case, it was local government. The

target of confidence becomes blurred. While one person may hold the local government responsible, another may direct responsibility to the Ministry of Land, Infrastructure, Transport, and Tourism or the Meteorological Agency. And some may view the prime minister as ultimately responsible.

A more in-depth examination of how human interactions impact trust exposes three broad contributing threads: (1) democracy, (2) prosperity, and (3) stability.

1. Democracy: Robert Putnam (1994) argues that high trust among community helps effective democracy to emerge. Low trust among community and in institutions do not help sustain democracy. Here, historically and geographically accumulated civic culture makes a difference. In the United States, its civic culture in the 1940s and 1950s was best characterized as that of allegiant culture while, more recently, it is that of assertive culture (Almond and Verba 1963; Inglehart 1997; Welzel 2013; Welzel and Dalton 2017). In a similar vein, Samuel Huntington (2006) argues that high trust in political institutions enables political transition from take-off to maturity. Political institutionalization must be implemented head on in a transition of a developing society.
2. Prosperity: Francis Fukuyama (1995) argues that high trust prevailing in business enterprises helps to sustain prosperity. Low trust does not motivate business enterprises to continue their enterprising activities despite all the vicissitudes of business environments. He contrasts high trust and low trust in business enterprises within and beyond family and clan networks in Japan and China, for instance. Chinese entrepreneurs' trust, while very strong among family and clan networks, does not go beyond kins and kiths, compared to Japanese entrepreneurs' trust that permeates business organizations. And this makes difference in terms of the percentage of long-life business enterprises in Japan and China (Firms that are over 200 or 300 years old are not uncommon in Japan,).
3. Stability: Lukas Luhmann (1968, 1979) argues that trust plays a key role in reducing social complexity and bringing about societal stability. Without trust, the future becomes unknown. People then would have to be constantly assessing what they could count on. On the one hand, trust encourages some dissident members of society to behave, that is, to observe certain minimum rules while, on the other hand, trust gives warning to powerful members not to act immorally. Satoru Mikami and Inoguchi (2008), using data from the 2004 and 2007 AsiaBarometer Surveys, which capture sentiments before and after the 2006 Thai military coup d'état, argue that high trust in the Thai military as reflected in various sectors of Thai society deters the military from behaving too badly, that is, observe rules while allowing the military to take part in military coup d'états a little too often.

Trust among persons and confidence in institutions is difficult to gauge without history or context. Thus assessing trust, interpersonal, or vis-à-vis institutions, is never easy. This is the first word of caution I give to those who are interested in observing and measuring such qualities.

Another area of concern that has to be addressed in the introduction is the social-linguistic kind. Trust can mean something close to religion, depending on language

and context. The social-linguistic problem becomes very challenging when the following question is asked:

There are two sentences on trust. Which sentence is closer to your mindset? (1) Overall one can trust other people; (2) One cannot be too careful of people. Which sentence is truer for you?

For some groups, upwards of 60–80 % select the first sentence, whereas in other groups, between 60–80 % select the second sentence. The former can be called the school of "human nature as virtuous" and the latter can be called the school of "human nature as vicious." When an overwhelming number select the first sentence, one may well suspect that trust is getting close to a religious question. When an overwhelming number select the second sentence, one may also suspect that distrust is getting close to a religious question. In East Asia, two societies, China and Vietnam, Confucian influence is regarded to be very strong with both societies having communist regimes. Citizens' choice of the first sentence, Overall one can trust other people, in response to the question, register 62 % for China and 60 % for Vietnam in the AsiaBarometer Survey. Does Confucian-Communist mutual reinforcement bring about these high percentages? One wonders.

This problem becomes serious when a survey is carried out across national borders with the same questionnaire. The trust questions carry heavy weight when surveys focus on democracy and governance. Thus Richard Rose and Doh Chull Shin, for instance, argue that the relative lack of social capital, that is, trust, is a cause of maldevelopment of democracy and governance. But trust is not an easy sentiment about which to ask a question and to provide an answer.

Prior to employing the AsiaBarometer Survey data, I must discuss, if briefly, (1) national sampling theory versus global sampling theory; (2) Face-to-face interviewing versus responses without face-to-face interactions; and (3) Linguistic equivalence versus linguistic ambivalence.

1. National Sampling Theory versus Global Sampling Theory

When a multi-national survey is designed, few would think about a global sampling theory. By which I mean the theory of sampling the entire population of the world. The globe is not necessarily divided by national borders. Nevertheless, the standard theoretical basis is the national sampling theory, by which one executes a multi-national survey. This has been routine practice since Gabriel Almond and Sidney Verba (1963) pioneered multi-national survey research. This approach is theoretically solid, especially in terms of statistically random sampling on a national basis. Almond and Verba used a multi-national survey to examine the then emerging modernization theory. The United States, Great Britain, Germany, Italy, and Mexico were covered in the civic culture survey. The thesis was that as modernization progresses, as measured by increasing per capita income levels, civic culture transits from allegiance to assertion. Russell Dalton (2015) summarizes the half-century journey of the Almond/Verba volume. In the late 1950s and early 1960s, the civic cultures of these societies varied from one society to another: some resembled an amoral civic culture; some looked like a feudal hierarchical culture; and others looked like a very authoritarian society. Dalton (2015) masterly summarizes all

these and other varieties as allegiance. Over a period of 65 plus years the transition from allegiance to assertion is natural. Even in the United States, the profiles portrayed in their civic culture were far less individualistic, far less participatory, far less assertive. The question that then arises is: Should civic culture be portrayed on national terms? Perhaps yes. Yet given the long-term trend from allegiance to assertion, for some who envision a global sampling theory, another possibility exists. Ijaz Gilani (2012) gives an elementary form of this perspective's theoretical underpinnings and operational practice. Instead of comparing the portraits of national samples, why not compare groups of a global sample? Groups can be urban-rural in residence, rich-poor in income, left-right in ideology, educated-uneducated, Islamic-non-Islamic in religion etc. How to sample? Our idea is to use Google Earth, and to envisage many boxes of ten to one hundred kilometer squares and to randomly sample these boxes. Analysis can be done in terms of varieties of groups. The advantage of global sampling is to alleviate the tendency of portraying national profiles as if a nation state is a fairly uniformed entity that is labeled this or that way, almost dismissing the presence of hugely heterogeneous populations.

The national sampling theory has been with us for the last 80 years since 1935 when George Gallup established the American Institute of Public Opinion in New York. The year was one of the nadirs of free trade practice in the world. In contrast, 2016 is arguably one of the peak years for free trade practice with territorial and imperial violent conflicts subsiding and being suppressed on a world scale. In the past, it was best to apply the national sampling theory, but now with the torrents of globalization and digitalization, a global sampling theory might well overtake or at least coexist with the national sampling theory.

The reality is not so. At least instead of mechanistic ten-kilometer square samples, one can pinpoint a few sub-national units to compare. One recent example is European social democracy (*The Economist*, April 2–8, 2016a, pp. 20–22): Emilia Romagna, Andalusia, England's north-east and North Rhine Westphalia. These regions "all have populations with a proletarian self-image that helps politicians appeal to working and middle class alike." The purpose of such a localized survey is to elucidate factors contributing to the decline of European social democracy at selected units, thereby enabling a comparison of the strong and weak explanatory variables linked to social democratic decline in Europe. If the selected and limited units are more mechanistically delineated, for instance within ten-kilometer squares of the entire Europe, it would become close to a regional sampling theory-based survey.

Needless to say, the AsiaBarometer Survey is the conventional orthodox face-to-face interviewed and randomly sampled survey of countries. Yet with regards to methodology, it is important to note that we are aware of problems associated with the standard conventional national sampling theory based surveys. In fact, what Mongol Post proposes today is exactly addressing the world, neither in terms of house number, street name, town, province and so on, nor in terms of unwieldly coordinates of latitude and longitude, but to divide the Earth's surface into nine meter square blocks. Then "each block is given names consisting of trios of randomly selected, unrelated words" (The Economist 2016b).

2. Face-to-face Interviews versus No Face-to-face Interactions

The AsiaBarometer Survey conducts face-to-face interviews. Why is this necessary? First, in some authoritarian countries, permission by authorities sometimes is mandatory. Without such permission, opinion polling cannot be carried out. In the AsiaBarometer Survey, we have adopted the practice of securing such permission from authorities through a local polling company contracted by the Tokyo-based polling company. Such an approach ensures that potential trouble with national authorities is avoided. The local polling company is contracted with the Tokyo-based polling company to be responsible for dealing with authorities. When authorities demand the deletion of a question, our policy has been to comply with the request to remove the question concerned. Second, in order to encourage honest responses to questions, face-to-face interviews is a must, or at least desirable. Local interviewers are instructed to leave brief comments about impressions of interviewees on the side margins of the questionnaire, which analysts later examine in the Tokyo-based polling company. Third, no less significant is the assurance of keeping data secret as to interviewees' names and their locations/addresses. In the coding process and in the data accessibility scheme, protecting interviewees' rights is critical. The adoption of a face-to-face interviewing method is very important to satisfy the above requirements. Cost-wise, one can argue for more cost-effective methods. But to ensure data accuracy, human rights protection, and harmony with authorities, we insist on interviewing face to face.

3. Linguistic Equivalence versus Linguistic Ambivalence

Cross-national and cross-cultural surveys must deal with one inherent problem: equivalence must be assured to a certain extent. From the outset of the survey, full and perfect equivalence is not to be expected in most situations. Equivalence must cover both word and sentence selection. Here are some examples.

Trust in Thai is a word derived from Buddhism. A heavily Buddhist philosophically toned word cannot be equivalent to the English word, trust. Trust in Thai is wang cai, or sometimes wai wang cai: to believe that someone is honest and will not cause harm. Cai means heart, mind or spirit. Cai or a mind acts as the focal point of all dharma teachings. For example, it means mindfulness (Sawasdee 2016). Moreover, trust in English is not an easy word to define and use. Most of those Asian languages used in the AsiaBarometer Survey questionnaire are not necessarily equivalent to the full extent.

More troublesome are those sentences that may be necessary to give a brief explanation of the context in which the question is asked. Take an example from the annual snap shot survey of the 2012 U.S presidential election year. Gallup International asked respondents the following question:

> In the United States, the presidential election is unfolding this year. The United States exerts extraordinary influence all over the world. There is a view that in light of the U.S. influence the world over, all citizens of the world should have the right to vote in the U.S. Do you agree or disagree? Choose one of the following responses: agree very much, agree, neither agree nor disagree, disagree, disagree very much, I don't know.

The issue is about the second sentence on U.S. global influence. Wouldn't this sentence induce some of the respondents to answer the question in a mood not dissimilar to "No taxation without representation."

If we look at those countries registering the "very much agree" plus "agree" responses, they are Kenya, Afghanistan, and China. More than 50 % of positive answers came from these three countries. As one of the presidential candidates, Barack Obama, has a Kenya-born father, Kenyans' responses may have been affected by the second sentence inclusion. As Afghanistan has been militarily engaged by the United States, many Afghans might have been affected by the second sentence. China may have felt similarly to Afghans in the sense that U.S. policy has been often regarded as the containment of China. In East Asia, South Korea, Hong Kong, and Japan, these survey registered very low levels of agreement with the question.

One more difficulty is language equivalence. English sentences can be short or can be long. Short in the sense that locally, say, in southwestern Afghanistan, respondents require lengthy explanations about the U.S. presidential election when asked the above question. Long in the sense that use of relative pronouns in English is often rendered in two or three sentences, the fact that makes the question much longer.

All these issues must be considered. The conventional two methods of coping with these and some other difficulties are back translation and focus group experiments. Back translation means that in addition to translating the English language master questionnaire into local languages, translating back from local languages into English must be carried out to see where it is wrong and how it might be rectified. Focus group experiments means that a small number of people are invited to discuss a number of topics, say, identity, pride, government performance, quality of life etc. Listening to, and participating in, such discussions on topics, focus group experiment designers should be able to come up with a simple question with a singular focus. We did both in the process of designing and finalizing the questionnaire.

All these methodological issues are not always highly important. However, awareness of such issues is imperative as surveyors carrying out multi-national and multi-cultural polls across borders. It enhances our sensitivity and alerts our carefulness in analyzing and interpreting results.

With this introduction provided, readers enter into the empirical details of trust in Asia, both interpersonal and vis-à-vis institutions when cross-national surveys are carried out throughout Asia.

What follows after the Introduction consists of two parts: Part I. Interpersonal Trust and Part II. Institutional Trust.

Within Part I, Chaps. 2, 3 and 4 examine components of what is often called social capital across Asian societies using factor analysis. Using the 2003 AsiaBarometer Survey data, Chap. 2 examines ten societies across Asia (Uzbekistan, India, Sri Lanka, Myanmar, Thailand, Vietnam, Malaysia, China, South Korea and Japan) through factor analysis to argue that three kinds of trust emerge as governing social capital: (1) general trust in interpersonal relations, (2) trust in merit-based

utility, and (3) trust in social system, and to divide the societies into five groups, (1) China and Vietnam, (2) Sri Lanka and Uzbekistan, (3) Malaysia, Myanmar and India, (4) Japan and Korea, and (5) Thailand.

Chapter 3 tests the hypothesis that the tide of globalization reinforces the traditional types of social capital in East Asia. Using the 2006 AsiaBarometer Survey data and applying two-level logit regression analysis, this chapter finds that social capital related to sense of trust or human nature and interpersonal relations can be augmented by globalization, whereas social capital regarding familialism and mindfulness can be weakened.

Chapter 4 examines social capital in South and Central Asia (Kazakhstan, India, Pakistan, Afghanistan, Sri Lanka, Bangladesh, the Maldives, Bhutan, Mongolia, Nepal, Tajikistan, Turkmenistan, Kyrgyzstan, and Uzbekistan) using the 2005 Asia Barometer Survey. Three components, that is, general trust, merit-based utilitarianism, and institutional engagement, stand out in broad harmony with findings of Chap. 2.

Chapter 5 examines all 29 Asian societies covered in the AsiaBarometer Survey and breaks down social capital into four components (1) altruism, (2) reliance on relatives/community, (3) utilitarianism, (4) trust in social system. Using these four components, seven groupings of Asian societies are identified:

1. Japan, Taiwan, and Korea
2. Pakistan, Afghanistan, the Maldives
3. China and Turkmenistan
4. Singapore, India, Sri Lanka, and Nepal
5. Brunei, Malaysia, Indonesia, Vietnam, Bhutan, Mongolia
6. Hong Kong, the Philippines
7. Remaining countries Thailand, Kazakhstan, Uzbekistan, Tajikistan, Cambodia, Bangladesh, Kyrgyzstan, Laos, Myanmar

Chapter 6 relates interpersonal mistrust to unhappiness among Japanese people in the AsiaBarometer Survey (2003–2006). The former is associated significantly with unhappiness with an OR of 2.06 (95 % CI, 1.25–3.38). Other features that are associated significantly with unhappiness included the age bracket of 50–59 years, marital status other than married/partnered, low income, mid-level education, and poor health. Gender, occupation, and religious belief are not associated with unhappiness.

Chapter 7 focuses on Japan. Despite the Japanese people's longevity, they report a relatively poor subjective well-being as well as lower interpersonal trust. The relationship between interpersonal trust and each of the four domains of the WHOQOL-BRIEF were analysed. Interpersonal trust was assessed using three scales for trust in people, in human fairness and in human nature. Greater interpersonal trust is strongly associated with a better QOL among Japanese adults.

Chapter 8 examines the relationship of individual-level and country-level social trust to individuals' happiness, using AsiaBarometer cross-national data (2003–2006) of 39,082 participants from 29 Asian societies. The significant variables associated with happiness are being female, falling into one of these two age brackets of

20–29 years or 60–69 years, married, high income and education, students/retired/homemaker, religious belief, good health, and higher individual and aggregate social trust.

Part II deals with institutional trust. Chapters 9 and 10 examine trust in political institutions in Japan. Chapters 11 and 12 examine health and healthcare utilization issues in Japan relating them to trust in medical and mass media institutions.

Chapter 9 examines citizens' confidence in political and other institutions across 18 Asian and European countries. Striking are two contrasting observations common to both Asia and Europe. (1) People have higher confidence in such professional institutions like the military, the police, the civil service and the court. (2) People have lower confidence in such democratic institutions as political parties, parliament, elected government, and political leaders.

Chapter 10 examines the ways in which citizens express their preferences in Japan. Is it retrospective (looking back) or prospective (looking forward)? Is it sociotropic (looking around) or pocketbook (looking inside)? Is it connected to affiliated groups? Focusing on certain response categories of those questions of the Asia-Europe Survey, we examined each perspective to determine which has more "power" in explaining confidence in political and other institutions. The conclusion is that the retrospective and sociotropic assessment of the larger environment in the recent past has more "power" than the rest.

Chapter 11 examines the working poor in Japan who register 10.6 % of 3568 participants, with the hypothesis that income negatively affects health status and health utilization. The result is that the former is validated whereas the latter is not.

Chapter 12 examines the relationship between trust in mass media and the healthcare system and individual health, using data from the AsiaBarometer Survey (2003–2006). Of the 39,082 respondents, the result is that individual health has a lot to do with trust in mass media and trust in the healthcare system.

At this point, it is necessary to emphasize that interpersonal and institutional trust have multifaceted and complicated features. Therefore, we have attempted to ensure that these features are well understood before making generalizations that are too vast and too over reaching. In other words, what might be viewed as the Procrustean practice of seeking standardized and informed comparison and generalization should be moderated.

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Part I
Interpersonal Trust

Chapter 2
Social Capital in Ten Asian Societies

Takashi Inoguchi

Abstract On the basis of seven questions asked in the AsiaBarometer survey conducted by the author in 2003 in ten Asian societies, Uzbekistan, India, Sri Lanka, Myanmar, Thailand, Vietnam, Malaysia, China, Korea and Japan, the author analyzes the key dimensions of social capital, permeating the ten societies, (1) general trust in interpersonal relations, (2) trust in merit-based utility; and (3) trust in social system and comes up with the five groups of societies on the basis of three major dimensions of social capital and comes up with the five groups of societies (1) China and Vietnam, (2) Sri Lanka and Uzbekistan, (3) Malaysia, Myanmar and India, (4) Japan and Korea, and (5) Thailand. Conceptual examinations are also done in relation to the work done by Ronald Inglehart and Christian Weltzel and broad empirical corroborations are noted.

2.1 Introduction

Social capital is defined as something that can be most useful in minimizing the costs of misunderstanding and transactions when one tries to forge bridges and enhance bonds, when one ventures into joint undertakings, and when one tries to regularize reciprocities. Social capital is such a broad concept that it is often used to mean 'what you mean' (Baron et al. 2002). Yet of all the matters that are conceptualized as being 'caused' by social capital, directly or indirectly, two stand out. They are democracy and prosperity. Putnam (1993, 2002) champions the causal chain of social capital facilitating democracy, whereas Fukuyama (1995) upholds the causal path of social capital promoting prosperity. To make a long story short, Putnam argues that where there is the tradition of civic engagement, democracy is much

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more deeply rooted. For instance, it is the tradition of republican rule in Florence; it is the tradition of civic associations in mid-nineteenth-century America. Likewise, Fukuyama argues that where there is the tradition of social capital, prosperity is created in a civilized form. Fukuyama uses high and low trust societies whereby civilized and not-so-civilized business transactions take place. His argument is that without civilized trust permeating in society, sustained prosperity is more difficult to create. His anthropological evidence supporting his argument is marshaled on Chinese, Korean, Indian, Japanese, French, German, American, and other social relations. Although one may take issue with Putnam or Fukuyama in one way or another like Bacon et al. (2002), I find the concept of social capital very useful in understanding the propensity to take initiatives, to avert risks, to cooperate or defect, and to shape and share values, norms and rules, especially when some measures are given.

In this research note I attempt to identify some major dimensions of social capital as found in the AsiaBarometer data, to place ten countries on those dimensions, and to reflect on the nature of political culture in ten Asian societies as revealed by the AsiaBarometer survey data focusing on social capital. By so doing I try to make a first step of gauging the democratic, developmental, and regionalizing trends in Asia. After all, social capital is conducive to building democracy, so argues Robert Putnam; social capital is facilitative to creating prosperity, so argues Francis Fukuyama; and social capital is essential to integrate countries into a region, so argues Karl Deutsch. The exercise is admittedly a big project. I must admit that this paper will not be able to map out what must be far more complex causally interpretable schemes of the democratic, developmental, and regionalizing evolution of Asia and its sub-components. But at least I will try to show how one might be able to say something meaningful on these prospects on the basis of social-capital-focused survey data. Before moving on to some empirical analyses of social-capital-related data, I must touch, if briefly, on what is the AsiaBarometer and what the AsiaBarometer aims.

The AsiaBarometer, an annual survey covering many Asian societies, was launched in 2003 by the University of Tokyo's Institute of Oriental Culture under the leadership of the author of this paper (Inoguchi 2003a). Here let it suffice for me to say that the AsiaBarometer represents an ambitious and productive initiative with three broad aims in mind:

1. annually monitoring the daily lives of ordinary people in Asia – East, Southeast, South and Central – a vast area that has not been so friendly to empirically oriented social scientists interested in comparing and generalizing their observations and empirically testing their hunches and hypotheses;
2. helping to develop social science infrastructure in Asia, an area which has not been endowed with services to social scientists, as well as governments, business firms and non-governmental individuals and organizations (Inoguchi 2001);
3. helping to facilitate interactions among social scientists engaged in teaching and research in Asia, an area not well linked with each other (Inoguchi 2004b).

In the spirit and scope of the AsiaBarometer, its operational details in terms of the sizes and methods of sampling in each society, and the simple tabulations of all questions and answers, see (Inoguchi et al. 2006).

2.2   Social Capital Questions

The social capital questions examined here are as follows:

Q1   Generally, do you think people can be trusted or do you think that you cannot be too careful in dealing with people (that it pays to be wary of people)?

  1 Most people can be trusted
  2 Can't be too careful in dealing with people
  3 Don't know

Q2   Do you think that people generally try to be helpful or do you think that they mostly look out for themselves?

  1 People generally try to be helpful
  2 People mostly look out for themselves
  3 Don't know

Q3   If you saw somebody on the street looking lost, would you stop to help?

  1 I would always stop to help
  2 I would help if nobody else did
  3 It is highly likey that I wouldn't stop to help
  4 Don't know

Q4   If you had no descendants, would you think it desirable to adopt somebody in order to continue the family line, even if there were no blood relationship? Or do you think this would be unnecessary?

  1 Would adopt in order to continue the family line
  2 Would not adopt in order to continue the family line. I think it would be pointless
  3 It would depend on the circumstances
  4 Don't know

Q5   Suppose that you are the president of a company. In the company's employment examination, a relative of yours got the second highest grade, scoring only marginally less than the candidate with the highest grade. In such a case, which person would you employ?

  1 The person with the highest grade
  2 Your relative
  3 Don't know

Q6   If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures.

   1 Another adult member of the family would become the main breadwinner
   2 Would send one or more of the children out to work
   3 Would get support from relatives
   4 Would get support from neighbours and the community
   5 Would get social welfare payments
   6 Retirement allowance
   7 Have an insurance policy to cover such a situation
   8 Other
   9 Don't know

Q7   Do you think that on the whole men and women are treated equally in your country? Please indicate which of the following is closest to your opinion.

   1 Men are treated much more favorably than women
   2 Men are treated somewhat more favorably than women
   3 Men and women are treated equally
   4 Women are treated somewhat more favorably than men
   5 Women are treated much more favorably than men
   6 Don't know

Q8   What should a person who needs a government permit do if the response of the official handling the application is: 'just be patient and wait.'

   1 Use connections to obtain the permit
   2 Nothing can be done
   3 Wait and hope that things will work out
   4 Write a letter
   5 Act without a permit
   6 Bribe an official
   7 Don't know

My purpose here is to identify some underlying dimensions of social capital that might be hidden by using multidimensional analysis methods and then relating them back to the conceptual discussion on social capital. Before moving on to statistical multidimensional analyses, I might attempt a preliminary 'intellectual factor analysis' of these questions.

   Questions 1–3 are fairly common questions often used to see how much trust prevails in interpersonal relations. They are the questions on civic trust. The approach that focuses on civic trust is called communitarian. In addition to questions 1–3, questions 4–6 are intended to measure how narrow or broad trust is. Whether it is more or less confined to blood-based trust or not is what I am interested in measuring. The response category, use of private insurance scheme in question 6, is singled out to measure the degree of anonymous communitarian trust when the bread earner has deceased. Question 7 is also meant to measure the broad or narrow

scope of trust in terms of gender. It asks about the emancipative aspect of trust. The approach that focuses on self-expression values and liberty aspirations is called emancipative (Inglehart and Weltzel 2004). The response category, males are very privileged, is singled out to measure the degree of discriminatory and the oppressive nature of trust in terms of gender. Question 8 is meant to measure the degree of confidence in officials of official institutions. It asks about the system support aspect of trust. The approach that underlines confidence in concrete institutions and support for democracy is called the system support approach (Inglehart and Weltzel 2004). The response category, making use of connections, is singled out for this purpose.

2.2.1   High Trust and Low (Questions 1, 2, 3)

Question 1, a very general question on trust, has yielded the following contrasts. East Asians, Japanese, Koreans, Chinese, and Vietnamese, tend to trust people more than South, Central, and Southeast Asians. Without further examination, it is observed that religious/cultural factors might play a certain role: more concretely, Mahayana Buddhism and Confucianism in East Asia; Islam, Hariyana Buddhism; and Confucianism in Southeast Asia; Hinduism and Islam in South Asia, and Islam in Central Asia. Needless to say, a sizable number of populations subscribing to Christianity exist in various parts of Asia. Not only religious, but also linguistic and ethnic diversities prevailing in these regions seem to lower trust among persons. However, without further investigations one cannot go very far in advancing causal arguments.

   Question 2 asks about trust in general, but in a more specific situation. The picture that emerges here is very different from the picture emerging from Question 1. Chinese and Vietnamese answer that people generally try to be helpful rather than they look out for themselves. Malaysian and Korean register higher figures than Chinese and Vietnamese. In ascending order, Thais, Sri Lankan, Indian, Uzbekistani, Myanmarese, and Japanese show higher trust. To give some simple causal explanations seems immensely difficult.

   Question 3 asks about trust in a specific situation. Most simply, lower-income societies exhibit higher inclinations to lend help to those on the street looking lost. Chinese, Sri Lankan, Indian, Vietnamese, Uzbekistani, and Myanmarese more readily help those looking lost than Japanese, Koreans, Malaysians, and Thais, or generally higher-income people.

2.2.2   Broad Trust and Narrow

Question 4 asks about the narrowness of trust in terms of family succession: a son in law has been chosen most by Sri Lankan and least by Japanese. Japanese, Thais, Koreans, and Chinese show less inclinations here than Sri Lankan, Uzbekistani,

Malaysians, and Vietnamese. The distinction seems to have much to do with the development of market capitalism. But, without further examination, it is difficult to make more than causal observations.

Question 5 asks about the narrowness of trust in a specific setting. The response category, employing the best in grade but unrelated rather than second in grade but related, is chosen in descending order by Indians, Sri Lankans, Myanmarese, Uzbekistani, Vietnamese, Chinese, Koreans, Thais, Malaysians, and Japanese. Can one interpret this as follows: The more affluent the more leeway or space becomes available for blood related nepotism. But without further examination it is difficult to say one way or another. Looked at from another angle, one starts from the assurity that the poorer a society is, the stronger the incentives to hire those related. But because of this kind of expectation widely prevailing, one is normally more constrained to answer in a politically correct way.

2.2.3   Collective Trust

Question 6 is not necessarily a question on trust. One can argue that it is a question of household financing given the availability and non-availability of means of financing the house when the main bread earner has deceased. Looked at from another angle, it is also a question on how society is able to create confidence in a system of insurance, retirement fee, or state run welfare. The response category, privately run insurance is looked at here. Koreans, Indians, Japanese, Vietnamese, and Malaysians use insurance scheme more heavily than most others. Aside the role of family and relatives, the private run insurance may indicate something of communitarianism or collectivism, although it is not based on a visible space and inhabitants.

2.2.4   Gender-Related Trust

Question 7 focuses on gender. If male chauvinism is strong, trust is half limited. In descending order, male chauvinism is strong in Uzbekistan, Korea, India, Myanmar, Sri Lanka, Thailand, China, Japan, Vietnam, and Malaysia. This is a 'fascinating' order in a sense. I need to examine this further before I can say more about causal logics.

2.2.5   Power and Non-confidence

Question 8 is an interesting question. It has to do both with recognition of the power held by government officials and with non-confidence in government officials. I use the response category, (1) power of connections. In the descending order, Uzbekistan,

Sri Lanka, India, China, Malaysia, Thailand, Korea and Japan stress the power of connections.

2.3 Ten Country Pooled Data

Of the above questions, Question 8 was not answered uniformly in Vietnam and Myanmar. Therefore I have dropped question 8 from the statistical analysis instead of dropping Vietnam and Myanmar. Of Question 6, I focus on question 6–4, only because it is deemed to tap something that has a lot to do with social capital, especially its breadth or parochialism. Therefore we have in the data set:

The ten countries pooled together are Japan, Korea, China, Malaysia, Thailand, Vietnam, Myanmar, India, Sri Lanka, and Uzbekistan; and the seven questions pooled together are Q1, Q2, Q3, Q4, Q5, Q6–4, and Q7.

2.3.1 Parameterization

Answers to the selected questions were parameterized (re-scored) according to the methods outlined below. All 'don't know' answers were treated as missing values (MV).

Q1 'Generally, do you think people can be trusted or do you think that you can't be too careful in dealing with people (that it pays to be wary of people)?' Respondents had to choose between 'Most people can be trusted (+1)', 'Can't be too careful in dealing with people (0)', and 'Don't know (MV).'

Q2 'Do you think that people generally try to be helpful or do you think that they mostly look out for themselves?' Respondents had to choose between 'People generally try to be helpful (+1)', 'People mostly look out for themselves (0)', and 'Don't know (MV).'

Q3 'If you saw somebody on the street looking lost, would you stop to help?' Respondents had to choose between 'I would always stop to help (+1)', 'I would help if nobody else did (+0.5)', 'It is highly likely that I wouldn't stop to help (0)', and 'Don't know (MV).'

Q4 'If you had no descendants, would you think it desirable to adopt somebody in order to continue the family line, even if there were no blood relationship? Or do you think this would be unnecessary?' Respondents had to choose between 'Would adopt in order to continue the family line (+1)', 'Would not adopt in order to continue the family line. I think it would be pointless (0)', 'It would depend on the circumstances (MV)', and 'Don't know (MV)'.

Q5   'Suppose hat you are the president of a company. In the company's employ-
        ment examination, a relative of yours got the second highest grade, scoring
        only marginally less than the candidate with the highest grade. In such
        case, which person would you employ?' Respondents had to choose
        between 'The person with the highest grade (+1)', 'Your relative (0)', and
        'Don't know (MV)'.
Q6–4   'If the main breadwinner of your household should die or become unable
        to work due to illness, how would your household maintain the household
        budget? Select up to two of the following measures.' Respondents had to
        choose from a list of answers including 'Would get support from neighbors
        and the community (+1)', all other answers (0), and 'Don't know (MV)'.
Q7   'Do you think that on the whole men and women are treated equally in your
        country? Please indicate which of the following is closest to your opinion.'
        Respondents had to choose between 'Men are treated much more favorably
        than women (+1)', 'Men are treated somewhat more favorably than women
        (+0.5)', 'Men and women are treated equally (0)', 'Women are treated
        much more favorably than men (−0.5)', 'Women are treated somewhat
        more favorably than men (−1)', and 'Don't know (MV)'.

2.4   Principal Component Analysis

The seven questions were then factor-analyzed, using principal component analysis.
There were 4092 valid cases that had no missing values. There were three compo-
nents with eigenvalues greater than 1.0, and they were subsequently rotated using
the varimax method. The three components together accounted for 53.368% of the
total variance. Both the Kaiser–Meyer–Olkin Measure of Sampling Adequacy
(0.554), and the Bartlett's Test of Sphericity (<0.001) were satisfactory, indicating
that the used data were approximately multivariate normal and acceptable for factor
analysis.

   According to the rotated component matrix, factor loadings for Component 1
were 0.783, 0.769, and 0.383 for Q1, 2, and 3. Similarly, factor loadings for
Component 2 were 0.691, 0.653, and 0.575 for Q4, 5, and 6, while those for
Component 3 were 0.768 and −0.663 for Q6–4 and Q7, respectively. Based on the
factor loadings, it seemed reasonable to label the three components 'general trust/
altruism', 'trust in merit-based utility', and 'trust in social system', respectively.

2.4.1   Country Ranking

Averages of the three component scores were taken to rank the ten Asian countries.
The country scores were then incremented by 1.0 to facilitate visual comparison.

Similarities and differences among the ten countries were more evident when the country scores of the three components were plotted on two-dimensional scatter plots (three plots in all).

The first dimension is a bit like the famous contrasts between Hobbes and Rousseau, between Confucius and Mencius. It is about from where one starts in dealing with other persons, from the point that views humankind essentially of good nature or from the point that views humankind essentially of bad nature. It taps whether one trusts others most directly.

The second dimension is like the trade theory of comparative advantage in which the postulate is done to the effect that somehow mutually beneficial outcomes are stable outcomes. It taps one's contributions to the rest on utility or merits.

The third dimension is like confidence in institutions and systems with which respondents are embedded. It taps whether one engages in community affairs or not. In other words, it taps the difference between broad and narrow trust in terms of blood and gender.

Along these dimensions the rankings are shown in Fig. 2.1. Along the first dimension are placed Confucian heritaged societies at higher ranking, whereas Hinduist/Buddhist/Islamic heritaged ones are placed at lower ranking. Along the second dimension are placed English speaking or former British colonial heritaged ones at higher ranking whereas the rest are placed at lower ranking. Along the third dimension are placed communist-dictatorial heritaged societies at higher ranking with some notable exceptions. In other words, the three major dimensions that have emerged from the factor analysis of the pooled data in the AsiaBarometer are (1) general trust in interpersonal relations, (2) trust in meritocracy and mutual utility, and (3) trust in society/system. When I map the ten countries' factor scores along these dimensions, it has turned out that they are also fairly strongly culturally favored dimensions. They are (1) Confucian-heritaged, (2) English-speaking, and (3) communist or former communist. In other words, East Asia constitutes a distinct sub-group; former British colonies and thus English speaking societies in South Asia and Southeast Asia robustly retain some of the common characteristics; communist or former communist societies remain a distinct sub-sub-group. As far as Asia is concerned, it is remarkably similar to results derived from the World Values Surveys (Inglehart and Weltzel 2004) and the Asia-Europe Survey (Inoguchi and Hotta 2003). To see whether methodological biases might have led me to place the ten societies in wrong locations, let me try another method of grouping the ten countries.

2.5 Hierarchical Cluster Analysis

The similarities and differences observed in the above scatter plots indicated that each of the ten countries could be grouped in some way; countries with similar trust mechanisms would belong to the same group. In order to stochastically group the ten countries according to the country scores of the three components, hierarchical
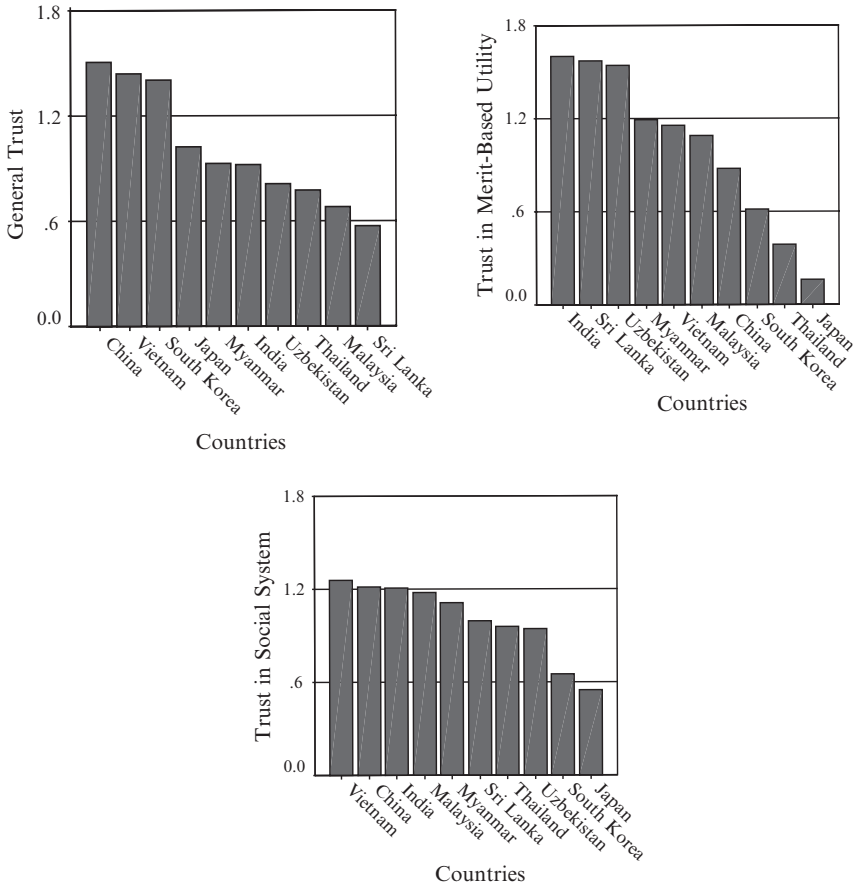
Fig. 2.1 Ten Asian societies' locations on each of the three dimensions of social capital

cluster analysis was employed using the three trust components. The chosen methodology mix was Ward Method, square Euclidean distance, and Z-score value standardization (Fig. 2.2).

As shown in the dendrogram, the ten countries were grouped into five groups according to their trust mechanisms.

Group 1   China, Vietnam
          (General trust – very high/trust in merit-based utility – medium/trust in
          social system – very high)
Group 2   Sri Lanka, Uzbekistan
          (General trust – very low/trust in merit-based utility – very high/trust in
          social system – medium-low)
Group 3   Malaysia, Myanmar, India
          (General trust – medium-low/trust in merit-based utility – very high-
          high/trust in social system – high-medium)

Fig. 2.2 Ten Asian
societies' locations
with a pair of the three
dimensions
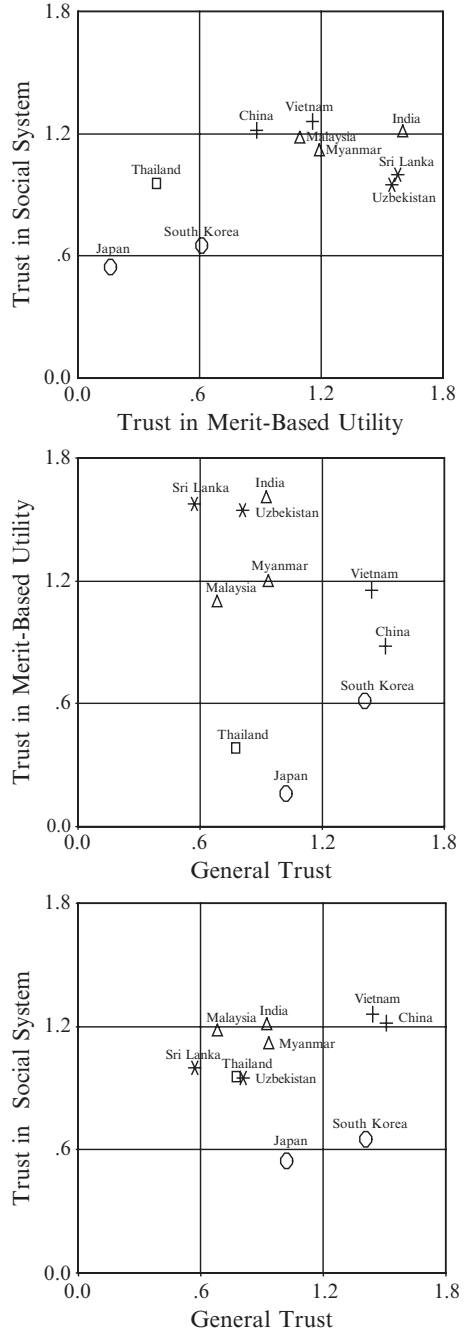
Group 4   Japan, Korea
          (General trust – high/trust in merit-based utility – very low/trust in social
          system – very low)
Group 5   Thailand
          (General trust – low/trust in merit-based utility – very low/trust in social
          system – low)

2.5.1   Discriminant Analysis

Finally, discriminant analysis was conducted using the country scores of the three
trust components and the five groups derived from hierarchical cluster analysis. The
primary purpose was to check that the above grouping was stochastically accept-
able.[1] In our case, as expected, there was a 100% match between the predicted and
actual groups. The second and the more important purpose was to plot the ten coun-
tries according to their discriminant scores for the first two discriminant functions
(high canonical correlation). Such plot would enable a two-dimensional visualiza-
tion of the five groups, which represent the countries' trust mechanisms based on all
three trust components (Figs. 2.3 and 2.4).

2.6   Conclusion

I have analyzed some of the social capital-related questions contained in the
AsiaBarometer to identify some key dimensions of social capital and to group the
ten countries along those dimensions. The three key dimensions are called (1) gen-
eral trust in interpersonal relations, (2) trust in merit-based utility, and (3) trust in
social system. Placing the ten countries along these dimensions enables me to see
that the three key dimensions are highly flavored by cultural heritage. One can see
from the rankings of the ten countries along the three dimensions, that the first
dimension can be called Confucian-heritaged, the second dimension can be called
English speaking or former British colonial-heritaged, and the third dimension can
be called communist or former communist. Use of a little more rigorous method
called hierarchical cluster analysis enables me to locate the ten countries in two-
dimensional space with three- dimensional locations taken into account most effi-
ciently. This exercise enables one to have five groups: (1) China and Vietnam, (2) Sri
Lanka and Uzbekistan, (3) Malaysia, Myanmar, and India, (4) Japan and Korea, and

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[1] Discriminant analysis predicts membership in two or more mutually exclusive groups and com-
pares the match between the predicted and actual groups. In our case, the actual groups have been
derived from hierarchical cluster analysis, so the resulting match is expected to be approximately
100%. In short, discriminant analysis helps us check the validity of grouping that took place in
hierarchical cluster analysis.

* * * * * * H I E R A R C H I C A L   C L U S T E R   A N A L Y S I S * * * * * *

Dendrogram using Ward Method

Rescaled Distance Cluster Combine

C A S E   0   5   10   15   20   25

Label   Num +---------+---------+---------+---------+---------+
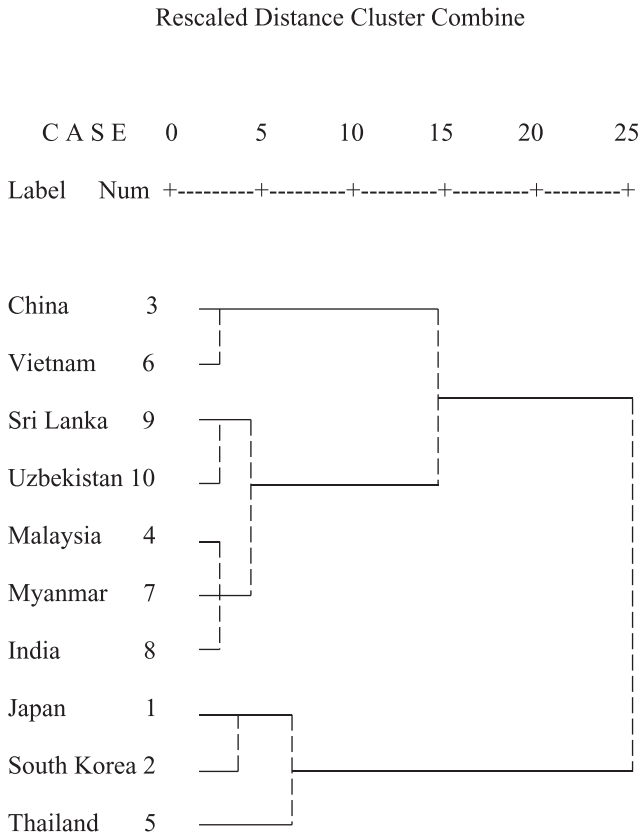
Fig. 2.3 Ten Asian societies' location in hierarchical cluster analysis

(5) Thailand. This result is broadly convergent with the result that has been obtained using another cross-national survey I organized: the Asia-Europe Survey done in nine East and Southeast Asian countries and nine West European countries in 2000 (Inoguchi and Hotta 2003). The fact that the broad convergence has been attained between those questions factor-analyzed in the latter survey data which are broader and less focused enhances dimensionality and country grouping hereby obtained.

Looking back from a distance on the three major dimensions of social capital, I would like to give further reflections on conceptualizations of social capital. Three diverse lines of thought have been given on social capital: utility, fairness and insti-

Discriminant Functions
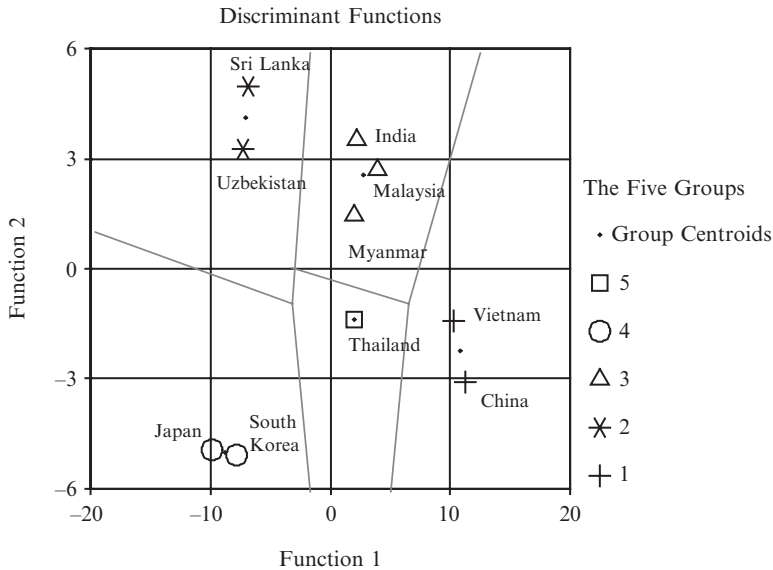
Fig. 2.4 Ten Asian societies' locations in discriminant functions

tution. Utility is used normally by economists and rational choice theorists, arguing that cultural differences are not significantly detected in cross-cultural game experiments (Roth et al. 1991), thus playing down the notion of social capital. Fairness is deployed normally by philosophers, sociologists, and political scientists, arguing that political cultures matter when differentiating the way in which bridging and bonding trust is conducted (Scott 1976; Putnam 1993; Fukuyama 1995; Blondel and Inoguchi 2002). Institution is brought in by anthropologists, sociologists, economists, and political scientists, arguing that 'the role of government institutions as the engine of higher levels of generalized trust and cooperation' (Ensminger 2001).

Therefore it is not a coincidence that our three major dimensions have turned out to be slightly differently labeled surrogate dimensions of fairness, utility, and institution. General trust in interpersonal relations is very close to fairness. What is called the Equity Law in England concerns this dimension as contrasted to the utility dimension which governs the Common Law. If the Common Law is the world of Adam Smith, the Equity Law is the world of English Social Democrats. Both co-exist in one society, a vindication of one country, two systems! The salience of fairness in our analysis in Vietnamese political culture resonates nicely with James Scott's *Moral Economy of* the *Peasant: Rebellion and Subsistence in Southeast Asia* (1976). The commonly detected importance of meritocracy in former British colonies or English-speaking societies in South and Southeast Asia in our analysis is harmonious with the spirit of colonial meritocratic absolutism under Britain. Where there are no countervailing forces in society like colonies or in lower-income societ-

ies or in non-democracies, this utility dimension gets utmost salience. Thus only when experimental games like the ultimatum bargaining game or the dictator game are conducted both in low-income societies and high-income societies, or both in formally better institutionalized societies and not-so-well institutionalized societies, cross-cultural differences emerge (Roth et al. 1991; Ensminger 2001). This is what our analysis has exactly achieved on the AsiaBarometer data in which the diversity in terms of per capita income level is vast over the ten countries. Our third dimension of institution taps the basic difference between communism (and former communism) and market capitalism. Social systems based on different institutional incentives and coordinations are bound to constrain and reinforce certain sets of norms and values. Thus our third dimension is quite harmonious with some traits in ideologically and bureaucratically organized market economies as distinguished from much freer market economies and in formally under- institutionalized societies as distinguished from formally institutionalized societies (Ensminger 2001). Our next task, i.e., the AsiaBarometer survey in 2004, would be to sort out those social capital questions a little more systematically along fairness, utility, and institution to state more directly some significant implications to Asia's democratic, developmental, and regionalizing potentials in the next decade.

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Chapter 3
Social Capital in East Asia: Comparative Political Culture in Confucian Societies

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Abstract This paper tests the hypotheses that the tide of globalization undermines or reinforces the traditional types of social capital. Using the 2006 AsiaBarometer Survey data and applying two-level logit regression analysis, this paper found that social capital related to sense of trust or human nature and interpersonal relations can be augmented by globalization, while social capital regarding familialism and mindfulness can be weakened.

3.1   Introduction

Social capital is a concept often used to mean the social infrastructure of business, politics, and community (Coleman 1990; Lin 2001; Putnam 2000; Stolle 2007; Inoguchi 2007a). Social capital is crucial, as human interactions and actions are inherently full of uncertainties and risks. Social capital can create advantages to reduce costs and risks and to enhance the spirit to go together further onward. It is a stock on the basis of which one can try to bridge the differences between players in business and players in politics. It is also a stock that binds internal networks when overcoming barriers and obstacles in furthering their causes.

Social capital in the sense of social infrastructure is composed principally of norms and networks. Agreed norms and common networks are key to social capital. Since human actions are not confined to local community interactions or to joint business adventures, or to a new civil society group, the study of social capital poses a challenge when one tries to define or measure the degree of social capital.

Social capital is defined in various ways. A common definition focuses on interpersonal relations. This is natural since social capital enables interpersonal relations

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to run smoothly, efficiently, and to be mutually beneficial. In business, transactions entail substantial risk-taking under uncertainty, which could lead to unbearable losses; in politics, they could lead to political downfalls. In this kind of definition, social capital is the social infrastructure that enables actors to interact, whether in business or politics, or other kinds of interactions, with confidence. Thus social capital is a type of collective good that enables actors to interact with understanding, efficiency, and effectiveness.

The problem of measuring social capital is related to the problem of defining social capital. My argument is that as long as social capital is conceptualized as a type of social infrastructure, one cannot be content with questions that tackle the problem by narrowly focusing on interpersonal relations. These questions are most typically about human nature (e.g. on the whole one cannot be too careful about others), and about tolerance (e.g. see Borre and Scarbrough 1998; Vinken 2006). Defining social capital as human nature exhibited in interpersonal relations seems to lead inquiries into social capital in a somewhat misguided direction. Most Western literature on social capital seems to presume that human nature should be measured in terms of good or evil, judging from the list of questions that are examined to measure social capital. It may be due in part to the relative homogeneity of Western societies in terms of Christianity, democratic values, and free market capitalist practice. My argument rests on the extraordinary diversity of many societies in Asia, in terms of religion (out of five major religions, Buddhism, Hinduism, Christianity, Islam, Judaism, four are vibrant in Asia), political system (out of 29 societies in Asia, democracy as measured by Freedom House amounts to less than ten, Japan, Korea, Taiwan, the Philippines, Indonesia, India, East Timor, Cambodia, the Maldives), and economic system (out of 29 societies, the floating exchange rate system is adopted by some six governments). In order to measure social capital, therefore, we need to extend the range of questions beyond those inquiring about human nature in interpersonal relations.

To understand the need to extend the range of questions on social capital, two examples are offered. One sometimes expresses the sentence about a person, 'She/he is a nice person, but.. .' This sentence might be followed by another sentence such as, 'He is incompetent and useless.' If someone is incompetent and useless, he is not to be trusted very much even if he is a good person. This same sentence might be followed by another sentence such as, 'He is totally out of tune with the authorities.' If someone is visibly out of tune with the prevailing regime of a non-democratic nature, again he cannot be trusted very much even if he is a good person. You cannot risk too much by counting on him in such a situation.

The fact that survey research has developed in relatively homogeneous social contexts such as Western Europe and North America in terms of Christian religion, democratic values and free market capitalist practice for the last 60 years (Inoguchi 2005) may have blinded us to the simple fact that differences in religion, politics and economics may require a battery of questions on social capital that do not presume a relative homogeneity of population. By so saying I am not presuming that diversities within and among Western societies are close to negligible (Blondel and Inoguchi 2006). Rather I am of the view that the enormous diversity of Western societies (within and between) may have been played down by a seeming homoge-

neity of the three key denominators, Christian religion, democratic values and free market capitalist practice. Even if such a narrow range of questions has been used more or less without causing distortions and problems in Western societies for the last 60 years, this fact should not encourage us to continue to take this limited approach to questions on social capital. This applies not only to the visibly diverse societies in Asia but also to those seemingly homogeneous societies with their diverse undercurrents found in Western Europe and North America (see Davies 1998; Todd 2000; Newton and Kaase 1996; Newton 1999; Van Deth 2005).

In dealing with this problem, we pay special attention to the Confucian tradition in Asia. Confucianism is very influential in East Asia and tells us that virtues must be nurtured at the individual level and then built up from the individual level through to the level of the world. *Daxue*, Great Learning, has the passage about this: *kewu, zhizhi, xiushen, qijia, zhiguo, pingtianxia*. Literally translated, tackle things, reach knowledge, nurture your virtue, take care of your family, govern the state, and pacify the world under heaven. But most important is the thinking that peace and stability must be built from the bottom up and that each individual must nurture a virtuous self and only on that basis can peace and stability of the family, the state and the world under heaven be achieved. The starting point is to inculcate virtue into yourself. Since everyone is taught to be a good natured man, we tend to assume that other persons are all more or less good-natured. Here we find a commonality with the thought of social capital (Bell 2006; Shin 2011; Henderson 1968; Hsiao 1990; Woodside 1973, 2006; Bian 1994; Yamagishi 1999).

With this traditional Confucian learning in mind, we focus on the relationship between globalization and social capital, which has rarely been examined with solid empirical data as far as we know. Could globalization strengthen or weaken social capital? Under the tide of globalization the concept of social capital, which minimizes transaction costs economically and politically and enhances the sense of community, will play an important role. If globalization strengthens social capital, establishing regional agreement and further economic development will be highly predictable. If globalization weakens social capital, such regional integration will still remain unpredictable. This paper, therefore, aims to investigate the possible influence of globalization on social capital in the region of Asia using the 2006 AsiaBarometer survey data, which covers seven ostensibly Confucian societies in East and Southeast Asia, namely China, Hong Kong, Japan, South Korea, Singapore, Taiwan, and Vietnam.

The AsiaBarometer Survey is an ongoing survey, conducting opinion polls covering 27 countries and 2 societies in Asia with focus on the daily lives of the ordinary people (Inoguchi 2005). It intends to raise the standards of empirical research in social sciences in Asia to the levels comparable to those in the United States and Western countries. This paper shares the same aim as the AsiaBarometer project.

In what follows, in Section 2 we go over the questions to be analyzed from the AsiaBarometer Survey 2006. Then, in Section 3, we describe the way of operational- ization of variables. After that, we present the results of our empirical test in Section 4, followed by their interpretation in Section 5. The last section will conclude.

3.2   Questions from AsiaBarometer Survey

We analyze the following four questions from the 2006 AsiaBarometer Survey. These questions are all related to the traditional type of social capital. Confucian learning starts from inculcating virtue by the learner himself. In Confucian learning everyone is taught to be a good-natured, and so one will tend to assume that other persons are all more or less good-natured.

Question 11   Generally do you think people can be trusted or do you think that you can't be too careful in dealing with people (that it pays to be wary of people)?

1. Most people can be trusted
2. Can't be too careful in dealing with people
9. Don't know

Question 13   If you saw somebody on the street looking lost, would you stop to help?

1. I would always stop to help
2. I would help if nobody else did
3. It is highly likely that I wouldn't stop to help
9. Don't know

These two questions are the most fundamental questions related to social capital (Newton 2006; Van Deth 2005; Dalton and Shin 2006). The first question is about the general sense of trust and the second question is about goodwill or volunteerism or sense of community. These are questions on human nature and interpersonal relations and devoid of a social context and commonly asked in Western literature on social capital. The first question asks if you think others are helpful, while the second one asks if you think you are helpful. Both questions measure the same respondent's attitude just from opposite sides.

In Confucian societies, *renzhi* (rule by person) tends to be emphasized rather than *fazhi* (rule by law). Consequently, the key to make interpersonal relations smooth, efficient, and mutually beneficial is not confined to a sense of trust in others. Using personal connections is also one of the important techniques to overcome barriers and obstacles in daily life. Thus, we look at question 37. Likewise, *Ren*, or benevolence, care for others, mindfulness, thoughtfulness, is one of the Confucian virtues that keep a society workable, and question 44 is included.

Question 37   What should a person who needs a government permit do if the response of the official handling the application is: 'just be patient and wait?'

1. Use connections to obtain permit
2. Nothing can be done
3. Wait and hope that things will work out
4. Write a letter
5. Act without a permit
6. Bribe an official
9. Don't know

Question 44   Here is a list of qualities that children can be encouraged to learn at home. Please select two you consider to be most important.

1. Independence
2. Diligence
3. Honesty
4. Sincerity
5. Mindfulness
6. Humbleness
7. Religiosity
8. Patience
9. Competitiveness
10. Respect for senior persons
11. Deference for teachers
12. Don't know

Question 37 is also thought of from the point of view of the fairness of rules and trade under globalization. Certainly, the problems of solving conflicts in daily life can be best handled first with reliance on close family members, relatives and good friends, which is most commonly familialism or family-related communitarianism. However, in the context of globalization, transparency and accountability will be more preferable.

Similarly, 'mindfulness' in question 44 is contrasted to the concept of 'competitiveness' under globalization. Increased competition will require strength and self-sustainability instead of mindfulness.

3.3   Data

We operationalized dependent, independent, and control variables as follows.

3.3.1   Dependent Variables

The dependent variables are the responses to the questions above concerning (1) general trust to others, (2) willingness to help others voluntarily, (3) reliance on personal connections to deal with public matters, and (4) the importance of one of the traditional values 'mindfulness' in educating children at home. Answers were coded as follows: in the first question, we coded 1 if the answer to the first question was 'most people can be trusted', and 0 if the answer was 'can't be too careful in dealing with people' or 'don't know'. In the second questions, we assigned 1 if the answer was 'I would always stop to help', and 0 if 'I would help if nobody else did', 'it is highly likely that I wouldn't stop to help', or 'don't know'. With regard to the third question, only the answer 'use connections to obtain the permit' was coded 1 and the other choices including 'don't know' were coded 0. Finally, since the original form of the fourth question permitted multiple choices, we coded 1 if 'mindfulness' was included in the answer and 0 otherwise.

3.3.2   Independent Variables

The independent variables in this study can be divided into individual-level predictors and societal-level predictors. In the first category are (1) respondent's attitudes toward globalization, (2) respondent's familiarity with digital equipment and infrastructure such as the internet that electronically connects people around the world, (3) respondent's personal experience in engaging with people from different countries, and (4) respondent's proficiency in English, which is indispensable to globalize one's activities. We constructed the four corresponding indexes of individual levels of globalization following the formula devised by Hsiao and Posan (forthcoming in 2017).

Support for the global forces index is a composite of three responses to the different questions. In one part of the interview respondents are asked whether they think the United States has a good influence on society; in another part of the interview they are asked to what extent they trust the World Trade Organization (WTO) and the multinational companies operating in their country to operate in the best interests of their society. If respondents gave positive answers to each of the three questions, we assigned a score of 1. The index is simply the number of positive answers and hence ranges from 0 to 3.

The digital connectivity index is a 7-point ordinal measure (ranging from 0 to 6), which is the sum of the three component indicators of frequency of Internet browsing, emailing, and mobile phone messaging. Based on the answers to the questions in other parts of this questionnaire, respondents were categorized into heavy users ('almost everyday' or 'several times a week'), light users ('several times a month'), and non-user ('seldom' or 'never') and were given 2, 1, and 0 scores, respectively.

The personal contact index is also the 7-point ordinal measure (ranging from 0 to 6), which is the number of items respondents chose from the list of a multiple-choice question in this questionnaire. The items are (1) 'a member of my family or a relative lives in another country', (2) 'I have traveled abroad at least three times in the past three years, on holidays or for business purposes', (3) 'I have friends from other countries who are in my country', (4) 'I often watch foreign-produced programs on TV', (5) 'I often communicate with people in other countries via the Internet or email', and (6) 'my job involves contact with organizations or people in other countries.'

English language capacity is the 4-point ordinal measure (ranging from 0 to 3) based on one of the stationary question of the AsiaBarometer. We coded 0 if the answer is 'Not at all', 1 if 'very little', 2 if 'I can speak it well enough to get by in daily life', and 3 if 'I can speak English fluently.'

The society-level predictors on which we focus first here are the Heritage Foundation's index of economic freedom and second internet users per 1000 people. The first is a simple average of 10 economic freedoms in a country, each of which is graded using a scale from 0 to 100, where 100 represents the maximum freedom. The items included are (1) business freedom, (2) trade freedom, (3) monetary freedom, (4) freedom from government, (5) fiscal freedom, (6) property rights, (7) investment freedom, (8) financial freedom, (9) freedom from corruption, and (10) labor freedom.[1] The second is literally meant to show how widespread Internet use among the population in a country.[2] We assume that the higher both of these values are, the more globalized the country is.

3.3.3   Control Variables

We also included a series of control variables that could affect respondent's social capital. At the micro-level or individual level, we controlled for gender, age, marital status, education, income, and membership of any religious groups. At the

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[1] For more information, see the Heritage Foundation's web site, http://www.heritage.org/

[2] Retrieved 12 May 2007, from World Development Indicator, http://web.worldbank.org/ The values used are for 2004 because the data for Singapore was available only up to the year as of the date of retrieval. The value for Taiwan is inferred from the percentage of Internet users in 2004, published by the National Statistics of Taiwan, http://eng.stat.gov.tw/
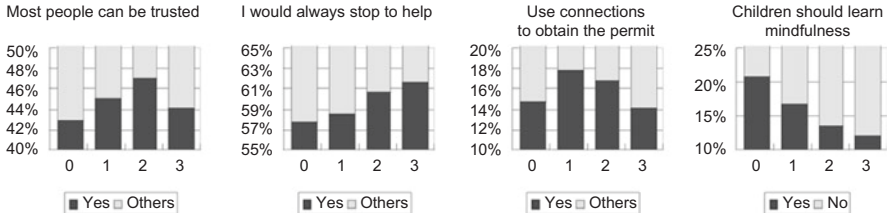
Fig. 3.1 Support for globalization forces index and social capitals (*Note:* Support for globalization forces index: 0 = lowest; 3 = highest)
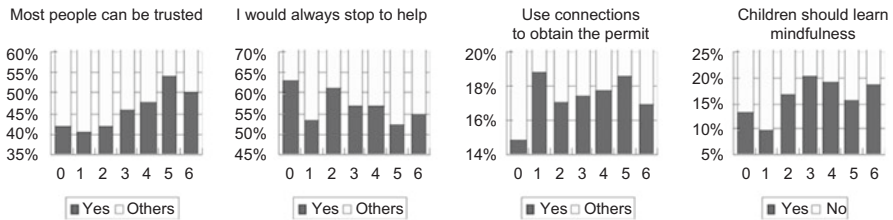
Fig. 3.2 Digital connectivity index and social capitals (*Note:* Digital connectivity index: 0 = lowest; 6 = higest)
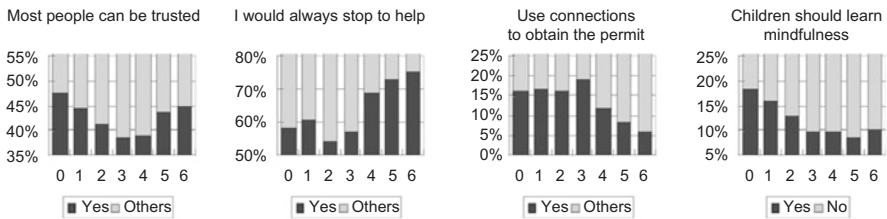
Fig. 3.3 Personal contant index and social capitals (*Note:* Personal Contact index: 0 = lowest; 6 = higest)

macro- level or societal-level, we took into consideration ethnic, linguistic, and religious fractionalization[3] as well as degrees of political rights and civil liberties.[4]

Before implementing a multivariate analysis, we briefly examine simple bivariate relationships between the four dependent variables and the six individual- and society- level predictors, which are our primary concerns here. Figures 3.1, 3.2, 3.3, 3.4, 3.5 and 3.6 describe how the percentages of positive answers in each of the four questions change as the level of globalization at the individual as well as country level deepens. As we expected, we see that social capital with respect to a sense of trust and volunteership positively correlates with some individual-level indicators, whereas social capital in terms of reliance on personal connections and importance

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[3] Alesina et al. (2003).

[4] The values used are for 2006. Available from Freedom HouseWeb site: http://www.freedom-house.org/
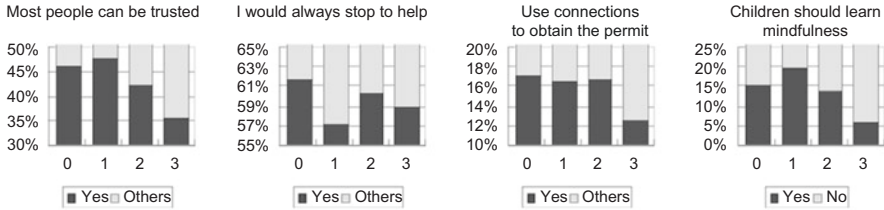
Fig. 3.4 English capacity index and social capitals (*Note:* English capacity index: 0 = not at all; 1 = very little, 2 = well enough to get by in daily life; 3 = able to speak fluently)
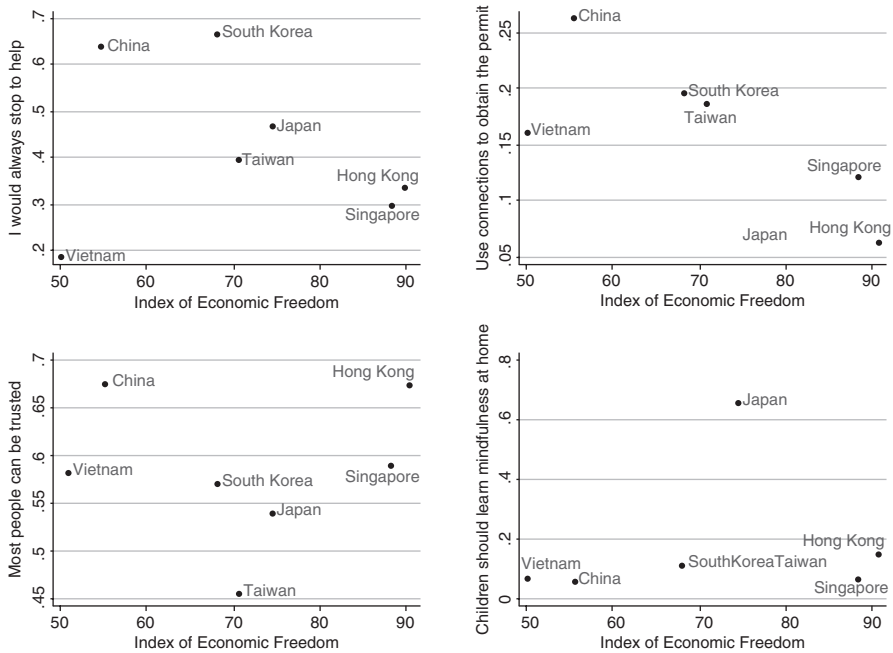
Fig. 3.5 Index of economic freedom and social capitals

of mindfulness show the opposite tendency: they decline as the level of individual globalization increases, or they correlate negatively with globalization. However, the relationship with macro-level globalization is not that obvious.

3.4 Estimation Results

To test the hypothesis, we applied a two-level logit regression with a random intercept model. In order to carry out the logit regression equations working on the two levels, the STATA program is used (Rabe-Hesketh and Skrondal 2005). Also the descriptive statistics of these variables are indicated in Appendix 1.
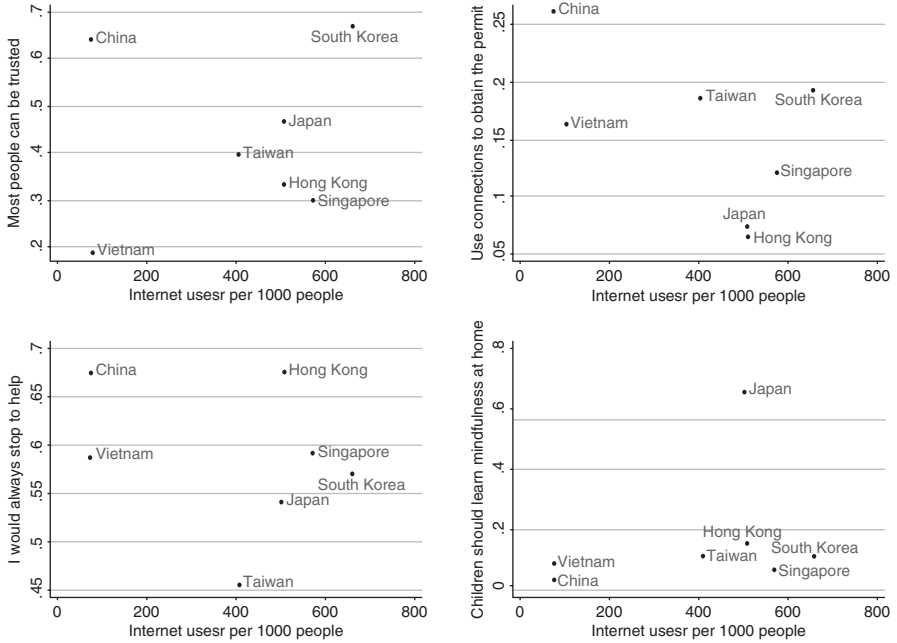
Fig. 3.6 Internet users and social capitals

These tables show the estimation results of the two-level logit regression with a random intercept model. According to Table 3.1, the tide of globalization has a positive impact on the general sense of trust. The coefficients on the Globalization Forces Index, Digital Connectivity Index, and Personal Contact Index are all positive and statistically significant in both models 1 and 2. The relationship with the Globalization Forces Index is very strong with z-score of 5.11. The odds ratio 1.14 indicates that as Globalization Forces Index increases by one unit, on average the respondents are 1.14 times more likely to choose 'Most people can be trusted' than to choose 'Can't be too careful in dealing with people' and 'Don't know.' It would follow that the tide of globalization enhances a sense of trust.

We can see from Table 3.2 that the estimation results show that the tide of globalization augments goodwill and volunteerism. The estimated coefficients on the Globalization Forces Index and Personal Contact Index are again positive and statistically significant. As the Personal Contact Index increases by one unit, the respondents are 1.14 times more likely to choose 'I would always stop to help' than other choices on average.

These estimation results indicate that the tide of globalization reinforces the traditional type of social capital if they are related to interpersonal relations and human nature, narrowly defined (not in a negative meaning) in Western social science.

On the other hand, the estimation results in the third and forth tables indicate that globalization undermines the traditional type of social capital if related to transparency and competitiveness. According to Table 3.3, the Globalization Forces Index

Table 3.1 Two level logit regression (random intercept model)

Variables	Model 1			Model 2		
	Coeff.	(SE)	OR	Coeff.	(SE)	OR
Constant	−5.00**	(2.19)		−3.98	(1.11)	
Individual level						
Gender	0.015	(0.050)	1.01	0.015	(0.050)	1.02
Age	0.171***	(0.045)	1.19	0.172***	(0.045)	1.19
Marital status	0.055	(0.064)	1.06	0.055	(0.064)	1.06
Education	0.310***	(0.045)	1.36	0.307***	(0.044)	1.36
Income	0.053	(0.038)	1.05	0.052	(0.038)	1.05
Religion	0.110*	(0.058)	1.12	0.110*	(0.058)	1.12
Globalization forces index	0.135***	(0.026)	1.14	0.135***	(0.026)	1.14
Digital connectivity index	0.038**	(0.015)	1.04	0.038**	(0.015)	1.04
Personal contact index	0.048*	(0.025)	1.05	0.049*	(0.025)	1.05
English capacity index	−0.064	(0.046)	0.94	−0.059	(0.045)	0.94
Societal level						
Linguistic fractionalization	−3.30***	(1.06)	0.04	−3.16***	(0.856)	0.04
Religious fractionalization	5.44**	(2.41)	230.37	5.06***	(1.66)	157.59
Political rights	−0.004	(0.013)	1.00			
Economic freedom index	0.012	(0.017)	1.01			
Net user				−0.0002	(−0.0006)	1.00
Random part						
Variances	0.171	(0.091)		0.216	(0.099)	
Log likelihood		−4628.82			−4629.30	
N		7,453			7,453	

Notes:
Dependent variable (= 1 if the respondents choose 'Most people can be trusted'; = 0 otherwise)
***Significant at 1% level; **5% level; *10% level
Standard errors of the coefficients are reported
OR stands for Odds Ratio

has a negative impact on the dependent variable, which is statistically significant. Thus globalization would threaten the good old practices of familialism and communitarianism.

According to Table 3.4, the negative coefficients on the Globalization Forces Index and English Capacity Index have stronger effects than the positive coefficient on the Digital Connectivity Index. As the Globalization Forces Index increases by one unit, the respondents are 0.90 times less likely to choose 'Mindfulness' than

Table 3.2 Two level logit regression (random intercept model)

Variables	Model 1			Model 2		
	Coeff.	(SE)	OR	Coeff	(SE)	OR
Constant	0.280	0.513		1.06**	(0.48)	
Individual level						
Gender	0.023	(0.049)	1.02	0.022	(0.049)	1.02
Age	0.236***	(0.044)	1.27	0.237***	(0.044)	1.27
Marital status	0.198***	(0.061)	1.22	0.198***	(0.061)	1.22
Education	−0.077*	(0.043)	0.93	−0.091**	(0.043)	0.91
Income	−0.066*	(0.036)	0.94	−0.067*	(0.036)	0.94
Religion	0.264***	(0.058)	1.30	0.265***	(0.057)	1.30
Globalization forces index	0.097***	(0.026)	1.10	0.098***	(0.026)	1.10
Digital connectivity index	−0.020	(0.014)	0.98	−0.020	0.014	0.98
Personal contact index	0.128***	(0.025)	1.14	0.133***	(0.025)	1.14
English capacity index	0.064	(0.045)	1.07	0.083*	(0.044)	1.09
Societal level						
Linguistic fractionalization	−1.64***	(0.383)	0.19	−1.41***	(0.54)	0.24
Religious fractionalization	−0.552	(0.570)	0.58	−1.25*	(0.69)	0.29
Political rights	−0.016***	(0.005)	0.98			
Economic freedom index	0.005	(0.004)	1.00			
Net user				−0.001***	(0.0003)	1.00
Random part						
Variances	0.097	(0.040)		0.099	(0.037)	
Log likelihood		−4810.69			−4811.30	
N		7,386			7,386	

Notes:
Dependent variable (=1 if the respondents choose 'I would always stop to help'; = 0 otherwise)
***Significant at 1% level; **5% level; *10% level
Standard errors of the coefficients are reported
OR stands for Odds Ratio

other choices. Thus, the results show globalization undermines the scope for mindfulness to other persons.

The estimation results of Model 1 and Model 2 are qualitatively the same.

Looking at other estimated coefficients in the individual-level independent variables, Age and Education are generally statistically significant and have a positive effect on the dependent variable. In the societal-level variables, Political Right in the first model and Net User in the second model are generally statistically significant and have a negative affect, while Religious Fractionalization has a positive impact on the dependent variable.

Table 3.3 Two level logit regression (random intercept model)

Variables	Model 1			Model 2		
	Coeff.	(SE)	OR	Coeff.	(SE)	OR
Constant	−3.62***	(0.46)		−4.64***	(0.56)	
Individual level						
Gender	0.166***	(0.064)	1.18	0.166***	(0.064)	1.18
Age	−0.008	(0.057)	0.99	−0.006	(0.058)	0.99
Marital status	−0.056	(0.081)	0.95	−0.053	(0.081)	0.95
Education	0.188***	(0.054)	1.21	0.189***	(0.054)	1.21
Income	0.159***	(0.046)	1.17	0.160***	(0.046)	1.17
Religion	−0.063	(0.072)	0.94	−0.060	(0.074)	0.94
Globalization forces index	−0.077**	(0.034)	0.93	−0.072**	(0.034)	0.93
Digital connectivity index	0.029	(0.019)	1.03	0.023	(0.019)	1.02
Personal contact index	−0.032	(0.033)	0.97	−0.026	(0.033)	0.97
English capacity index	−0.052	(0.054)	0.95	−0.037	(0.056)	0.96
Societal level						
Linguistic fractionalization	0.134	(0.236)	1.14	−0.258	(0.495)	0.77
Religious fractionalization	4.62***	(0.47)	101.81	4.92***	(0.90)	137.0
Political rights	−0.013***	(0.003)	0.99			
Economic freedom index	−0.017***	(0.004)	0.98			
Net user				−0.002***	(0.0004)	1.00
Random part						
Variances	2.6E-12	(2.5E-07)		0.035	(0.026)	
Log likelihood		−3216.02			−3220.15	
N		7,453			7,453	

Notes:
Dependent variable (=1 if the respondents choose 'Use connections to obtain permit'; = 0 otherwise)
***Significant at 1% level; **5% level; *10% level
Standard errors of the coefficients are reported
OR stands for Odds Ratio

3.5   Interpretation of Estimation Results

The findings from the previous section are summarized as follows. The tide of globalization enhances the sense of trust and goodwill and volunteerism. On the other hand, the tide of globalization threatens the good old practices of familialism and communitarianism and the scope for mindfulness to other persons.

Table 3.4 Two level logit regression (random intercept model)

Variables	Model 1			Model 2		
	Coeff.	(SE)	OR	Coeff.	(SE)	OR
Constant	1.76	(2.56)		−0.306	(0.614)	
Individual level						
Gender	−0.154**	(0.076)	0.86	−0.156**	(0.076)	0.86
Age	−0.173**	(0.068)	0.84	−0.168**	(0.068)	0.85
Marital status	0.145	(0.094)	1.16	0.144	(0.094)	1.15
Education	0.073	(0.068)	1.08	0.087	(0.067)	1.09
Income	0.039	(0.056)	1.04	0.034	(0.055)	1.03
Religion	−0.099	(0.085)	0.91	−0.096	(0.083)	0.91
Globalization forces index	−0.106***	(0.039)	0.90	−0.107***	(0.039)	0.90
Digital connectivity index	0.043**	(0.021)	1.04	0.043**	(0.021)	1.04
Personal contact index	−0.050	(0.039)	0.95	−0.053	(0.038)	0.95
English capacity index	−0.255***	(0.069)	0.77	−0.263***	(0.067)	0.77
Societal level						
Linguistic fractionalization	−1.18	(1.56)	0.31	−1.54**	(0.63)	0.21
Religious fractionalization	−6.71**	(3.17)	0.00	−3.48***	(0.85)	0.03
Political rights	0.060***	(0.021)	1.06			
Economic freedom index	−0.003	(0.021)	1.00			
Net user				0.003***	(0.0003)	1.00
Random part						
Variances	0.368	(0.202)		0.689	(0.097)	
Log likelihood		−2462.53			−2464.01	
N		7,453			7,453	

Note:
Dependent variable (=1 if the respondents choose 'Mindfulness'; = 0 otherwise)
***Significant at 1% level; **5% level; *10% level
Standard errors of the coefficients are reported
OR stands for Odds Ratio

The sense of trust, goodwill, connection or familialism and mindfulness are all about the traditional type of social capital. However, the first two kinds of social capital are related more fundamentally to human nature and interpersonal relations. Our findings show that these traditional types of social capital would remain, even with the vigorous assault of globalization. In contrast, the findings indicate that the third and fourth traditional types of social capital, which are related inversely to transparency and accountability and competition, would vanish with the steady permeation of globalization.

An interesting question will be why is this the case. In the midst of globalization, people have more opportunities to associate with foreigners in political activities and when doing business. Another question in the AsiaBarometer, regarding the influence of other countries on their own society, reveals that Japan, China, and South Korea usually do relate well to each other. However, this is not necessarily so at the individual level – for example, if a Japanese person made friends with some people from either China or South Korea, a more trusting and cooperative relationship could develop. What is important here is that as people have more opportunities to meet people from foreign countries, they realize that their preconceived ideas about people from a certain country are wrong when they get to know them at the individual level.

Inoguchi (2007a, b) discusses the perceptions of Japan at the individual and state levels due to the influence of the United States. Matsusaka (2004) discusses the possibility that politicians may not represent the opinions of the majority of people even in democratic states due to information asymmetry on both the politicians' side and voters' side. Politicians also may follow the model of representation which postulates that politicians should pursue their own ideology to serve the constituents' interests because voters might make a mistake when casting a vote.[5] These discussions suggest that the image of the country thus may not match the image of the individual citizen.

In short, with globalization comes better understanding of, and therefore trust in, people from foreign countries, particularly when close friendships are developed with people from overseas. People learn more about the advantages and disadvantages, the strong and weak points, of both their own country and that of their friends. In particular, understanding of the comparative advantages and disadvantages of different countries will lead to the concept of trade, in which people can exchange goods and services. In tandem with the increasing involvement in globalization would develop goodwill, volunteerism and cooperation by appreciating and accumulating knowledge of other countries' culture, tradition and reality.

On the other hand, although solving the problems of daily life can be best handled firstly by reliance on close family members, relatives and good friends, known as familialism or family-related communitarianism, once away from this narrow but thick communitarian circle, caution, vigilance, and prudence must be exercised. The good old practices of familialism and communitarianism or in a negative form, nepotism and clientelism will be usurped by the steady permeation of globalization. That is, in doing business and trading globally, we need more emphasis on fairness, penetration, and accountability in order to be trusted by business partners and customers. Otherwise, success will be highly unlikely. In an era of globalization, an integrated and sophisticated financial market has developed. Money moved rapidly around the globe, seeking those areas where profits are projected to accrue, but avoiding those where profits least likely to be generated. When faced with globalization, a sense of trust is important, since as Fukuyama (1997) argues, if trust is

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[5] This concept of representation is based on the original argument done by Edmond Burke, a representative in the British House of Commons in the 1770s (Matsusaka 2004).

high, capital business transactions will be more certain, faster, and less costly, while if trust is low, business transactions will be more uncertain, slower, and more costly.

It is of course best to be mindful of other people. Asserting yourself irrespective of other people may not result in a good society. It is best to be sensitive to other peoples preferences and beliefs. This assertion is absolutely true. Most famously, Confucious and Kant echoed this folk view. Confucious from a negative angle, Kant from a positive angle. However, acting mindfully becomes less important as globalization increases. This is because with globalization, the emphasis is more on competitiveness, strength and self-sustainability. Rapid financial markets and highly competitive markets will tend to sharpen the zero-sum profit.

3.6   Conclusion

This paper considered whether globalization augments or undermines social capital. Relying on traditional Confucian learning, this paper retrieved four questions from the AsiaBarometer Survey 2006, namely, sense of trust, volunteerism, connection or familialism, and mindfulness. Applying two-level logit regression analysis, the estimation results indicate that traditional social capital in terms of human nature and interpersonal relationships would be enhanced by globalization because globalization would make people realize, when they associate with trustful and benevolent foreign friends, that they had been obsessed by an initial bad image of a foreign country. On the other hand, globalization threatens the good old practices of familialism and communitarianism and the scope for mindfulness to other persons because in an era of globalization such concepts as transparency, accountability, competitiveness, strength, and self-sustainability would be more highly evaluated.

The questions analyzed in this paper will be reexamined from different perspectives in sociology, which will be the theory of universalism as opposed to particularism. For example, question 11 will be a more general question, while question 13 will be a more specific question.[6]

Inoguchi (2004), on the other hand, demonstrates that social capital is conceptualized along the three dimensions of interpersonal relationships, merit-based utility, and system-linked harmony. Then Inoguchi argues that these three dimensions would be a proxy for the three major dimensions of social capital: fairness, utility, and institutions. It will be most interesting in analyzing these three dimensions with respect to the tide of globalization and fascinating to ask whether each of the three dimensions is reinforced or undermined by the tide of globalization one by one, and how strong the effects will be. All these analyses will be left to future research.

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[6] Ruut Veenhoven pointed out this thought.

Appendix 1. Descriptive Statistics

Variables	Mean	Median	SD	Max	Min
Dependent variables					
Trust	0.452	0	0.498	1	0
Goodwill	0.596	1	0.491	1	0
Connections	0.164	0	0.370	1	0
Mindfulness	0.161	0	0.367	1	0
Independent variables					
Individual level					
Gender	0.494	0	0.500	1	0
Age	2.049	2	0.703	3	1
Marital status	0.717	1	0.451	1	0
Education	1.917	2	0.807	3	1
Income	1.750	2	0.768	3	1
Religion	0.496	0	0.500	1	0
Globalization forces index	1.432	1	1.000	3	0
Digital connectivity index	2.501	2	2.439	6	0
Personal contact index	0.994	1	1.292	6	0
English	0.928	1	0.925	3	0
Societal level					
Linguistic fractionalization	0.203	0.21	0.162	0.502793	0.002
Religious fractionalization	0.6	0.656	0.091	0.684494	0.419
Political right	18.563	17	14.894	37	2
Economic freedom index	69.253	70.6	14.232	90.9	50
Net user	359.690	502.180	229.514	656.7924	72.522

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Chapter 4
Quantifying Social Capital in Central and South Asia: Are There Democratic, Developmental, and Regionalizing Potentials?

Takashi Inoguchi and Zen-U Lucian Hotta

Abstract Using AsiaBarometer survey data on 14 Central and South Asian countries, i.e., Kazakhstan, India, Pakistan, Afghanistan, Sri Lanka, Bangladesh, the Maldives, Bhutan, Mongolia, Nepal, Tajikistan, Turkmenistan, Kyrgyzstan, and Uzbekistan, this chapter attempts to see key dimensions of social capital. Twelve survey questions related to social capital included in the AsiaBarometer survey are factor analysed with varimax rotation. Three dimensions have emerged: general trust, merit-based utilitarianism, and institutional engagement. On these bases, six groups of countries have emerged, using hierarchical clustering analysis: (1) Sri Lanka, Bhutan, India; (2) Pakistan, the Maldives, (3) Turkmenistan; (4) Bangladesh, Tajikistan, Afghanistan; (5) Mongolia, Nepal; (6) Kazakhstan, Kyrgyzstan, Uzbekistan.

4.1 Introduction

This paper aims to apply the methodology used in Inoguchi's former paper (2004c) and build on to the findings concerning social capital in Asia. The previous paper used ten Asian countries from the AsiaBarometer 2003 survey; this time we are using the 14 Central and South Asian countries – Kazakhstan, India, Pakistan, Afghanistan, Sri Lanka, Bangladesh, Maldives, Bhutan, Mongolia, Nepal, Tajikistan, Turkmenistan, Kyrgyzstan, and Uzbekistan – from the AsiaBarometer 2005 survey.

Social capital is often defined as something that can be most useful in minimizing the costs of misunderstanding and transactions when one tries to forge bridges

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and enhance bonds, when one ventures joint undertakings, and when one tries to regularize reciprocities. Social capital is such a broad concept that it is often used to mean what you mean (Baron et al. 2003), but of all the matters that are conceptualized as being 'caused' by social capital, directly or indirectly, two stand out – democracy and prosperity. Putnam (1993; 2002) asserts the causal chain of social capital facilitating democracy, whereas Fukuyama (1995) upholds the causal path of social capital promoting prosperity. In essence, Putnam argues that democracy is much more deeply rooted where there is tradition of civic engagement, e.g. the tradition of republican rule in Florence, the tradition of civic associations in mid-nineteenth century America, etc. Likewise, Fukuyama argues that where there is the tradition of social capital, prosperity is created in a civilized form. Fukuyama models high and low trust societies, whereby civilized and not-so-civilized business transactions take place. His argument is that without civilized trust permeating society, sustained prosperity is more difficult to create. His anthropological evidence supporting his argument is marshaled on Chinese, Korean, Indian, Japanese, French, German, American, and other social relations.

Although one may take issue with Putnam or Fukuyama in one way or another like Baron et al., we find the concept of social capital very useful in understanding the propensity to take initiatives, to avert risks, to cooperate or defect, and to shape and share values, norms, and rules, especially when some measures are given. Moreover, there have been findings on the topic from the health sciences. Kawachi and Kennedy (2002) has investigated the psychosocial explanations for the relation between income equality and health, and has found out that at levels of states, provinces, cities, and neighborhoods, low social capital predicts bad health, bad self-reported health, and high mortality rates.

In this paper, we attempt to identify some major dimensions of social capital as found in the AsiaBarometer 2005 data, to place the 14 countries on those dimensions, and to reflect on the nature of political culture in 14 Asian societies in terms of social capital. By doing so, we seek to highlight the democratic, developmental, and regionalizing trends in current Asia using AsiaBarometer. After all, social capital is conducive to building democracy, so argues Robert Putnam; social capital is facilitative to creating prosperity, so argues Francis Fukuyama; and social capital is essential to integrate countries into a region, so argues Karl Deutsch. This paper neither claims nor intends to map out what are far more complex causally interpretable schemes of democratic, developmental, and regionalizing evolution of Asia and its sub-components, but, at least, we here wish to show some meaningful facts on these prospects on the basis of social-capital focused survey data.

4.2 Social Capital Questions: Overview

The social capital questions examined in this paper are Q10, Q11, Q12, Q13, Q14, Q15–3, Q15–4, Q15–6, Q15–7, Q15–8, Q21, and Q33–1. In order to ensure ordinal alignment of the answer selections and to render all 'don't know (DK)' as missing values (MV), the numerical values of the answer selections have been parameterized according to the following manner.

Q10   'Generally, do you think people can be trusted or do you think that you can't be too careful in dealing with people (that it pays to be wary of people)?' Respondents had to choose between: 'Most people can be trusted (+1)', 'Can't be too careful in dealing with people (0)', and 'Don't know (MV)'.

Q11   'Do you think that people generally try to be helpful or do you think that they mostly look out for themselves?' Respondents had to choose between: 'People generally try to be helpful (+1)', 'People mostly look out for themselves (0)', and 'Don't know (MV)'.

Q12   'If you saw somebody on the street looking lost, would you stop to help?' Respondents had to choose between 'I would always stop to help (+1)', 'I would help if nobody else did (+0.5)', 'It is highly likely that I wouldn't stop to help (0)', and 'Don't know (MV)'.

Q13   'If you had no descendants, would you think it desirable to adopt somebody in order to continue the family line, even if there were no blood relationship? Or do you think this would be unnecessary?' Respondents had to choose between: 'Would adopt in order to continue the family line (+1)', 'Would not adopt in order to continue the family line. I think it would be pointless (0)', 'It would depend on the circumstances (+0.5)', and 'Don't know (MV)' (Fig. 4.1).

Q14   'Suppose that you are the president of a company. In the company's employment examination, a relative of yours got the second highest grade, scoring only marginally less than the candidate with the highest grade. In such case, which person would you employ?' Respondents had to choose between 'The person with the highest grade (0)', 'Your relative (+1)', and 'Don't know (MV)'.

Q15–3   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures'. Respondents had to choose from a list of answers including: 'Would get support from relatives (+1)', all other answers (0), and 'Don't know (MV)' (Fig. 4.2).

Q15–4   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures'. Respondents had to choose from a list of answers including: 'Would get support from neighbors and the community (+1)', all other answers (0), and 'Don't know (MV)'.

Q15–6   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures'. Respondents had to choose from a list of answers including: 'Would get social welfare payments (+1)', all other answers (0), and 'Don't know (MV)'.

Q15–7   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures'. Respondents had to
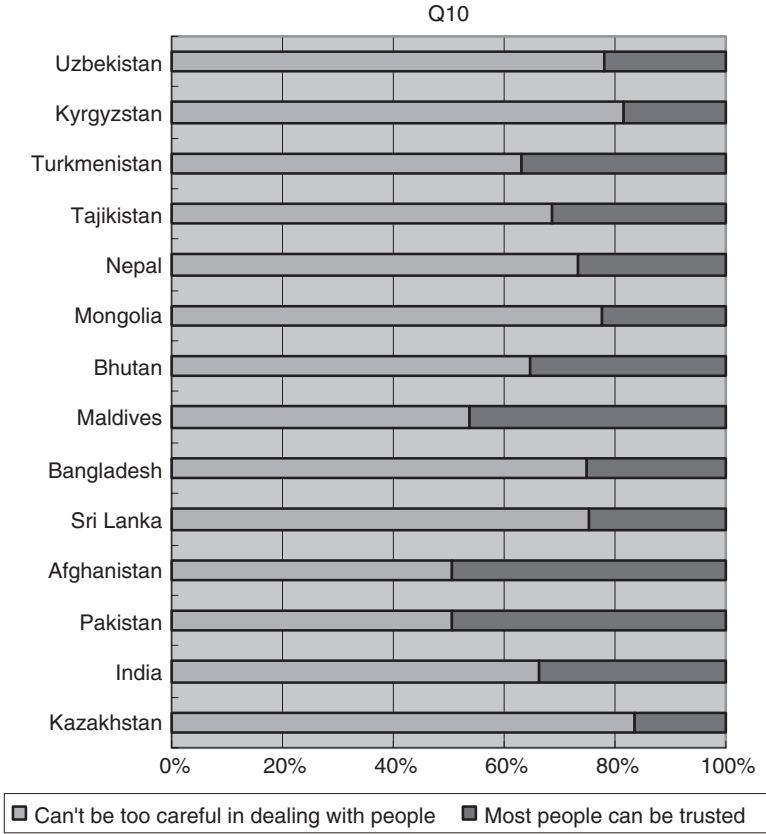
Fig. 4.1 Social capital: Interpersonal

choose from a list of answers including: 'Retirement allowance (+1)', all other answers (0), and 'Don't know (MV)' (Fig. 4.3).

Q15–8 'If the main breadwinner of your household should die or become unable to work sue to illness, how would your household maintain the household budget? Select up to two of the following measures'. Respondents had to choose from a list of answers including: 'Have an insurance policy to cover such a situation (+1)', all other answers (0), and 'Don't know (MV)'.

Q21 'Do you think that on the whole men and women are treated equally in your country? Please indicate which of the following is closest to your opinion'. Respondents had to choose between: 'Men are treated much more favorably than women (0)', 'Men are treated somewhat more favorably than women (0)', 'Men and women are treated equally (+1)', 'Women are treated much more favorably than men (+1)', 'Women are treated somewhat more favorably than men (+1)', and 'Don't know (MV)' (Figs. 4.4, 4.5, 4.6 and 4.7).
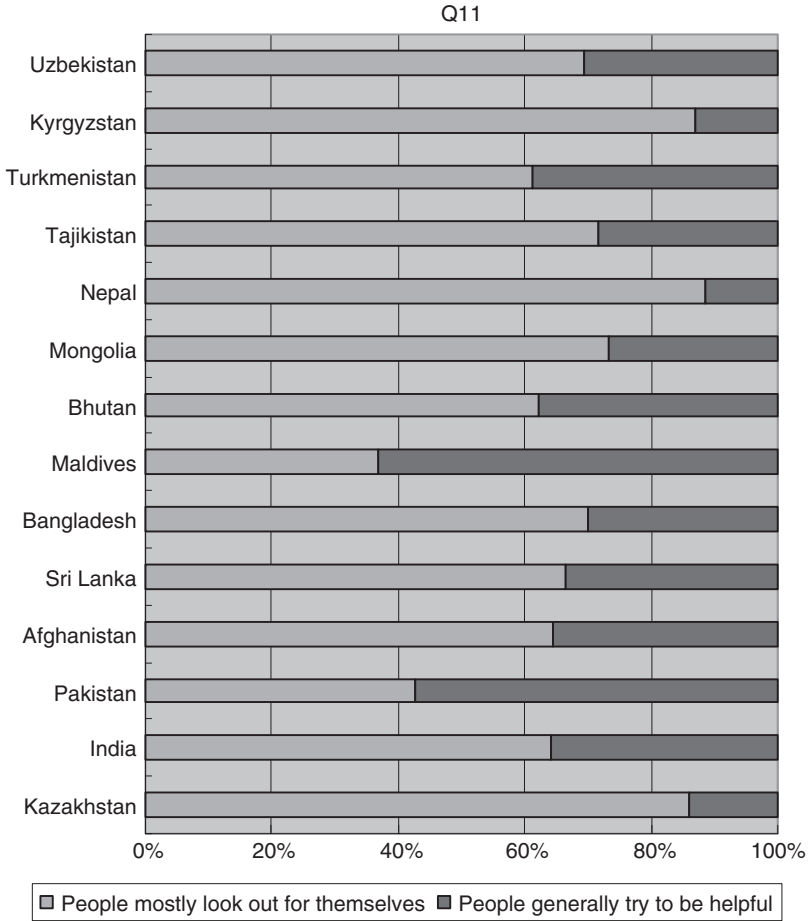
Fig. 4.2 Social capital: generosity

Q33–1 'What should a person who needs a government permit do if the response of the official handling the application is: "just be patient and wait"'. Respondents had to choose from a list of answers including: 'Use connections to obtain the permit (+1)', all other answers (0), and 'Don't know (MV).'[1]

Our plan is to identify some underlying dimensions of social capital by employing multidimensional analysis methods on the above-listed questions and then to relate them back to the conceptual discussion on social capital. However, before moving on to stochastic multidimensional analyses, let us first survey the questions in terms of their significance and relevance in terms of social capital.

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[1] As observed in Fig. 4.8, it is evident that this answer was not an option in Maldives.
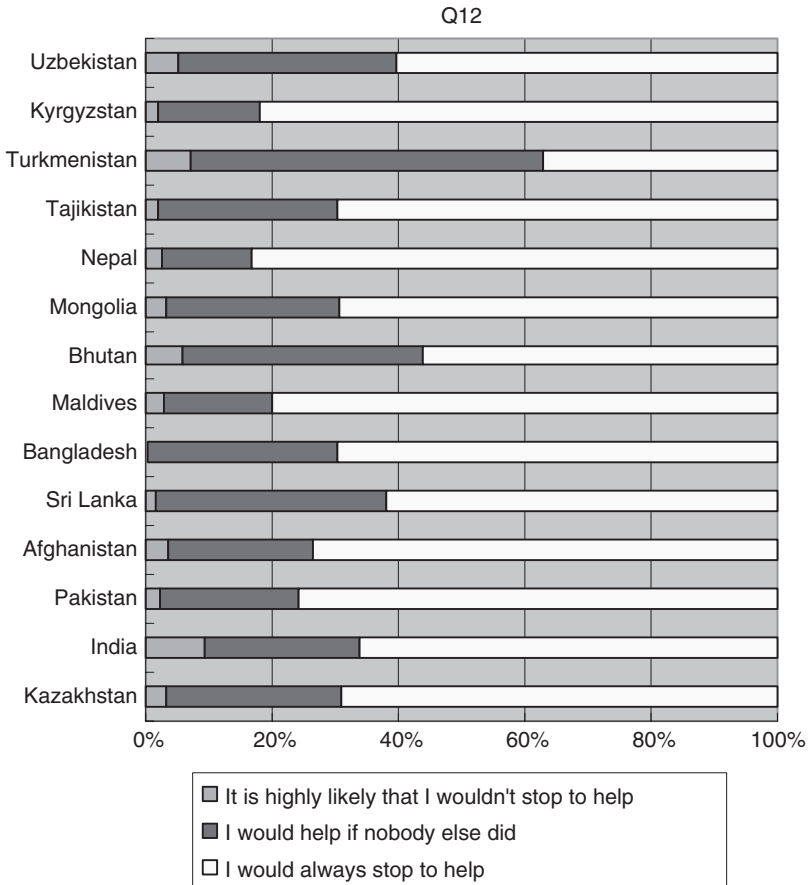
Fig. 4.3 Social capital: help extension

Questions 10, 11, and 12 are questions useful in observing how much trust prevails in interpersonal relations. They are the questions on civic trust, touching up on the communitarian concept (Inglehart/Weltzel 2004). Notice that there is a gap between the objectivity of Questions 10 and 11 and the subjectivity of Question 12. Also, Question 12 entails action on the part of the respondent to strengthen connection with the society and to reaffirm his/her position in the social network.

Meanwhile, Questions 13–15 measure the broadness of trust. We are interested in measuring the various degrees of trust, from self-trust to blood-based trust, to trust in neighbors, and on to trust in social institutions and the general public. Question 13 involves the continuation of family line despite lack of blood-based connection with the successor. It is not a question of how much the respondent values the blood-based succession of family line, but rather, a question of how much the respondent values the concept of family line, a form of social infrastructure.
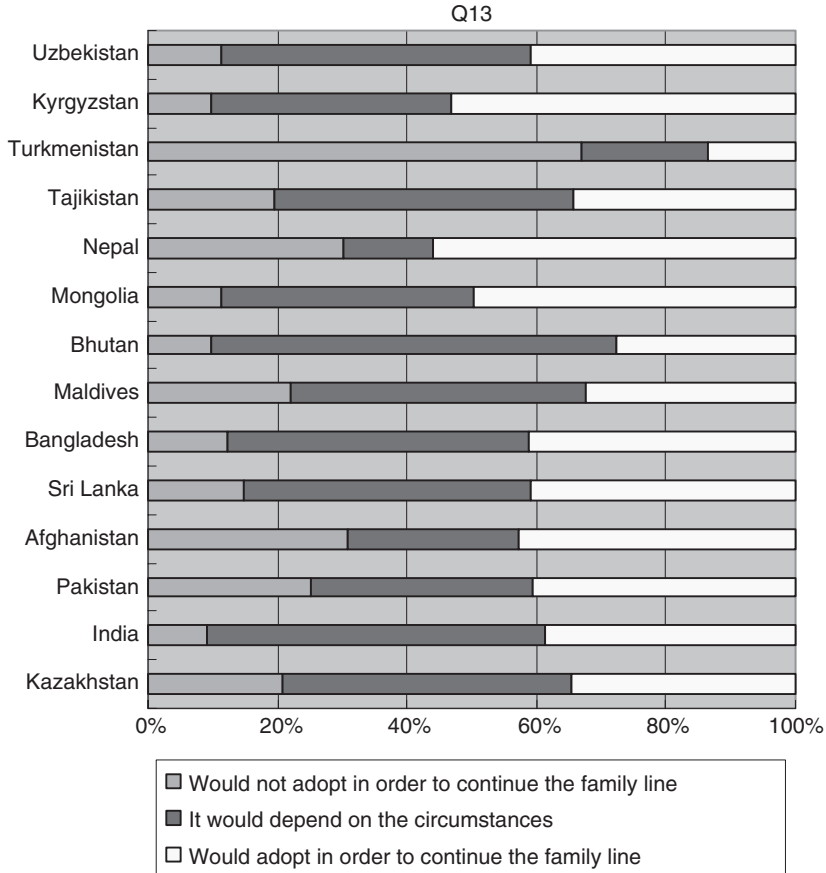
Fig. 4.4 Social capital: adoption

In that sense, Question 13 is in essence close to Question 12 given the aspect of placing oneself in the society. On the other hand, Question 14 is a question on blood-based trust, or better to say, cronyism/nepotism versus utilitarianism/meritoc-racy, whether one should employ a relative of good capacity or a non-relative of the highest proven capacity.

The various response categories of Question 15 are aimed at measuring the degree of anonymous communitarian scheme of trust when the breadwinner has deceased. Questions 15–3 and 15–4 are similar to Question 14 in that they deal with narrow trust; they ask whether one would employ so-called crony connections, namely those of relatives and neighbors, in time of financial emergency. Question 15–6 deals more with broader trust. Here, the question measures how much one trusts the social institution and how much one relies on his/her positioning as a member of the society. In this sense, it is an extension of Questions 12 and 13. Questions 15–7 and 15–8, reliance on retirement allowance and insurance policy,
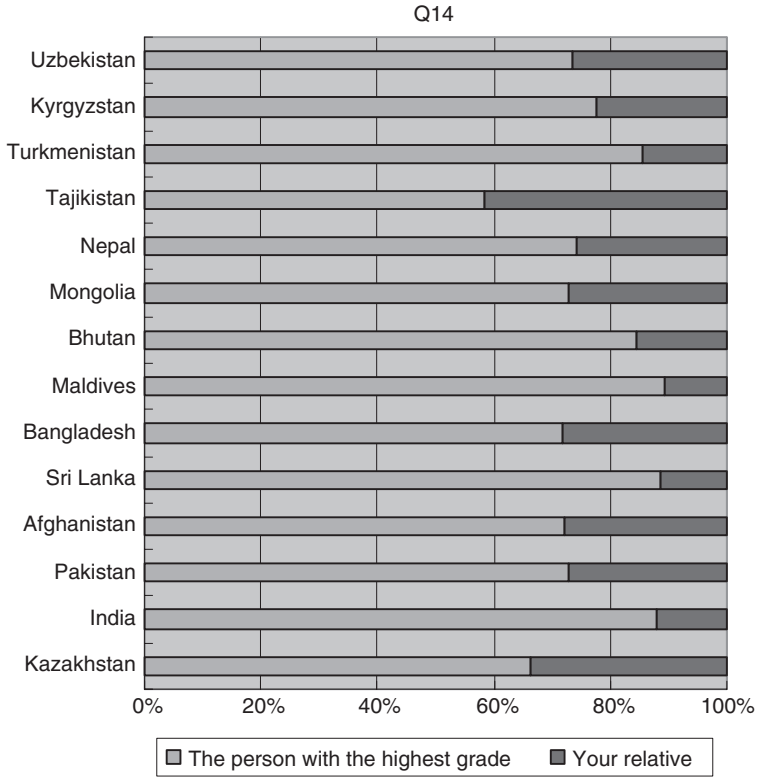
Fig. 4.5 Social capital: meritocracy
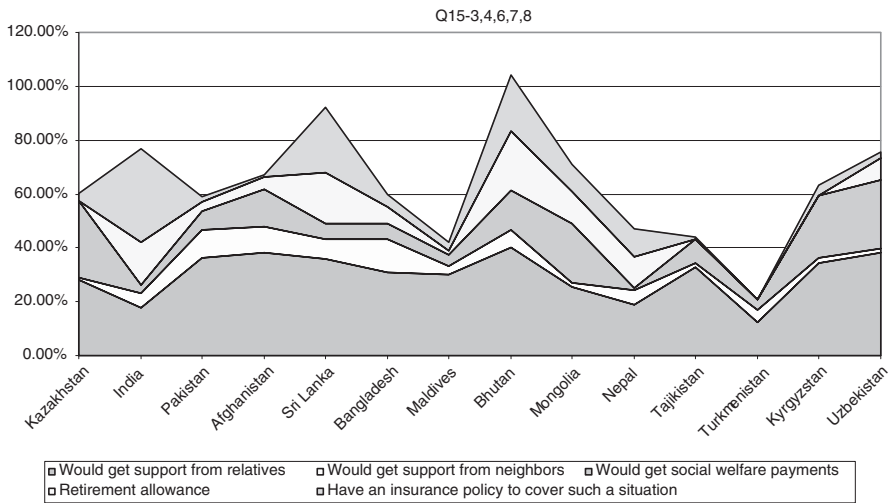
Fig. 4.6 Social capital: various means of receiving support
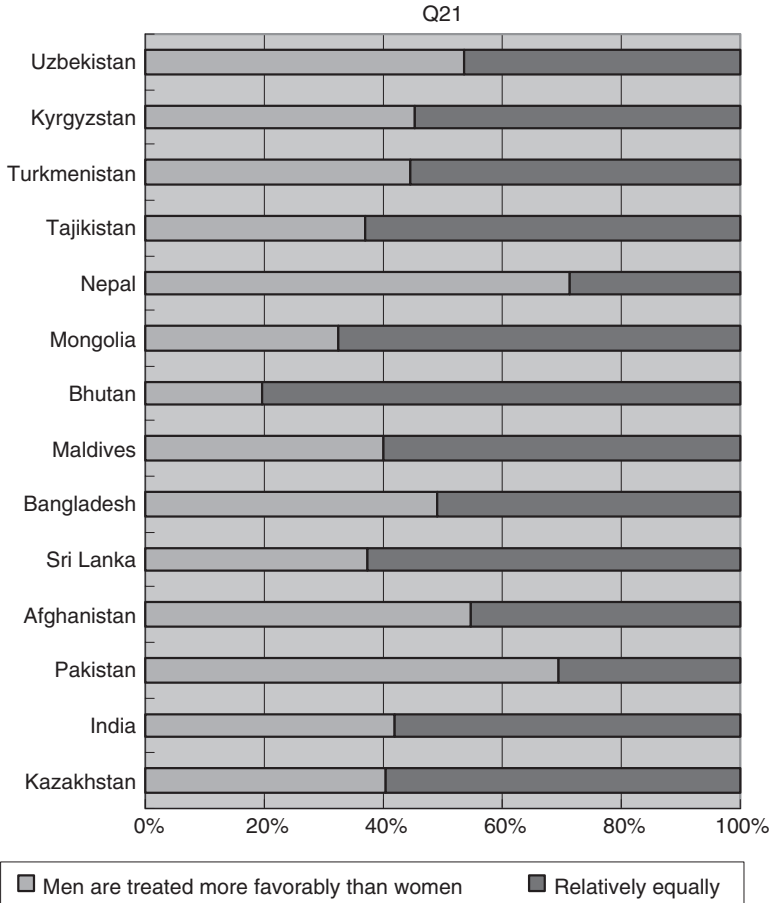
Fig. 4.7 Social capital: gender equality

should be distinguished from Question 15–6, despite the seemingly common reference to the social system. The major difference is that income from retirement allowances and insurance policies are self-earned (or self- deserved) and are results of careful planning, while social welfare payments are more or less public financial support and are hardly results of long-term planning. Thus, Questions 15–7 and 15–8 are in fact questions relating to (1) self-trust (despite their social aspects) and (2) fairness in respect of not making use of crony connections or adding burden to the society.

Question 21 portrays trust in terms of gender. It asks about the emancipative aspect of trust; that is, the approach that focuses on self-expression values and liberty aspirations (Inglehart/Weltzel 2004). The response categories, 'Men are treated much/somewhat more favorably than women males', measure the degree of discriminatory and oppressive nature of trust in terms of gender. Moreover, this
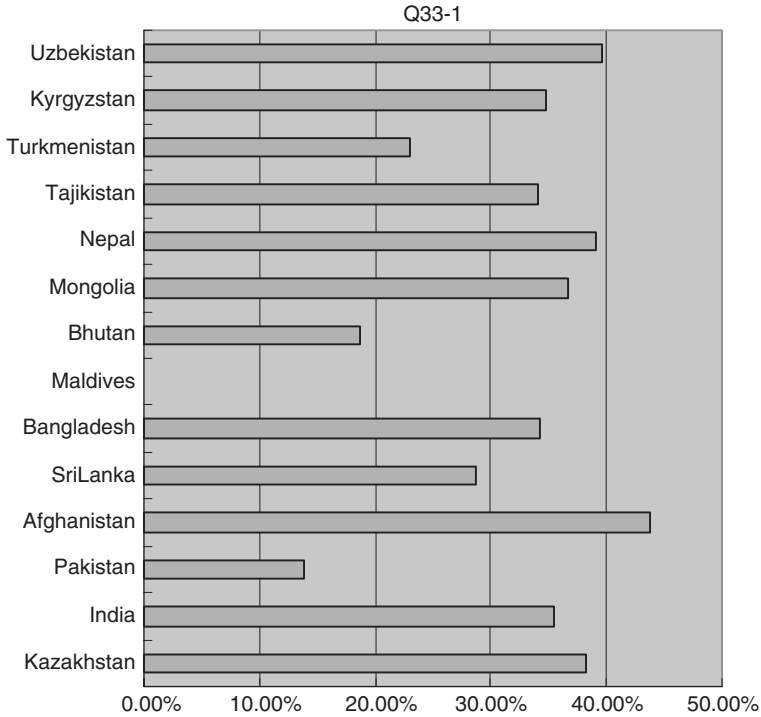
Fig. 4.8 Social capital: use of connections

question measures the utilitarian aspect of social capital. It is expected that more utilitarian respondents would have less bias on non-utilitarian parameters, such as gender or blood. In that sense, the question has close connection with Q14, which contrasts utilitarianism and cronyism.

Question 33–1, the question on making use of connections with officials to elicit government permit, measures the degree of confidence in official institutions. It asks about the system support aspect of trust, the approach that underlines confidence in concrete institutions and support for democracy (Inglehart/Weltzel 2004), and as in Question 15–6, it refers especially to one's positioning in the system.

4.3 Social Capital Questions: Relevance to Individual Parameters

Let us now observe the social capital questions one by one using individual parameters: in this case, gender, religious affiliation, atheism, religiosity, internet usage, standard of living, marriage status, employment, age bracket, educational level, and English fluency. Recent studies have shown that such parameters have deep impact

upon individuals' value system, such as social capital, trust, worries, satisfaction, sense of freedom, etc. For example, using the Asia-Europe survey data, Inoguchi and Hotta have noted earlier that gender affects notions of life worries and satisfaction, higher standard of living is associated with higher trust in government, English fluency discourages nationalism but is positively correlated with trust in government and life satisfaction, advanced age seems to uphold both nationalism and trust in government, etc. (Inoguchi and Hotta 2003).

Some of the parameter breakdowns by country are shown in the respective figures. Naturally, the 14 survey countries have very contrasting trends in terms of individual parameters (and also, similar trends in terms of geographical, religious, and cultural affiliations, as we see later on).

Question 10, a highly general question on trust has yielded the following contrasts. According to the chi-square test, female ($p = 0003$), education ($p < 0.001$), atheist ($p < 0.001$), and unemployed ($p < 0.001$) respondents tended to be more cautious in dealing with people. Meanwhile, English-fluency ($p = 0.001$) and marriage ($p = 0.001$), higher standard of living ($p < 0.001$), internet usage ($p < 0.01$), and higher importance of God ($p < 0.001$) seemed to enhance the sense of general trust in people. By religious breakdown, Muslims (Shiah), Muslims (Sunnah), Hindus, Catholics, and Buddhists (Mahayana) had higher percentages of respondents generally trusting in people, in descending order. Percentages were lower for Buddhists (Hinayana), non-Catholic Christians, and those practicing other religions, and even lower for atheists. Age did not have to do much with general trust (Fig. 4.9a).
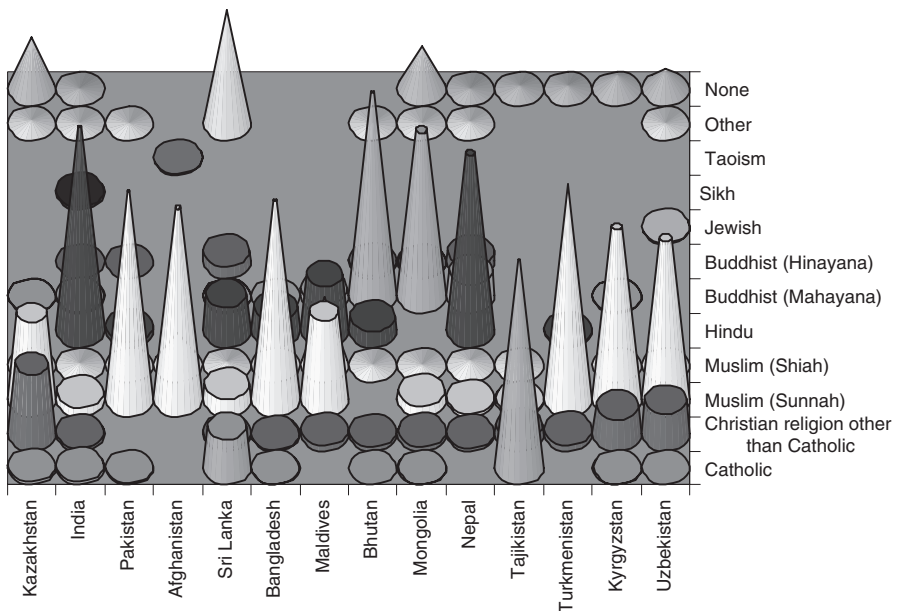
Fig. 4.9a   Religious breakdown by country

The above results are intuitive. English-fluency, marriage, internet usage, and religiosity enhance social connections and infrastructures, and form camaraderie. Education often goes against general trust, especially in the field of empirical studies and courses on history. Unemployment often leads to disappointment in the society and humankind, while on the contrary higher standard of living leads to affirmation of the society and humankind. Catholics exhibit higher sense of general trust than non-Catholic Christians (primarily Protestants), and this may be due to the latter's relative individualism and rationalism (Weber 1930; Bell 1996). Meanwhile, Mahayana Buddhists show greater sense of trust than Hinayana Buddhists, possibly reflecting the latter's more self-reliant approach to enlightenment.

Question 11 asked about trust in general but in a more specific situation. Findings, however, were similar to those of Question 10. Female ($p = 0.014$), educated ($p < 0.001$), atheist ($p < 0.001$), unemployed ($p < 0.001$) respondents tended to believe that people mostly look out for themselves. Also, English fluency ($p < 0.001$), marriage ($p = 0.026$), higher standard of living ($p < 0.001$), internet usage ($p < 0.001$), and greater importance of God ($p < 0.001$) boosted up the notion that people generally try to be helpful. Religious trends were also similar to the former question. The high rankings of Muslims suggest the influence of zakaˆt (mandatory alms) and sadaqah (voluntary charity), both of which are traditional practices for helping the needy. Again, age was not a factor (Fig. 4.9b).

Question 12 asked about trust in a specific situation. In this case, education ($p < 0.001$), lower standard of living ($p < 0.001$), and higher internet usage ($p < 0.001$) discouraged respondents from being helpful to others, whereas marriage ($p = 0.003$), older age ($p < 0.001$), and greater importance of God ($p < 0.001$) promoted respondents' helpfulness towards others. Gender, English fluency, employment status, and atheism did not have an effect on the answers. Like before, the reasons behind education and religiosity are clear. Lower income respondents are less helpful to others, but this is probably because they have limited resources to help others and because some of them feel that they need to be helped before they help others. The link between helpfulness and older age is not intuitive, but they are probably associated with religiosity and higher living standards.

Results for Question 13 were more complex. Education ($p < 0.001$) and English fluency ($p < 0.001$) went against adoption to continue one's family line, while marriage ($p < 0.001$) and older age ($p < 0.001$) strongly promoted adoption. Gender and atheism were not factors, where as employment status, living standard, internet fluency, and religiosity posed mixed results. This is probably because continuation of family line is a traditional concept that is less observed in modern, urban societies, but at the same time is also a desire for many married couples who have some wealth to leave behind. Thus, a greater percentage of employed, high income, internet fluent respondents have answered, 'It would depend on the circumstances', given the fact that many of them have non-traditional educational background as well as necessity to leave behind some wealth (Fig. 4.9c).

Question 14 hit upon the narrowness of trust in a specific setting. As mentioned earlier, it was a question of cronyism/nepotism versus utilitarianism/meritocracy. From our observation, better education ($p < 0.001$), English fluency ($p < 0.001$),
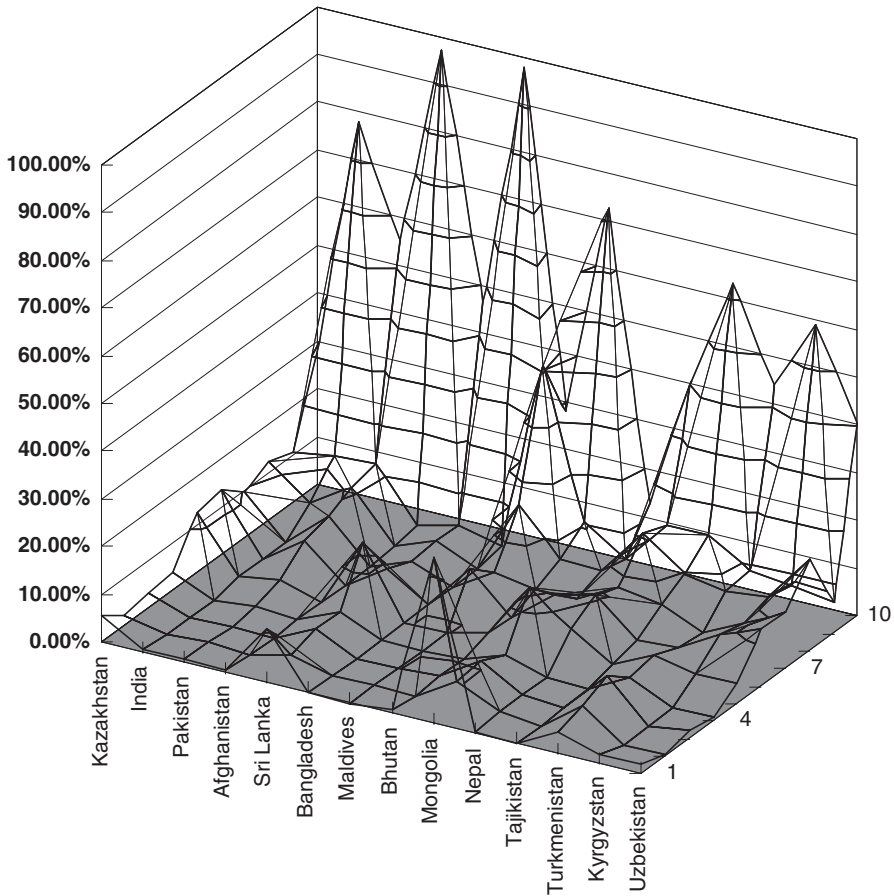
Fig. 4.9b The importance of God (10 = Most) by country

higher standard of living ($p < 0.001$), and high internet usage ($p < 0.001$) pushed respondents towards meritocracy, but gender, marriage, employment status, and religiosity were not significant factors behind the responses. Interestingly, atheism contributed towards cronyism, while the relationship between age brackets and responses were mixed, with no clear pattern. In terms of religious affiliation, Buddhists (Hinayana), Hindus, Muslims (Shiah), Muslims (Mahayana), non-Catholic Christians, and Muslims (Sunnah) tended to support meritocracy in descending order, while Catholics leaned towards nepotism. As observed in Question 10, the ranking of Hinayana Buddhists makes sense given their high priority on self-earned enlightenment. Similarly, the difference in the results between non-Catholic Christians (largely Protestants) and Catholics are evident given the so-called Protestant work ethic and their emphasis on improvement of productivity against the backdrop of Catholic's rather communitarian culture (Weber; Bell) (Figs. 4.9d and 4.9e).
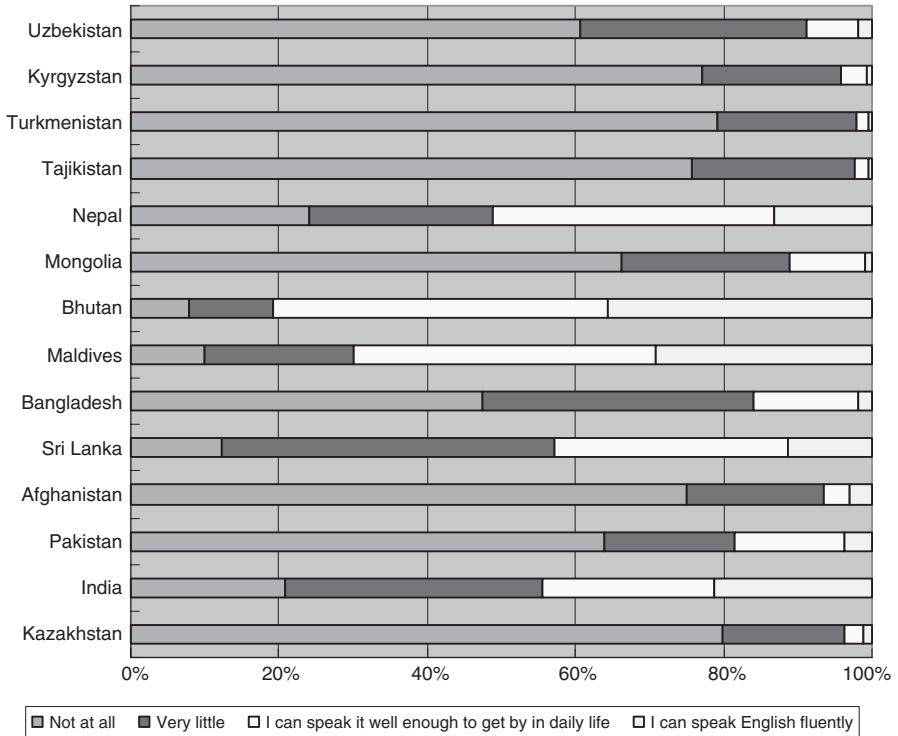
Fig. 4.9c English fluency by country

Some may argue that Question 15 is not necessarily a question on trust, but merely a question of financing the household given the availability and non-availability of means of financing the household when the main breadwinner has deceased. Nonetheless, when looked at from another angle, we can see that it is also a question on the various degrees of trust that extends from the self to relatives and neighbors, and to society, and how the society is able to create confidence in its sub-groups and systems.

Questions 15–3 and 15–4 asked whether one would rely on relatives and neighbors, respectively, at the time of the above-described emergency. As for Question 15–3, younger age ($p < 0.001$) and internet usage ($p < 0.001$) were associated with dependence on relatives, whereas education ($p < 0.001$), English fluency ($p < 0.001$), and atheism ($p = 0.021$) went against such dependency. Gender, marriage, employment status, and living standard were not significant factors. Though atheists tended not to rely on their relatives, from the view of religiosity, the least religious respondents and highly religious respondents equally showed above-average dependency on their relatives ($p = 0.001$). By affiliation, Catholics, Buddhists (Mahayana), Muslims (Sunnah), and Muslims (Shiah) exhibited above-average family bonding, in descending order, whereas Hindus, Buddhists (Hinayana), and non-Catholic Christians were even less reliant on their relatives than atheists.
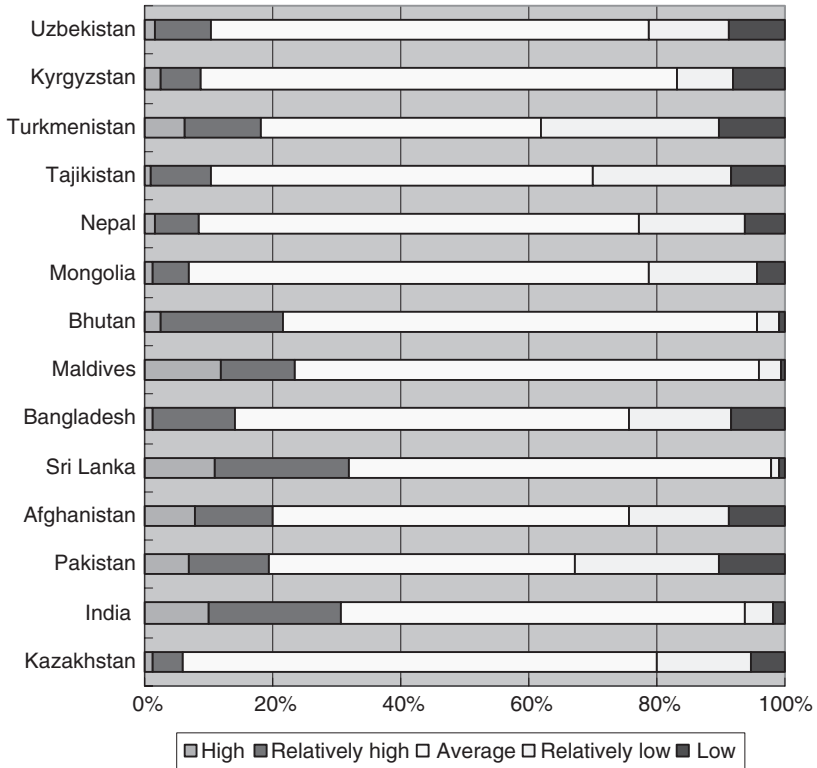
Fig. 4.9d   Standard of living by country
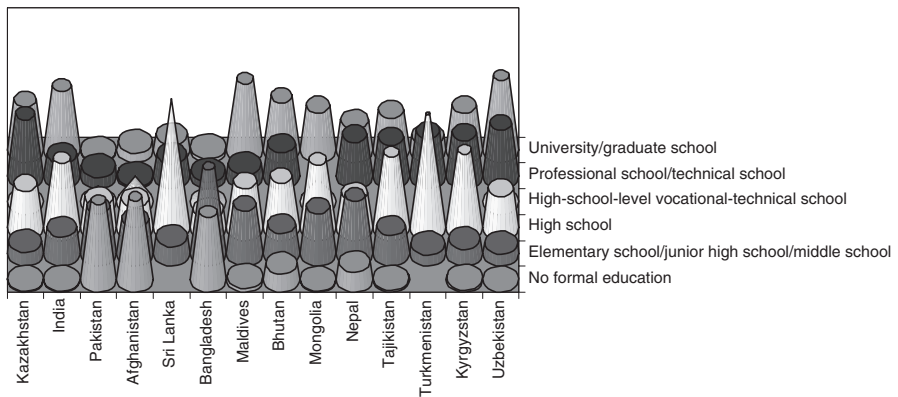
Fig. 4.9e   Education level by country

Question 15–4 yielded similar but somewhat different results. In this case, younger age ($p = 0.039$), marriage ($p = 0.042$), and religiosity ($p < 0.001$) promoted dependency on neighbors for emergency assistance, while education ($p < 0.001$), higher standard of living ($p < 0.001$), and atheism ($p < 0.001$) turned respondents away from such a choice. Gender, English fluency, and unemployment were not significant factors, and internet usage was only significant in that mild users tended to seek neighbors' assistance (but not heavy users or non-users). Surprisingly, in terms of religious affiliation, only Sunnah Muslims exhibited above-average tendency to depend on neighbors.

For both questions, younger age had significant association with nepotistic reliance, largely due to the existence of elder relatives who might be able to provide financial assistance. Education turned respondents away from such options, as the availability and knowledge of other options, such as social welfare and insurance, usually increases according to educational level. Although we shall not discuss this in depth, there seems to be a strong link between atheism and reluctance against use of narrow- trust connections. Marriage and standard of living were a factor for dependency on neighbors, and not on relatives. Marriage could be seen as the most intimate form of non-blood relationship, and, thus, married couples might be more willing than other respondents to seek help from close non-blood-related friends. Standard of living could be seen more in terms of pride, reluctance of high-income earners to suddenly seek help from others without first attempting other forms of solution. The linkage between religious affiliations and the two questions is somewhat puzzling, but the high ranking of Sunnah Muslims may be a result of sadaqah. Meanwhile, zakaˆt (mandatory alms) is closer to the category of Question 15–6, social welfare, rather than direct support from relatives or neighbors.

Question 15–6 asked about the use of social welfare if the respondent's household happens to lose its breadwinner. Educated ($p < 0.001$), advanced age ($p < 0.001$), atheist ($p < 0.001$), non-English-fluent ($p < 0.001$), female ($p = 0.004$), non-internet user ($p < 0.001$) and lower standard of living ($p < 0.001$) had significant tendency to choose this response category. Interestingly, marriage and unemployment had no significant impact on the response, while the impact of religiosity was only evident from moderately religious respondents. As for religious affiliation, non-Catholic Christians and Buddhists (Mahayana) showed extremely high tendency to choose this option; Muslims were average; social welfare was no a desirable option for many Catholics, Buddhists (Hinayana), and Hindus.

The impact of advanced age, female gender, and lower standard of living on this question was expected, given the age and financial brackets of most social welfare systems. Education contributed towards this response due to the knowledge of the mechanism and subsequent trust in the system. The contribution of atheists may be a reaction of their averseness against nepotistic connections, or may be because of the significant positive correlation between atheism and education ($p < 0.01$, Spearman's test) and negative correlation between religiosity and education ($p < 0.01$, Spearman's test). English-fluent, heavy internet users tended not to choose this response, primarily due to their high correlation with high standard of living. As for religion, non-catholic Christians scored high, given their historical involvement in the development of the Western social welfare system and Equity Law. Mahayana

Buddhism also has had a long history of communal and societal support, largely due to its teachings.

Questions 15–7 and 15–8 were response categories corresponding to retirement allowance and insurance policy, both of them which have individual and social aspects, but none in between. In other words, they represent both self-achievement and trust in the social system. As for Question 15–7, education ($p < 0.001$), advanced age ($p < 0.001$), higher standard of living ($p < 0.001$), English fluency ($p < 0.001$), and heavier internet usage ($p < 0.001$) all had significant association with the selection of retirement allowance as an option. Religiosity tended to go against this choice ($p < 0.001$), but atheists also tended not to choose this option ($p = 0.001$). Gender, marriage, and employment status were not significant factors. In terms of religion, Buddhists (Mahayana), Buddhists (Hinayana), and Hindus, in descending order, overwhelmingly supported this option on the backdrop of not-so-eager monotheistic religions. The results for Question 15–8 were very similar. Again, education ($p < 0.001$), higher standard of living ($p < 0.001$), English fluency ($p < 0.001$), and heavier internet usage ($p < 0.001$) all promoted insurance as an emergency option. Also, religiosity tended to go against this choice ($p < 0.001$), though atheists also tended not to choose this option ($p = 0.001$). Gender, marriage, age, and employment status were not significant factors. As for religion, Hindus, Buddhists (Hinayana), and Buddhists (Mahayana), in descending order, overwhelmingly supported the idea of insurance policy, but support from the monotheistic religions was low.

Education, higher standard of living, and English fluency, as well as heavy internet usage, were all linked with the selection of retirement allowance and insurance policy as emergency financial means, primarily due to the fact that the impact of the two options depend upon the respondents' earnings and wealth. Age was only linked with retirement allowance due to their obvious connection. Religiosity tended to go against such choices as it is negatively correlated with standard of living ($p < 0.01$, Spearman's test), but atheists also tended not to choose the two options, since the greatest supporters of the two responses were Buddhists and Hindus. It is very interesting that believers of polytheistic religions had much more trust in retirement allowance and insurance policy than those of monotheistic religions. We can attempt to explain this phenomenon by the concept of karma, common to both Buddhism and Hinduism, but there should be deeper geopolitical and religion-cultural causes that ought to be addressed in separate researches.

Question 21 focuses on gender equality and fairness. It is often assumed that a 'fair' society tends to be more utilitarian, and in this sense the question is closely related to the employment problem of Question 14. Females ($p < 0.001$) are more sensitive to male chauvinism, given the nature of the question. Meanwhile, English-fluent ($p < 0.001$), older ($p < 0.001$), average income ($p < 0.001$), not religious ($p < 0.001$) or atheist ($p < 0.001$) respondents are more prone to believe that their society is based on gender equality. English fluency can be seen as a tool that has allowed many women to receive the same societal treatment as men, with respect to income and occupation. As for religion, Buddhists (Mahayana), Buddhists (Hinayana), and Catholics, in descending order, have largely felt that men and women are treated fairly equally.

Question 33–1 is an interesting question in that it has to do with both the recognition of power with government officials and with the non-confidence in government officials. The question also deals with utilitarianism, as well as trust in social institutions. From observation, educated ($p < 0.001$), unemployed ($p = 0.028$), young ($p < 0.001$), average income ($p = 0.002$), atheist ($p = 0.025$) respondents seem to support such use of connections with government officials to elicit permits. On the other hand, English fluency ($p < 0.001$) seems to go against such tendency. Also, Muslims (Shiah) and Buddhists (Hinayana) have higher proportions of respondents who do not prefer such an option, as compared to believers of other religions.

4.4   Three Dimensions of Social Capital

We subsequently extracted three components from the above questions using principal component analysis.[2] The eigenvalues were 1.531, 1.314, 1.121, respectively, and both KMO and Bartlett's tests were adequate. After varimax rotation with Kaiser normalization and minor parameterization, we gained the following results.

Component 1:   Q10 (0.765), Q11 (0.782), Q12 (0.424)
Component 2:   Q14 (−0.355), Q15–3 (−0.616), Q14–4 (−0.264), Q15–7 (0.505), Q15–8 (0.630), Q21 (0.243)
Component 3:   Q12 (0.487), Q13 (0.631), Q15–4 (−0.295), Q15–6 (0.460), Q33 (0.291)

Component 1 is general trust in interpersonal relations. Component 2 is merit-based utilitarianism, and its reverse (opposite vector) can be considered as trust in nepotistic value. Component 3 is institutional engagement, composed of trust in social institution and exploitation of social network. Interestingly, these three key dimensions are the same as the findings by Inoguchi using data from AsiaBarometer 2003 (Inoguchi 2004c).

We then took the Bartlett's scores of the three components and parameterized the initial scores for binary logistic regression analysis (LRA) of the three components against the individual parameters observed earlier. They all passed the Hosmer and Lemeshow test, but Nagelkerke's R Squares were low, indicating some unfitness in the three models (which was expected).

Component 1, or general trust in interpersonal relations, was best explained by gender ($p = 0.090$), educational level ($p < 0.001$), English fluency ($p < 0.001$), marriage ($p = 0.004$), unemployment ($p < 0.001$), internet usage ($p < 0.001$), and living standard ($p < 0.001$). Component 2, or merit-based utilitarianism, was best explained by age ($p < 0.001$), English fluency ($p < 0.001$), internet usage ($p < 0.001$), and living standard ($p < 0.001$). English fluency was especially influential among the four independents, given the highest odds ratio out of the four. Lastly, Component 3, or institutional engagement, was best explained by age ($p = 0.002$), educational level ($p < 0.001$), and English fluency ($p < 0.001$).

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[2] Hayashi's quantification method III and categorical principal component analysis are other options.

4.5 Country Rankings

We then aggregated the initial Bartlett scores of the three components by country, and ranked the 14 survey countries according to each of the three components.

Figures 4.10a, 4.10b, and 4.10c exhibit the country rankings by component. Figure 4.11a is a two-dimensional scatter plot matrix showing the positions of the countries with respect to any two of the three components. Figure 4.11b is a three-dimensional scatter plot that positions the 14 countries with respect to all of the three components.

General trust was high for countries such as Maldives, Pakistan, Turkmenistan, and Afghanistan, which are situated in the towards the western region of the survey area. Bhutan, India, Sri Lanka, Bangladesh, Tajikistan, and Nepal, most of which are towards the southeastern border of the survey area ranked in the middle. Mongolia, Uzbekistan, Kyrgyzstan, and Kazakhstan – the four northern countries in the survey area – displayed a lower level of general trust. Note that there was not much similarity between the respondents of the different countries in each category, such as between the Maldives and Afghanistan, with respect to the individual parameters observed earlier. In fact, religious affiliation, religiosity, and educational levels vary greatly among the countries ranked close together. The rankings, therefore, seem to be geographically induced, possibly from geopolitical and historical background.

As for merit-based utilitarianism, India, Sri Lanka, Bhutan, Mongolia, and Nepal, which are countries largely consisting of Buddhists and Hindus, ranked in
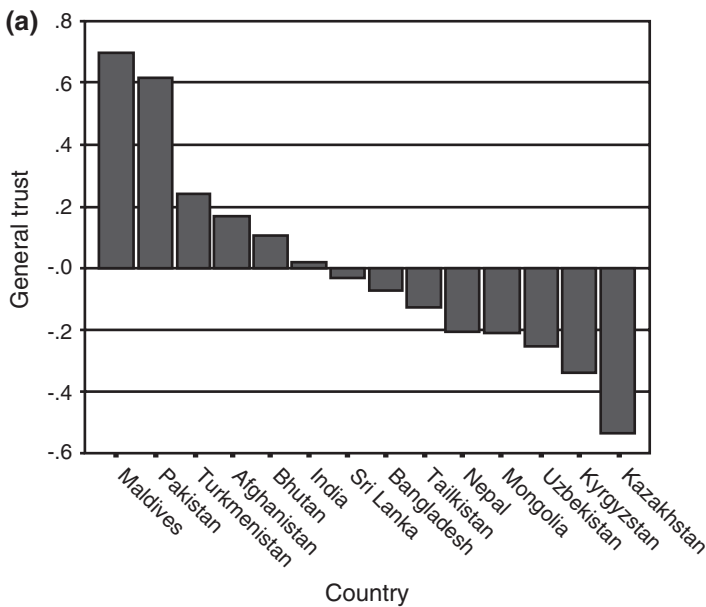
Fig. 4.10a General trust: country ranking
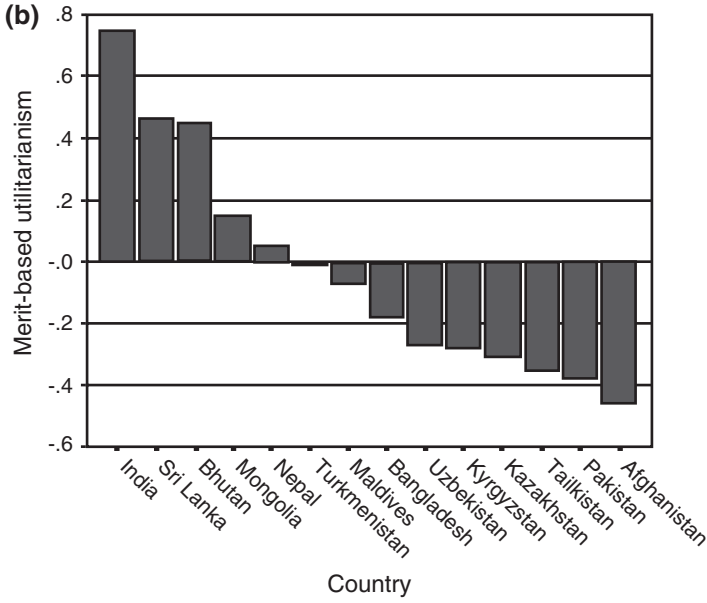
Fig. 4.10b Merit-based utilitarianism: country ranking
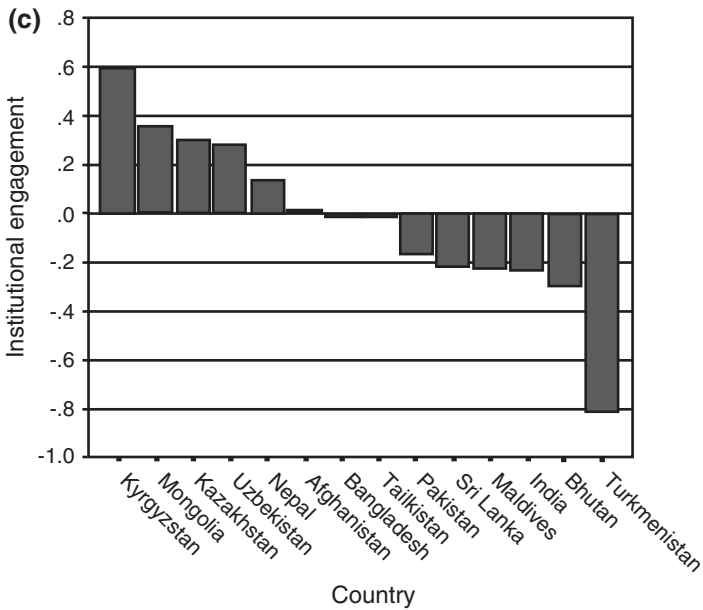
Fig. 4.10c Institutional engagement: country ranking
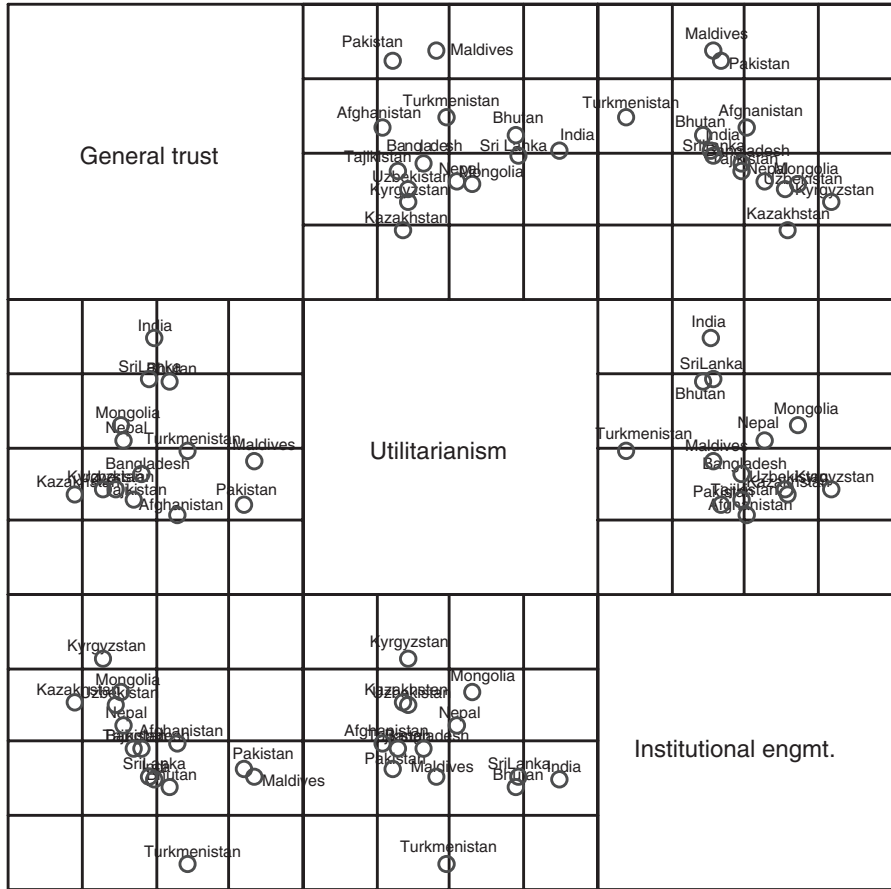
Fig. 4.11a General trust, Utilitarianism, Institutional Engagement: locations of 29 Asian Countries

the top category. With the exception of Mongolia, English fluency and living standards of the respondents were relatively high in these countries. Also, in Bhutan, Mongolia, and Nepal, greater proportions of respondents were using internet than the other countries.

In terms of institutional engagement, or better to say, trust in social institutions and exploitation of social network, Kyrgyzstan, Mongolia, Kazakhstan, and Uzbekistan ranked high. These countries are all situated in the northern ends of the survey area, implying reminiscence of the former Soviet regime. Some countries like India scored high for Question 33–1, the question of whether one would use government connections to elicit permits, but they ranked low for the other questions dealing with social infrastructure, such as reliance upon social welfare in case of financial emergency (Fig. 4.11a).
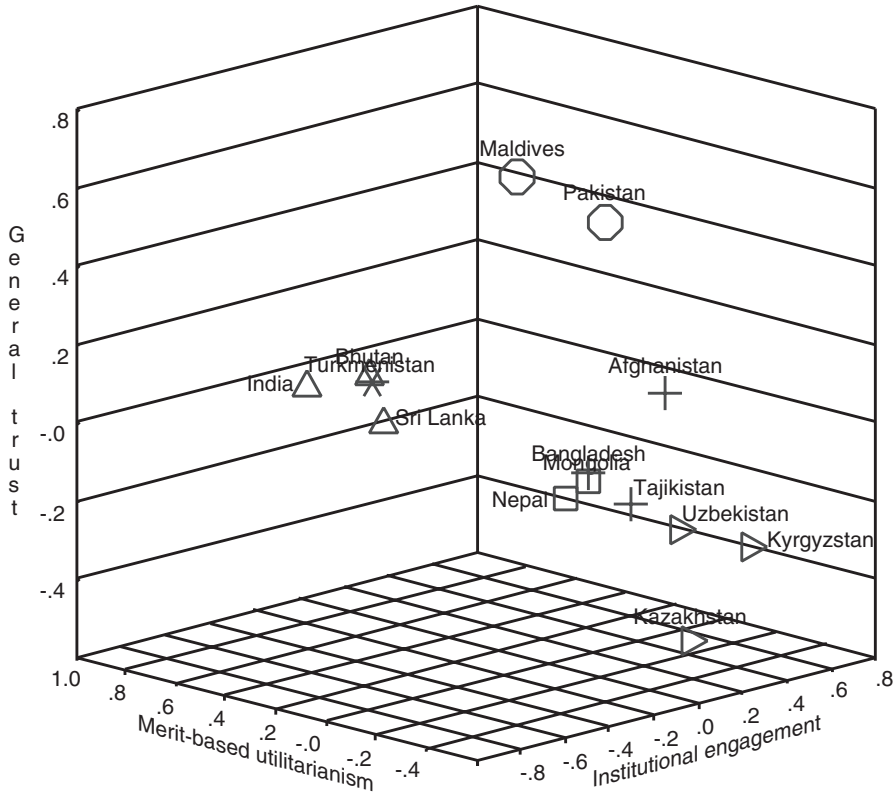
Fig. 4.11b Three dimensional locations of 29 Asian Countries in terms of social capital

4.6 Six Groups of Countries

As used in some recent literature, we grouped the 14 countries using hierarchical cluster analysis based on the three key dimensions (Inoguchi and Hotta 2003; Inoguchi 2004c). Ward's method was used.

It seems that there are roughly six groups:

Group 1   Sri Lanka, Bhutan, and India Group 2:
           Pakistan and Maldives
Group 3   Turkmenistan
Group 4   Bangladesh, Tajikistan, and Afghanistan
Group 5   Mongolia, and Nepal
Group 6   Kazakhstan, Kyrgyzstan, and Uzbekistan (Fig. 4.11b)

It is quite surprising that that the groupings are geographically and historically oriented. Group 1 revolves around India in terms of geography and history, and is notable for middle-level general trust, high-level utilitarianism, and low level of

Rescaled Distance Cluster Combine
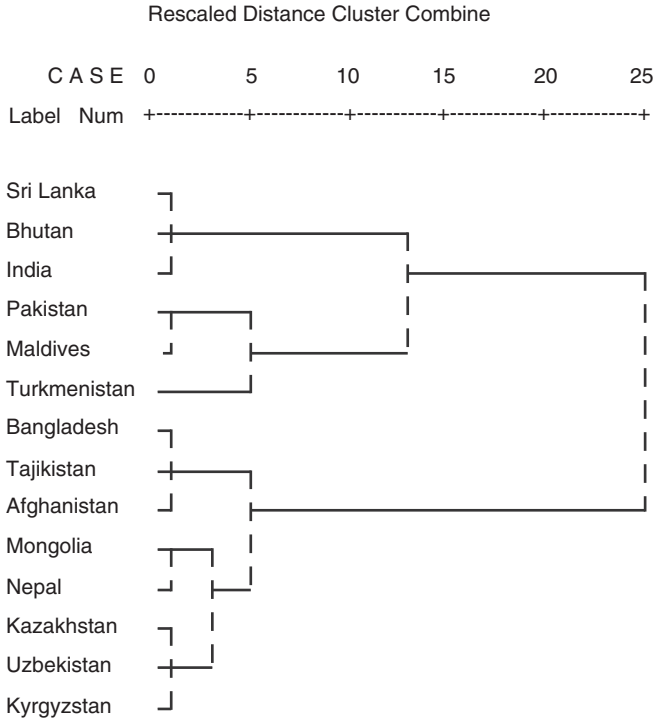
Fig. 4.12   Social capital: Historical and geographical clustering

institutional engagement. Group 2 is located along the Arabic Sea and is characterized by high- level general trust, low- to middle-level merit-based utilitarianism (or higher-level of cronyism), low-level institutional engagement. Group 3 is Turkmenistan on its own. The country has shown different traits from the rest of the groups: high level of general trust, mediocre utilitarianism, and low institutional engagement. It is rather close to Group 2 as compared to the rest of former Soviet countries, with some hints of Group 4. Group 4 shows middle to low level of general trust, middle to low level of meritocracy, and middle level of institutional engagement. The characteristics are not too far from Group 2. Group 5 countries rank low for general trust, high for utilitarianism, and high for institutional engagement. Except for institutional engagement, their traits resemble Group 1, and this may largely owe to their religious commonality. The relative highness of institutional engagement may owe to the two countries' closer geopolitical affiliation with China. Group 6 are the three former Soviet nations located on the northwest end of the survey district. Culturally and historically, the three countries have more in common among themselves when compared to the other countries. This group is characterized by low level of general trust, low level of merit-based utilitarianism, and high level of institutional engagement (Fig. 4.12).

Canonical Discriminant Functions
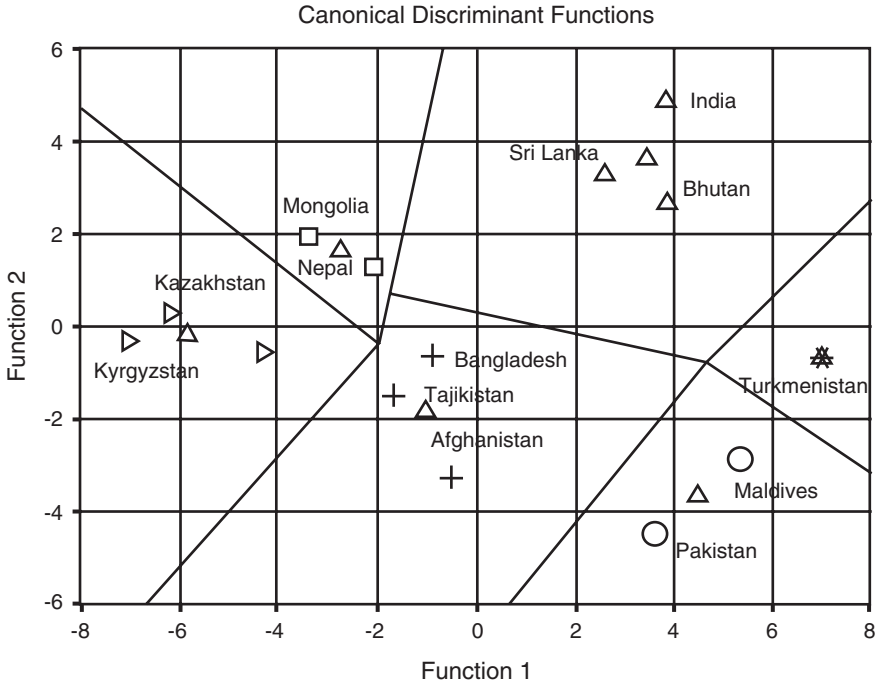
Fig. 4.13 Social capital: canonical discriminant functions analysis of 29 Asian Countries

In Inoguchi's earlier paper, Uzbekistan was grouped with Sri Lanka, character-ized by low social engagement and higher merit-based trust (Inoguchi 2004c). In our present observation, this no longer holds true. This difference owes not only to the time lag between the two surveys (AsiaBarometer, 2003 and 2005) and to the slightly different choice and parameterization of the questions, but also to the fact that AsiaBarometer 2005 forced comparison with more similar countries in similar geographical settings. Before, we were comparing oranges to grapefruits; now, we are comparing selected types of oranges.

Figure 4.13 is a map of the 14 countries plotted according to the first two of the discriminant canonical functions based on the three components. The relative posi-tion of the six groups is quite evident.

4.7 Conclusion

As was the previous paper (Inoguchi 2004c), the three key dimensions observed in this paper have turned out to be surrogate dimensions (with slightly different labels) of the three diverse lines of thought on social capital: utility, fairness, and institu-tion. Utility is normally used by economists and rational choice theorists, who

chiefly argue that cultural differences are not significantly detected in cross-cultural game experiments (Roth et al., 1991), and thus play down the notion of social capital. Fairness is deployed normally by philosophers, sociologists, and political scientists, who tend to argue that political cultures do matter in differentiating the way in which bridging and bonding trust is conducted (Scott 1976; Putnam 1993; Fukuyama 1995; Blondel and Inoguchi 2002). Meanwhile, institution is frequently brought in by anthropologists, sociologists, economists, and political scientists, whose argument centers on 'the role of government institutions as the engine of higher levels of generalized trust and cooperation' (Ensminger 2001).

It is not a coincidence that the general-trust dimension can be associated with fairness in terms of the Equity Law in the world of English Social Democrats, but not with the utilitarian-based fairness of the Common Law of Adam Smith. The second component, merit-based utilitarianism, greatly overlaps with concepts of fairness as a means to promote utility and suppress cronyism. Cross-cultural differences emerge only when experimental games like the ultimatum bargaining game or the dictator game are conducted both in low-income societies and high-income societies, or both in formally better institutionalized societies and not so well-institutionalized societies (Roth et al. 1991; Ensminger 2001). Such phenomenon has been evident in our present analysis, primarily due to the diversity of the per capita income level among the 14 survey countries of the AsiaBarometer 2005 survey. The third dimension of institutional engagement evidently touches the concept of institution and taps the basic difference between communitarianism (and former communism) and market capitalism. Social systems based on different institutional coordination and incentives are bound to constrain and reinforce certain sets of norms and values. Hence, our third dimension is a significant measurement in distinguishing between ideologically and bureaucratically organized market economies and much freer market economies, and between under-institutionalized societies and comprehensively institutionalized societies (Ensminger 2001). Also, we should note that institutional engagement often involves (1) passive trust in the existent social infrastructure, such as government bureaucracy, social welfare system, and family line, as well as (2) active exploitation of the social network, such as the establishment of a new social network and use of government connections.

It is our hope that this paper serves as a starting point for sorting out the social capital questions a little more systematically along the dimensions of fairness, utility, and institution, with slightly more depth and area as compared to our previous studies. We also hope to emphasize the importance of this paper, that this is one of the first attempts by any serious academian to gain a comprehensive cross-sectional, and simultaneous glimpse into the status quo of social capital in Central and South Asia, gauging steps to say more directly some significant implications to the region's democratic, developmental, and regionalizing potentials in the next decade.

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Chapter 5
Psychometric Approach to Social Capital: Using AsiaBarometer Survey Data in 29 Asian Societies

Zen-U Lucian Hotta and Takashi Inoguchi

Abstract This paper is one of the few attempts made by social scientists to measure social capital via psychometric approach, and is the only one of such kind to base its evidence on the AsiaBarometer survey data. After first reviewing the history of social capital, including its conceptual emergence and recent literatures, we expose the issue of difficulty in the measurement of social capital despite its topical popularity. We tackle this measurement issue by applying psychometric procedures to the AsiaBarometer survey data of 2004, 2005, and 2006, focusing on questions pertaining to social capital of ordinary individuals residing in the 29 survey societies. This paper is significant in two aspects. First, using simple statistical procedures, it extracts various dimensions of social capital without first knowing what dimensions to extract. In short, it does not try to measure social capital using some kind of predefined concepts such as those outlined in the historical review of our predecessors. Rather, it succeeds in manifesting key factors of social capital – altruism, utilitarianism, communitarianism, and concordance with prevailing regime – by mechanically processing collective responses by individual respondents towards survey questions oriented with social capital. Though the paper does not aim to establish its methodology as a widely held consensus on how to measure social capital, it does give credence and recognition to psychometric approaches as effectives means to measure social capital, which, by its very definition, calls for 'objective' approaches using collective data to measure 'subjective' notions of individual actions within networks. Second, this paper is the first systematic empirical analysis of social capital in all the subregions of Asia, i.e. East, Southeast, South, and Central. It builds on our earlier works, including the 2006 paper on social capital in Central and South Asia, and gives empirical credence to important concepts on Asian political culture.

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5.1 Conceptual Background

In the past decade, social capital has emerged as a major concept in economics, political science, sociology, business, and health sciences. It can be simplistically defined as the advantage created by a person's location in a structure of relationships and is supposed to explain how some people gain more success in a particular setting through their superior connections to other people. Social capital is also often defined as an entity that is useful in minimizing costs of misunderstanding and transactions between people when forging bridges and enhancing bonds, when initiating joint undertakings, and when trying to regularize reciprocities. There are in fact a variety of inter-related definitions of this term, and in many popular essays, social capital is sometimes taken to be 'something of a cure-all' (Portes 1998) for all the problems afflicting communities and societies today. Social capital is such a broad concept that it is often used to mean whatever the researcher wants (Bacon et al. 2003).

As compared to its definition, the conceptual root of 'social capital' is relatively clear. As early as the nineteenth century, the concept has been implicitly used by theorists who emphasized the relation between pluralistic associational life and democracy, including Toqueville (2007), and many authors in the dominant, pluralist tradition in American political science. Modern usage of the term dates back to Jane Jacobs in the 1960s, who used it with a reference to value of networks, and to Pierre Bourdieu in the early 1970s. James Coleman (1988) then adopts Glenn Loury's 1977 definition in developing and popularizing the concept, and in the late 1990s, the concept has become largely pervasive, with the World Bank devoting a research program to it and its use in Robert Putnam's works.

One large problem with the term 'social capital' is its widely differing definitions. Bourdieu is considered to have coined the contemporary usage of the term (Everingham 2001). Pierre Bourdieu distinguishes between three forms of capital: economic capital, cultural capital and social capital. He defines social capital as 'the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition'. (Bourdieu 1983) He places the source of social capital, not just in social structure but in social connections. His treatment of the concept is considered to be instrumental, focusing on the advantages to possessors of social capital and the 'deliberate construction of sociability for the purpose of creating this resource' (Portes 1998).

Meanwhile, Coleman has defined social capital functionally as 'a variety of entities with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions of actors.. .within the structure' (Portes 1998) – that is, social capital is anything that facilitates individual or collective action. A functional definition of social capital does, however, make it impossible to separate what it is from what it does. Indeed, Portes states that Coleman included under the term the mechanisms that generated it, the consequences of possessing it, and the 'appropriable social organization that provided the context for both sources

and effects to materialize' (Portes, 1998). The mechanisms that generated social capital were: networks of relationships, reciprocity, trust, and social norms. In Coleman's (1988) conception, social capital is a neutral resource that facilitates any manner of action, but whether society is better off as a result depends entirely on the individual uses to which it is put (Foley and Edwards 1997).

Despite such efforts by Bourdieu and Coleman to define the concept, the most pervasive definition of social capital should be attributed to Robert Putnam. In his eyes, social capital 'refers to the collective value of all "social networks" and the inclinations that arise from these networks to do things for each other'. According to Putnam and his many followers, social capital is a key component to building and maintaining democracy. Putnam also claims that social capital is declining in the United States, basing his evidence on lower levels of trust in government and lower levels of civic participation.

Although Putnam was at first careful to argue that social capital was a neutral term, stating 'whether or not [the] shared are praiseworthy is, of course, entirely another matter' (Foley and Edwards 1997), his work on American society is claimed to have added moral and ethical value to the concept. He sees social capital as a producer of 'civic engagement' and also a broad societal measure of communal health (Alessandrini 2002). In essence, Putnam argues that democracy is much more deeply rooted where there is a tradition of civic engagement – for example, the tradition of republican rule in Florence, the tradition of civic associations in mid-nineteenth century America, etc. He also transforms social capital from a resource possessed by individuals to an attribute of collectives, focusing on norms and trust as producers of social capital to the exclusion of networks.

Putnam speaks of two main components of the concept: bonding social capital and bridging social capital, the creation of which Putnam credits to Ross Gital and Avis Vidal. 'Bonding' refers to the value assigned to social networks between homogeneous groups of people and 'bridging' refers to that of social networks between socially heterogeneous groups. Bridging social capital is argued to have a host of other benefits for societies, governments, individuals, and communities.

There have been many other attempts to define or conceptualize social capital, though their levels of popularity are highly various. For example, Francis Fukuyama has described social capital as the existence of a certain, specific set of informal values or norms shared among members of a group that permit cooperation among them. Fukuyama argues that where there is a tradition of social capital, prosperity is created in a civilized form. Fukuyama models on high and low trust societies, whereby civilized and not-so-civilized business transactions occur. His argument is that without civilized trust permeating society, sustained prosperity is more difficult to create. His anthropological evidence that he uses to support his argument is marshaled on Chinese, Korean, Indian, Japanese, French, German, American, and other social relations.

Meanwhile, Nan Lin's concept of social capital, 'investment in social relations with expected returns in the marketplace', seems to subsume the concepts of some others such as Bourdieu, Coleman, Flap, Putnam, and Eriksson (Lin 2002) but remains problematic in that altruistic actions by fellow societal members cannot be

fully counted as results of return expectations. Patrick Hunout (2000) has suggested that social capital is a set of attitudes and mental dispositions that favor cooperation within society, and that as such, it equals the spirit of community. Nahapiet and Ghoshal (1998), in their examination of the role of social capital in the creation of intellectual capital, suggest that social capital should be considered in terms of three clusters: structural, relational, and cognitive. Carlos Garc'ıa Timo´n asserts that the structural dimensions of social capital relate to an individual ability to make weak and strong ties to others within a system; the differences between weak and strong ties are explained by Granovetter (1973). The relational dimension focuses on the character of the connection between individuals. This is best characterized through trust of others and their cooperation and the identification an individual has within a network. Hazelton and Kennan (2000) has then added a third angle, that of communication; communication is needed to access and use social capital through exchanging information, identifying problems and solutions, and managing conflict. According to Boisot (1995) and Boland and Tensaki (1995), meaningful communication requires at least some sharing context between the parties to such exchange.

Carl L. Bankston and Min Zhou observe that social capital does not consist of resources held by individuals or groups, but of processes of social interaction leading to constructive outcomes. However, social capital has also been defined as the resources available to one through the networks that they hold. In this aspect, investigations by Kawachi and Kennedy (2002) are significant, as they presented psychosocial explanations for the relationship between income equality and health, finding that at levels of states, provinces, cities, and neighborhoods, low social capital has been a predictor of poor health, poor self-reported health, and high mortality rates.

5.2   The Measurement Issue

There is no widely held consensus on how to define social capital, but it is also true that there is no widely held consensus on how to measure social capital. One reason is obviously the fact that one cannot measure what is not well-defined. Another reason is that each definition allows for a number of possible approaches, and, in total, the world is now faced with a variety of methods for measurement, regardless of the fact that one can most often intuitively sense the level and/or amount of social capital present in a given relationship despite its type or scale.

In measuring political social capital, it has been common to take the sum of society's membership of its groups. According to this theory, groups with higher membership (such as political parties) supposedly contribute more to the amount of capital than groups with lower membership, although many groups with low membership (such as communities) still add up to be significant. Another approach is to measure the level of cohesion of a group, but, again, there is no true quantitative way of determining the level of cohesiveness. In the words of some, 'It is entirely subjective.'

However, such 'subjectivity' to individual psychology should not always be seen from a negative viewpoint. The very definitions of social capital point to the collective manifestation of individual networking within given groups and societies. Earlier mentioned concepts, such as bonding and bridging social capital, weak and strong ties, processes of social interaction, the 'three dimensions' (trust, cooperation, and communication), set of attitudes and mental dispositions that favor cooperation within society, informal values or norms shared among members of a group that permit cooperation, and the 'three clusters' (structural, relational, and cognitive), precisely imply this notion.

This paper is a psychometric attempt to measure social capital. It uses the AsiaBarometer survey data of 2004, 2005, and 2006, which focus on lifestyles and beliefs of ordinary individuals residing in the 29 survey societies; specifically, it uses questions and answers pertaining to social capital.

This paper is significant in two aspects. First, using simple statistical procedures, it extracts various dimensions of social capital without first knowing what dimensions to extract. In other words, it does not try to measure social capital using some kind of pre-defined concept, such as those aforementioned. Rather, it succeeds in manifesting key factors of social capital – altruism, utilitarianism, communitarianism, and concordance with prevailing regime – by mechanically processing collective responses by individual respondents towards survey questions oriented with social capital. Though the paper does not aim to establish its methodology as a widely held consensus on how to measure social capital, it does aim to give credence and recognition to psychometric approaches as effectives means to measure social capital, which by its very definition, calls for 'objective' approaches using collective data to measure 'subjective' notions of individual actions within networks.

Second, this paper is the first systematic empirical analysis of social capital in all the subregions of Asia, i.e. East, Southeast, South, and Central. It builds on earlier works by Inoguchi and Hotta, including the 2006 paper on social capital in Central and South Asia, and gives empirical credence to important concepts on Asian political culture.

5.3 Scope of Analysis

This paper covers 29 Asian societies, which had been surveyed under the AsiaBarometer 2004, 2005, and/or 2006 Surveys:

- AsiaBarometer 2004 – Thailand, Laos, Cambodia, Myanmar, Brunei, Indonesia, Malaysia, and the Philippines
- AsiaBarometer 2005 – All the 7 South Asian and 7 Central Asian countries – Kazakhstan, India, Pakistan, Afghanistan, Sri Lanka, Bangladesh, Maldives, Bhutan, Mongolia, Nepal, Tajikistan, Turkmenistan, Kyrgyzstan, and Uzbekistan

- AsiaBarometer 2006 – Japan, Korea, China, Taiwan, Hong Kong, Singapore, and Vietnam (7 societies with histories of strong 'Chinese' influence)

Questions were chosen according to three main criteria. First, the questions were based on Inoguchi and Hotta's (2006) paper on the social capital in Central and South Asia. Second, the questions had to be common to all of the three datasets: AsiaBa- rometer 2004, 2005, and 2006. Third, the 'government-permit' question was excluded from the list due to (a) lack of responses from several survey societies and (b) poor ori- entation with the other questions (given results of the Principal Component Analysis).

As such, the following questions had been chosen for analysis in this paper:

Q11   'Generally, do you think people can be trusted or do you think that you can't be too careful in dealing with people (that it pays to be wary of people)?' Respondents had to choose between 'Most people can be trusted (+1)', 'Can't be too careful in dealing with people (0)', and 'Don't know (MV).'

Q12   'Do you think that people generally try to be helpful or do you think that they mostly look out for themselves?' Respondents had to choose between 'People generally try to be helpful (+1)' , 'People mostly look out for themselves (0)', and 'Don't know (MV).'

Q13   'If you saw somebody on the street looking lost, would you stop to help?' Respondents had to choose between 'I would always stop to help (+1)' , 'I would help if nobody else did (+0.5)' , 'It is highly likely that I wouldn't stop to help (0)', and 'Don't know (MV).'

Q14   'If you had no descendants, would you think it desirable to adopt some-body in order to continue the family line, even if there were no blood relationship? Or do you think this would be unnecessary?' Respondents had to choose between 'Would adopt in order to continue the family line (+1)' , 'Would not adopt in order to continue the family line. I think it would be pointless (0)' , 'It would depend on the circumstances (+0.5)', and 'Don't know (MV)'.

Q15   'Suppose that you are the president of a company. In the company's employment examination, a relative of yours got the second highest grade, scoring only marginally less than the candidate with the highest grade. In such case, which person would you employ?' Respondents had to choose between 'The person with the highest grade (0)' , 'Your relative (+1)', and 'Don't know (MV)'.

Q16–3   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures.' Respondents had to choose from a list of answers including 'Would get support from relatives (+1)', all other answers (0), and 'Don't know (MV)'.

Q16–4   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures.' Respondents had to

Q16–6   choose from a list of answers including 'Would get support from neighbors and the community (+1)', all other answers (0), and 'Don't know (MV)'.

Q16–6   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures.' Respondents had to choose from a list of answers including 'Would get social welfare payments (+1)', all other answers (0), and 'Don't know (MV)'.

Q16–7   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures.' Respondents had to choose from a list of answers including 'Retirement allowance (+1)', all other answers (0), and 'Don't know (MV)'.

Q16–8   'If the main breadwinner of your household should die or become unable to work due to illness, how would your household maintain the household budget? Select up to two of the following measures.' Respondents had to choose from a list of answers including 'Have an insurance policy to cover such a situation (+1)', all other answers (0), and 'Don't know (MV)'.

Q22   'Do you think that on the whole men and women are treated equally in your country? Please indicate which of the following is closest to your opinion.' Respondents had to choose between 'Men are treated much more favorably than women (0)' , 'Men are treated somewhat more favorably than women (0)' , 'Men and women are treated equally (+1)' , 'Women are treated much more favorably than men (+1)' , 'Women are treated somewhat more favorably than men (+1)', and 'Don't know (MV)'.

Questions 11, 12, and 13 are useful indicators of how much trust prevails in interpersonal relations. They deal with civic trust and touch on the concept of altruism, as well as communitarianism (Inglehart and Welzel 2005). A gap exists between the objectivity of Questions 11 and 12 and the subjectivity of Question 13. Question 13 entails action on the part of the respondent to strengthen his/her connection with society and to reaffirm his/her position in the social network.

Meanwhile, Questions 14–16 measure the broadness of trust. In fact, these are the questions that try to draw a line between Putnam's two main conceptual components of bonding social capital and bridging social capital. We are interested in measuring the various degrees of trust, from self-trust to blood-based trust, to trust in neighbors, and finally to trust in social institutions and the general public. Question 14 involves the continuation of the family line despite the lack of a blood-based connection with the successor. It is not a question of how much the respondent values a blood-based succession of a family line, but rather a question of how much the respondent values the concept of a family line, a form of social infrastructure. In that sense, Question 14 is similar to Question 13 in that the respondent is locating himself within the structure of society. On the other hand, Question 15 is a question on blood-based trust, that is cronyism/nepotism versus utilitarianism/meritocracy, and whether one should employ a relative of good capacity or a non-relative of the highest proven capacity.

The various response categories to Question 16 are designed to measure the degree of anonymous communitarian scheme of trust when the bread earner is disabled or dies. Questions 16–3 and 16–4 are similar to Question 15 in that they deal with narrow trust; they ask whether one would employ so-called family and community- based connections, namely those of relatives and neighbors, in a time of financial emergency. Question 16–6 deals more with issues of broader trust. Here, the question measures how much one trusts a social institution, and how much one relies on his/her position as a member of a society. In this sense, it is an extension of Questions 13 and Questions 16–7 and 16–8, reliance on retirement allowance and insurance policy, should be distinguished from Question 16–6 even though they refer to the social system. The major difference is that income from retirement allowances and insurance policies are self-earned (or self-deserved) and are results of careful planning, whereas social welfare payments are more or less financial public support and not results of long-term planning. Thus, Questions 16–7 and 16–8 relate to (1) self-trust (despite their social aspects) and (2) fairness in respect to not using family and community connections or burdening society.

Question 22 portrays trust in terms of gender. It asks about the emancipative aspect of trust, that is the approach that focuses on self-expression values and liberty aspirations (Inglehart and Welzel 2005). The response categories, 'Men are treated much/somewhat more favorably than women', measure the degree of discrimination and the oppressive nature of trust in terms of gender. Moreover, this question measures the utilitarian aspect of social capital. It is expected that more utilitarian respondents would have less bias on nonutilitarian parameters, such as gender or blood. In that sense, the question is closely connected with Q15, which contrasts utilitarianism and cronyism.

5.4 Four Dimensions of Social Capital

First, principal component analysis (PCA) was conducted using all of the survey questions. Both the KMO measure (0.517) and Bartlett's Test ($p < 0.001$) were adequate for the analysis, and four components with eigenvalues larger than 1.000 were extracted after Varimax rotation.

Note that Categorical PCA and Hayashi's Quantification Method III may also be used in lieu of PCA. In fact, these two stochastic methods may produce even more accurate results, but this paper has used ordinary PCA given its facility in both employment and repeatability.

The four extracted components were altruism, utilitarianism, communitarianism (reliance on relatives/community), and concordance with prevailing regime (trust in social system). The altruism factor positively reflected Q11, Q12, and Q13; the utilitarianism factor was in line with Q13, Q14, Q15, and Q22; the communitarianism factor (or the negative reflection of self-preparedness and individual responsibility) corresponded positively with Q16–3, Q16–4, and Q15, and negatively with Q16–7

and Q16–8; the regime factor positively mirrored Q16–6 and Q22, while negatively mirroring Q16–3, Q16–4, Q16–7, and Q16–8.

As stated earlier, the psychometric implication of the above PCA is significant. Whereas, 'dimensions' and 'clusters' asserted by many social scientists originate from theoretical backgrounds, i.e. the three clusters of Nahapiet and Ghoshal, the three dimensions of Timo´ n, Hazleton, and Kennan (though these three dimensions were not presented together), etc., we have succeeded in mechanically extracting the key components of social capital by simply collecting a large number of individual, subjective responses to a variety of social-capital survey questions and objectively processing them with PCA. In other words, we did not look for the answers; rather, the answers unraveled themselves.

There is also theoretical significance. The four components – altruism, utili- tarianism, communitarianism (reliance on relatives/community), and concordance with prevailing regime (trust in social system) – clearly fit into the aforementioned variety of definitions and concepts bestowed upon the term 'social capital'. The very broadness of the term itself (Portes 1998; Bacon et al. 2003) can be seen as a reflection of the interaction between the four components. Lin's concept of expected returns in marketplace (2002) focuses on the utilitarian component; those of Hunout, Hazleton, Kennan, Boisot, Boland, and Tensaki largely focus on the communitarianist component; that of Hazelton and Kennan looks more into the components of altruism and concordance with prevailing regime. Meanwhile, Putnam and Fukuyama cover all of the four components in some form or the other. It is also possible to associate the four extracted dimensions to utility, fairness, and institution, which is another often-discussed triplet set of theoretical dimensions, but since the argument is almost identical to that of the 2006 Inoguchi and Hotta paper (Inoguchi and Hotta 2006), we would not touch upon this matter in this paper.

5.5   Societal Traits and Groups of Societies

The second step of analysis was the aggregation of the four factors by society. In this paper, we averaged the Bartlett scores of all respondents within each society, that is, each respondent, who responded to all of the chosen questions, was assigned four Bartlett scores, each corresponding to one of the four dimensions of PCA; we then took societal averages of each score category. Thus, each one of the 29 societies ended up with four scores, one for each dimensional component.

In short, the aggregation process allows us to quantifiably compare the 29 societies by one of the four dimensional components – altruism, utilitarianism, communitarianism (reliance on relatives/community), and concordance with prevailing regime (trust in social system).

From the figures, it is easy to see some form of geographical and cultural traits. Groups of neighboring societies and of societies that share some major aspects of culture seem to manifest similar contours of social capital, which is in other words, similar orientations (or balances) of the four dimensional components of social

capital. Fukuyama (1995) sees social capital in terms of existence of a certain, specific set of informal values or norms shared among members of a group that permit cooperation among them, and, in this respect, it is not strange to expect societies with similar cultural heritage to form state groups that have distinct social capital traits.

Instead of trying to group the societies by inspection, we then chose to employ hierarchical cluster analysis (HCA) to the 29 societies, using the four score categories. For our purpose, we used the Ward Method and squared Euclidean distance. The shape of the resulting dendrogram helped us to group the 29 societies into roughly seven clusters:

1. Japan, Taiwan, Korea
2. Pakistan, Afghanistan, Maldives
3. China, Turkmenistan
4. Singapore, India, Sri Lanka, Nepal
5. Brunei, Malaysia, Indonesia, Vietnam, Bhutan, Mongolia
6. Hong Kong, Philippines
7. The rest (Thailand, Kazakhstan, Uzbekistan, Tajikistan, Cambodia, Bangladesh, Kyrgyzstan, Laos, Myanmar)

There are a number of interesting points in this grouping. For example, the fact that Japan, Taiwan, and Korea make up one group is no surprise, given many similarities shared by the three societies. Not only are they geographically positioned as the furthest of the Far East, they share in common the history of intensely adopting the Zhu-zi school of Confucianism (up until the modern period) and of being part of the same empire in the early twentieth century. The group ranks high in terms of altruism but low in terms of both communitarianism and utilitarianism, and there is possibly a strong influence of the Confucian (and also militaristic) aspect of self-management and virtue. In this school of thought, respectable adults should not be in the situation of having to beg for communal help, because people with good self-management ought to be able to overcome almost any form of disasters; moreover, it is believed that virtuous people do not have to ask for help, since they would be helped by other people of good virtue (communal or not) before they ask for help. Of course, the level of altruism in this group is relatively high, as altruism directly reflects the level of individual virtue; in contrast, the service-for service, money-for-money notion of utilitarianism is greatly looked down upon in such culture (Fig. 5.1).

The Pakistan, Afghanistan, and the Maldives group seems to be geographically, ethnically, and religiously constructed; this group ranks high in both altruism and communitarianism but low in the level of concordance with prevailing regime. The altruist and communitarianist aspects could possibly be stemming from the teachings of Islam. Included in the Five Pillars (most important duties) is the Zakat, which is the Islamic concept of mandatory tithing and alms to specified categories within each Muslim's community; there is also the Sadaqah, the non-mandatory version of Zakat. Meanwhile, the low level of concordance with prevailing regime
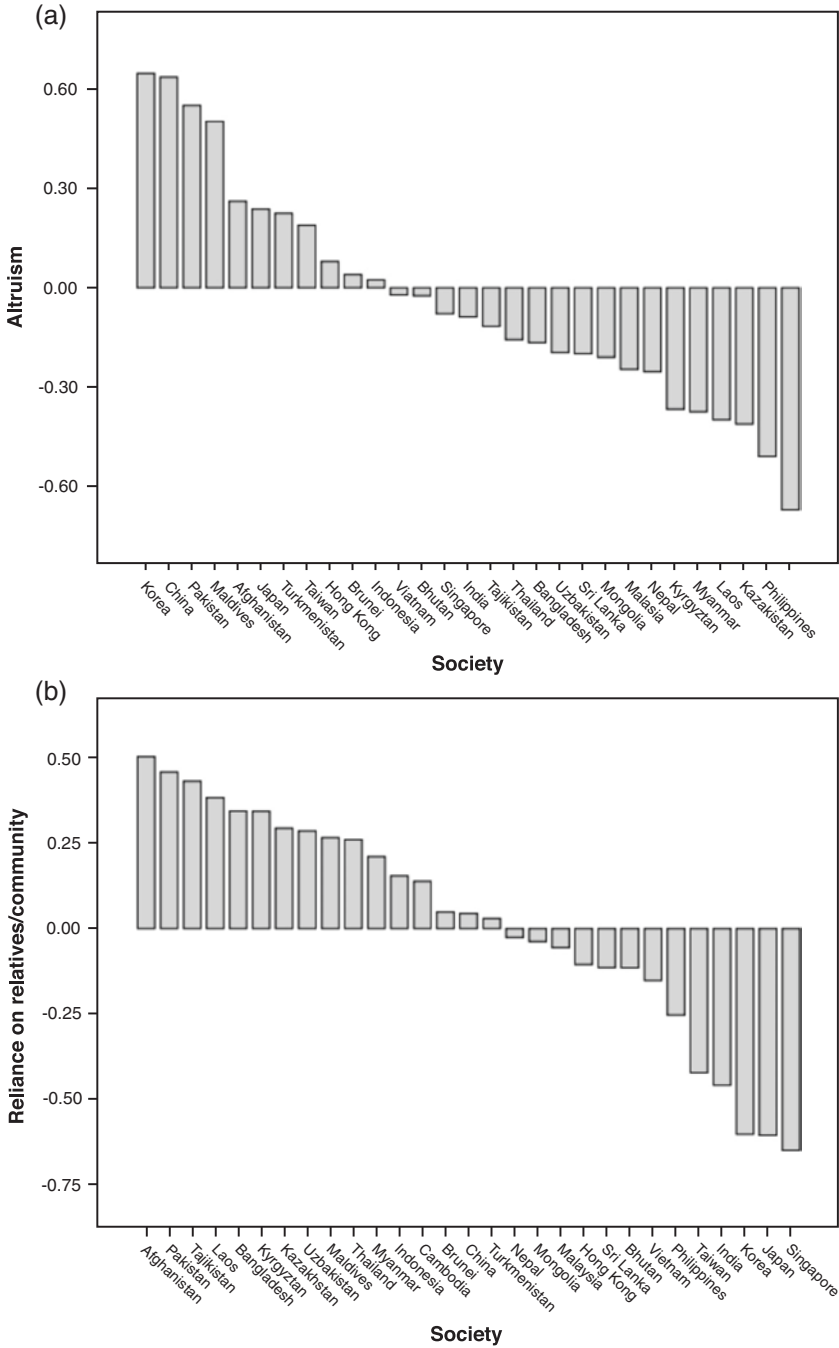
Fig. 5.1 (**a**) 29 societies ranked by the altruism component (**b**) 29 societies ranked by the communitarianism (reliance on relatives/community) component. (**c**) 29 societies ranked by the utilitarianism component (**d**) 29 societies ranked by the trust in social system (concordance with prevailing regime) component
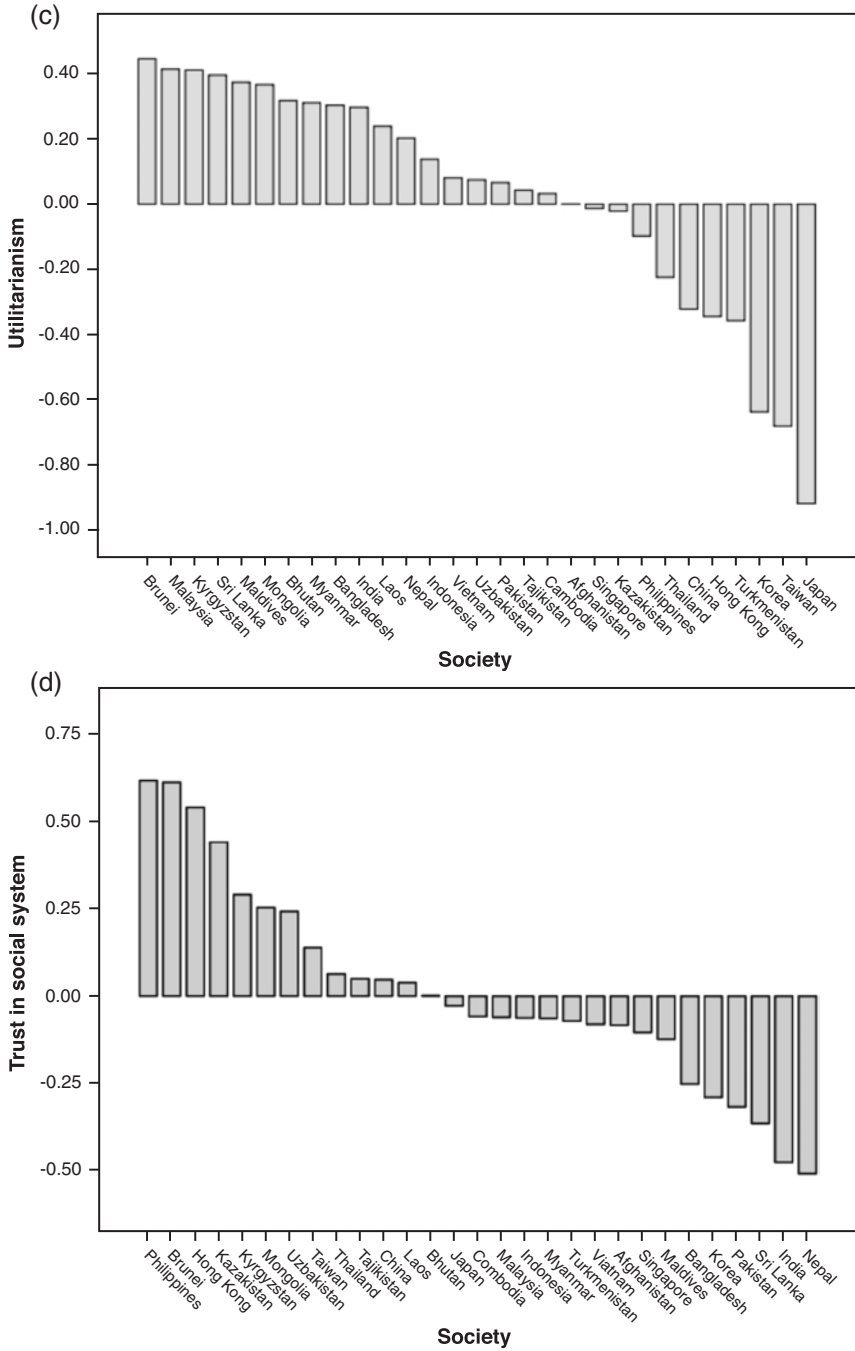
Fig. 5.1 (continued)

may be reflecting the relative position of Islam over government regimes, as well as the low level of democracy and political stability in the region.

The Singapore, India, Sri Lanka, and Nepal group strongly reflects the colonial British influence (it is worth mentioning that Bangladesh came close to entering this group). This formerly British group ranks low on communitarianism and concordance with prevailing regime. However, despite the Anglosaxon influence, Hong Kong and the Philippines differs from the previous British group, in that their group ranks high in terms of concordance with prevailing regime, despite a similarly low level of communitarianism. The low level of communitarianism among these two groups may be partially explained by Protestant work ethics, Western individualism, self- achievement, and emphasis on retirement and insurance systems (both of which one needs to prepare in advance). The major difference in their levels of trust in social systems should be attributed to greater gender equality in Hong Kong and the Philippines as compared to societies in the formerly British group.

China and Turkmenistan are interesting in that the people strongly emphasize altruistic values, but differ from the Japan group in that they are not too low in terms of communitarianism. The other two groups are noteworthy for ranking low in terms of altruistic values. The Brunei group, consisting of the eastern Southeast Asian countries plus Mongolia and Bhutan, is more oriented towards utilitarianism, while the Thailand group, consisting of the western Southeast Asian countries and four Central Asian 'stan' countries, is more oriented towards reliance upon the community.

5.6   Future Enhancements

We believe that this paper serves as one answer to the problem of measuring social capital. The psychometric approach employed in this paper is simple, but yet, considering the largely psychological aspect of social capital, this approach should serve as one general model of measuring social capital, at least for the next decade. Of course, PCA and HCA could give way to other statistical methods, such as categorical PCA, Hayashi's Quantification Method III, discriminant analysis, and logistic regression analysis, and survey questions may change. Nonetheless, the concept of applying statistical tools to large-scale social survey data should remain more or less unchanged.

From this aspect, this paper will not directly lead to further innovations in psychometric or survey techniques. However, instead, this paper leaves ample room for other enhancements. First, there is room for contextual analysis of the above societal groups, which consist of societies that share similar social capital contours, and even the most minimal requirement for a good understanding of the groups would be thorough examinations from economic, historical, political, ethnical, and religious aspects. Little is known about Asian societies, especially when viewed in terms of subregions and cultural groups. Second, there are infinite possibilities in terms of the scope of analysis. This paper has focused on the 29 societies surveyed

in AsiaBarometer, but similar psychometric approach can be applied to other regions of the world. Moreover, we need not limit ourselves to the country-state level. There are a number of smaller groups, of which individuals are members, left for us to analyze. Take for example, cities, villages, community religious groups, political parties, etc. Possibilities are infinite. Finally, we should also mention that this paper has not gone beyond the scope of measuring social capital. As seen in researches by Putnam, Fukuyama, and Kawachi, the study of social capital is most interesting when it is compared and contrasted with some other quantifiable (or claimed-to-be-quantifiable) factors, such as health, democracy, prosperity, crime, development, and environment. Again, there are infinite possibilities.

As such, we have good reason to believe that this paper is significant, with its psychometric implication and with its timing and scale as the first systematic empirical analysis of social capital in all the subregions of Asia, but significant to the extent that it is only the beginning to the end that does not exist.

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Chapter 6
Interpersonal Mistrust and Unhappiness Among Japanese People

Yasuharu Tokuda and Takashi Inoguchi

Abstract Our main objective in this paper is to evaluate the possible association between interpersonal mistrust and unhappiness among Japanese people. Based on cross-sectional data for the Japanese general population from the Asia Barometer Survey (2003–2006), we analyzed the relationship between interpersonal mistrust and unhappiness using a logistic regression, adjusted for age, gender, marital status, income, education, occupation, reli- gious belief, and self-rated health. In a total of 2685 participants (mean age, 42.7 years; 47.5% men), 204 (7.6%) were classified as unhappy. For the questionnaire items involving mistrust, 1490 (55.5%) participants reported that they "can't be too careful in dealing with people", and 1642 (61.2%) participants reported that "people mostly look out for them- selves". In a multivariable-adjusted model using the average score based on these two questions, interpersonal mistrust was associated significantly with unhappiness, with an odds-ratio of 2.06 (95% CI, 1.25–3.38). Other features associated with unhappiness included: age 50–59 years, marital status of single, divorced, separated, or wid-owed, low income, mid-education, and poor self-rated health. Gender, occupation, and religious belief were not associated with unhappiness. In conclusion, inter-personal mistrust is associated significantly with unhappiness among Japanese people. Public policies restoring inter- personal trust are needed to promote happiness among the Japanese.

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6.1 Introduction

Happiness is a critical aspect of individual welfare and is a worthy goal of societies. Through appropriate measures and specific interventions, happiness can be increased (Norrish and Vella-Brodrick 2007). Thus, there is a renewed interest in searching for factors that determine happiness and in elucidating mechanisms that link these factors to happiness. Multiple demographic, social, economic, health-related, cultural, and genetic factors are considered important determinants for happiness, but the mechanisms that link each factor to happiness appear complicated.

An individual's genetic construction correlates weakly with happiness, although studies of twins have indicated that a genetic factor could affect the level of happiness. Identical twins are more similar to each other in happiness, while non-identical twins are not (Lykken 1999). The levels of happiness of identical twins raised apart from each other are just as similar as with identical twins that grew up close together (Lykken 1999).

However, based on an analysis of longitudinal studies, happiness is not entirely a built- in trait and the genetic contribution is at best modest and explains only part of individual variance (Veenhoven 1994). More importantly, there appears to be an interaction between the genetic factor(s) and the environment. The genetic factor affects the level of happiness by providing individuals with a predisposition towards happiness in their environment or personal life experiences.

There are several features that are more likely to make a greater impact on happiness level compared with individual genetic construction. The US General Social Survey introduced five features as determinant factors that affect happiness in the following (descending) order of importance: marital status, income (wealth), employment, inter- personal trust, and health (Di Tella et al. 2003). Consequently, the World Values Survey has conducted a series of survey studies since 1981 and has added personal freedom (government quality) and philosophy of life (personal values), as additional determinant factors affecting happiness (Helliwell 2003).

First, one of the most important factors affecting happiness is marital status. Differences in marital status can cause a difference in happiness. Divorce, separation or widowhood is all equally deleterious to the happiness levels of each partner (Clark and Oswald 2002). When we also compare the effects of divorce rates among countries, these rates have significant effects on the happiness levels, as well as on the suicide rates (Layard 2005). Research indicates that people who are in love generally have better health, better psy- chological well-being, and are overall happier (Ryff and Singer 2003).

Second, studies have long investigated whether greater income would make us happier. The general consensus would be that high income increases happiness when it lifts out of abject poverty and into the middle class, but it does little to increase happiness thereafter (Gilbert 2006). Although a moderate increase in income usually enhances the feeling of happiness, extraordinarily higher income is not always associated with greater happiness, as the popular old saying suggests that "money cannot buy happiness" (Kahneman et al. 2006).

Third, work provides income as well as extra-meaning of life to individuals through a feeling of contributing to the society. Unemployment reduces income, but also it reduces happiness levels by lowering self-respect and work-related social relationships. The neg- ative effect of unemployment is even greater, compared with that of losing income (Winkelmann and Winkelmann 1998). In addition, the level of control that individual workers have over their jobs is also an important issue. For instance, among British civil servants in all hierarchical ranks, those who perform the most uncontrollable routine work are at the highest risk for poor health and premature death (Marmot 2004).

The fourth critical determinant for happiness is health status, and better health is usually related to increased happiness. However, healthy people are not always happy. Moreover, people have an ability to adapt to physical limitations, although people may not be able to easily adapt to mental illness, such as depression. People with physical disability may report the same levels of happiness as people with full functional status (Subramanian et al. 2005). Those who are considered in poor health status can still be happy when other critical factors meet the demands of those people.

Fifth, personal freedom also affects happiness and individual happiness also depends on the quality of the government (Layard 2005). This encompasses personal, economic, and political freedom and can be used as indicators for the quality of the government. War, domestic conflict, autocracy, or a military government are among the national situations associated with poor personal freedom in individuals and notoriously make people very unhappy.

Sixth, personal value, or philosophy of life, is the additional determinant factor for happiness. Recent research indicates that people who have religious beliefs or who believe in spiritual powers are happier, and this relationship also exists at the national level (Soroka et al. 2005). We also found that the level of religiosity is directly related to satisfaction (Inoguchi and Hotta 2006).

In addition, there are also several minor factors that are considered to have a relatively negligible effect on happiness. Age and gender are minor factors for happiness (Easterlin 2003). Happiness does not decline inexorably with age and elderly people can feel even greater levels of happiness than young people (Subramanian et al. 2005). Likewise, men and women are happy to a similar degree in almost all countries (Easterlin 2003). Intel- lectual quotient correlates only weakly with happiness (Lykken 1999).

Last, but not least, there is growing interest in psychosocial factors with positive atti- tudes, such as trust, optimism, and sociability, as determinants for happiness (Antonucci et al. 1997; Berkman 1995; Di Tella et al. 2003; Helliwell 2003). Among these factors, interpersonal trust is now considered as an important positive predictor of subjective well being (Barefoot et al. 1998; Layard 2005). Trust is a belief that the sincerity or the good will of others can be generally relied upon (Rotter 1967). Development of the capacity to trust others is essential for developing an integrated personality and successful social adjustment (Suedfeld et al. 2005).

In contrast, negative attitudes, such as mistrust, hostility, suspiciousness, and cynicism, are related to poor psychological well-being (Gallo et al. 2006). Among these negative attitudes, mistrust is the cognitive habit of interpreting the intentions and

behavior of others as dishonest, unsupportive, and self-seeking. The central cognitive component of mistrust is suspicion of others based on a belief that they are looking out for their own good and they will even victimize you in pursuit of their own personal goals (Mirowsky and Ross 1983). Mistrusting people believe it is safer to keep the distance from others. Mistrust can also hinder the development, maintenance, and the use of social support networks. Further, mistrusting individuals are less likely to seek social support when in need, may be uncomfortable with any support, and may even reject offers of support. By setting off this vicious cycle, mistrusting individuals can elicit hostile responses from others and unfriendly conditions that may justify their beliefs. Moreover, they can be easy targets of exploitation and crime due to little reciprocity and no mutual assistance in social networks. Mistrust thus causes unhappiness and can develop into paranoia with a higher risk for suicide (Ross 2003).

There are warning indications of trends within industrialized countries with regard to social disconnection and increased unhappiness (Lane 2000; Putnam 2000). Robert Lane argues, in his book "The Loss of Happiness in Market Democracies," that the market economy causes harm to happiness, but that a trustful society could counterbalance the detrimental effects of the market economy (Lane 2000). For instance, Japan is one of the richest countries. The degree of income equality has been relatively stable in Japan based on international comparative data (Shirahase 2001), and the Japanese people have the highest life expectancy in the world (Kawachi and Kennedy 2002). However, according to the international values survey, the Japanese are among the most unhappy in industrialized countries (Inglehart 1990). Moreover, based on our previous survey, the Japanese report lower levels of interpersonal trust compared with other countries (Inoguchi 2005).

However, few studies have investigated the relationship between interpersonal mistrust and unhappiness in Japan. It is unclear whether interpersonal mistrust is related to unhappiness among the Japanese people. Thus, in this study, we aimed to evaluate the association between interpersonal mistrust and unhappiness among the Japanese, using data from the Asia Barometer Survey, multi-national and multidimensional surveys that were conducted throughout Asia.

6.2 Methods

6.2.1 Study Participants

We combined the data from three cross-sectional surveys conducted in Japan in 2003, 2004, and 2006, as a part of the Asia Barometer Survey (Inoguchi 2005). These surveys enrolled participants aged 20–69 years, since these surveys focused on working adults in Asian countries.

For the survey planning, we classified all municipalities in Japan into five regions, including Hokkaido & Tohoku, Kanto, Chubu & Hokuriku, Kinki, and Chugoku, Shikoku and Kyushu. In each region, municipalities were stratified into five categories corre- sponding to their population sizes, as follows: (1) 12 metropolises:

Sapporo, Sendai, Chiba, Tokyo (metropolitan area), Yokohama, Kawasaki, Nagoya, Osaka, Kobe, Hiroshima, Kita- Kyushu, and Fukuoka, (2) Cities with a population of more than 150,000, (3) Cities with a population between 50,000 and 150,000, (4) Cities with a population less than 50,000, and (5) Towns and Villages. Likewise, all municipalities in Japan were stratified into 25 blocks. Within each block, primary sampling units (census tracts) were randomly selected through probability proportionate to size sampling. Lastly, 10 individuals were randomly selected from each resident registration ledger of the census tracts.

6.2.2 Data Collection

We used face-to-face interviews to provide structured-questionnaires. The detailed content of the questionnaires has been previously published elsewhere (Inoguchi 2005). Data collection included demographics, marital status, socioeconomic factors (income, education, and occupation), religious belief, self-rated health, self-rated happiness, and interpersonal mistrust, in addition to information on political, environmental, and daily-life issues, which were related to the Asia Barometer Survey.

Age was categorized into five groups of 20–29, 30–39, 40–49, 50–59, and 60–69 years old. Categories of marital status included: married/partnered, single, divorced, separated, or widowed. For religious belief, we asked each participant "Do you regard yourself as belonging to any particular religion?" and a yes or no response was recorded.

Annual household income was used as an income variable in this study. The low-income group included participants with an annual household income less than 5 million Japanese yen. The mid-income group included those with an income from 5 million yen to less than 8 million yen. The high-income group included those with an income of 8 million yen or greater (The average exchange rates to 1 US dollar in 2003, 2004, and 2006 were 113, 108, and 117 Japanese yen, respectively).

For educational attainment, the low-education group included participants who had completed primary school or junior high school. The mid-education group included par- ticipants who had completed high school. The high-education group included participants who had completed technical school, college, university or graduate school.

For occupational status, three categorical levels were used, including self-employed, employed, or unemployed. The self-employed group included: (1) self-employed in agri- culture, forestry or fisheries, (2) business owner in mining or manufacturing industry of an organization with up to 30 employees, (3) vendor or street trader, (4) business owner or manager of an organization, and (5) self-employed professional. The employed group included: (1) senior manager, (2) employed professional or specialist, (3) clerical worker, (4) sales, (5) manual worker, (6) driver, and (7) other worker. The unemployed group included: (1) homemaker, (2) student, (3) retired, and (4) unemployed.

In this study, self-rated health was defined as the individual's personal satisfaction with their overall health. In the survey, we asked, "Please tell me how satisfied

or dissatisfied you are with your health? Would say you are very satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied, or, very dissatisfied with your health?" These categories were collapsed to form a dichotomous outcome of self-rated health: poor health (1) for very dissatisfied, somewhat dissatisfied, or neither satisfied nor dissatisfied, and good health (0) for very satisfied, or somewhat satisfied.

For self-rated happiness, we asked, "All things considered, would you say that you are happy these days? Would say you are very happy, quite happy, neither happy nor unhappy, not too happy, or very unhappy? These categories were also collapsed to form a dichot- omous outcome of self-rated happiness: unhappy (1) for very unhappy, or not too happy, and happy (0) for very happy, quite happy, or neither happy nor unhappy. Measuring happiness by a single item is considered reliable, valid, and viable in community surveys, as well as in cross-cultural comparisons (Abdel-Khalek 2006).

For measuring interpersonal mistrust, we used two items with binary responses (scores 0 or 1). We asked: (1) for trust in people, "Would you say that most people can be trusted (score 0) or that you can't be too careful in dealing with people (score 1)?" and (2) for trust in human good, "Would you say that most of the time people try to be helpful (score 0) or that they are mostly looking out for themselves (score 1)?". These questions have been widely used in previous studies on interpersonal trust.

6.2.3   Statistical Analysis

Descriptive statistics were calculated and presented as the mean with standard deviation or the count number with proportion to the overall sample population where appropriate. The interpersonal mistrust scale was constructed by averaging the individual responses to the above two items involving interpersonal mistrust. A logistic regression model was used to evaluate the relation of interpersonal mistrust to unhappiness, adjusted for age, gender, marital status, income, education, occupation, religious belief, and self-rated health. The odds-ratios (OR) along with 95% confidence interval (CI) were estimated in each variable for unhappiness. The OR value greater than 1 indicated a greater effect that was positively related to unhappiness. All statistical analyses were performed using SPSS 15.0 J (SPSS Japan, Tokyo, Japan). Two-tailed P-values <0.05 were considered statistically significant.

6.3   Results

We used cross-sectional data from three surveys conducted among the Japanese in 2003, 2004, and 2006, as a part of the Asia Barometer Survey. We obtained a response rate of 58.5% from eligible persons and the final sample size of this study was 2685 participants. Table 6.1 presents the characteristics of the participants. The

Table 6.1 Characteristics of the participants (*N* = 2685)

Characteristic	*N*	%
Age		
20–29	470	17.5
30–39	682	25.4
40–49	605	22.5
50–59	741	27.6
60–69	187	7.0
Male gender	1276	47.5
Marital status		
Married/Partnered	2015	75.0
Others[a]	670	25.0
N/A	1	0.01
Income		
Low	1047	39.0
Mid	672	25.0
High	433	16.1
N/A	533	19.9
Education		
Low	200	7.4
Mid	1190	44.3
High	1284	47.8
N/A	11	0.4
Occupation		
Unemployed	762	28.4
Employed	1577	58.7
Self-employed	337	12.6
N/A	9	0.3
Religious belief		
No religious belief	1840	68.5
Having religious belief	807	30.1
N/A	38	1.4
Self-rated health		
Poor	962	35.8
Good	1718	64.0
N/A	5	0.2
Self-rated happiness		
Happy	2464	91.8
Unhappy	204	7.6

N/A data not available
[a]Others include single, divorced, separated, or widowed

Table 6.2 Interpersonal mistrust of the participants ($N = 2685$)

Item and scale	N	%
For trust in people (score)		
"Most people can be trusted" (=0)	1102	41.0
"Can't be too careful in dealing with people" (=1)	1490	55.5
"Don't know"	93	3.5
For trust in human good (score)		
"Most of the time, people try to be helpful" (=0)	898	33.4
"People are mostly looking out for themselves" (=1)	1642	61.2
"Don't know"	145	5.4
Interpersonal mistrust scale[a]		
0	554	20.6
0.5	833	31.0
1	1100	41.0
N/A	198	7.4

[a]Constructed by averaging the individual responses to the two items above

mean age was 42.7 years (standard deviation, 12.4). Women comprised 52.5% of the sample. Of these 2685 par- ticipants, 2015 (75.0%) participants were married and partnered. There were 1840 (68.5%) participants who reported that they did not belong to any particular religion. Further, 962 (35.8%) participants were classified as in poor health. Of 2685 participants, 204 (7.6%) were classified as unhappy.

Table 6.2 presents the results of the interpersonal mistrust questionnaires. For the item involved with trust in people, 1490 (55.5%) participants reported that they "can't be too careful in dealing with people", while 1102 (41.0%) participants reported, "most people can be trusted". For the item involved with trust in human good, 1642 (61.2%) partici- pants reported that "people mostly look out for themselves", while 898 (33.4%) participants reported that "people generally try to be helpful". Table 6.2 also presents the data of the interpersonal mistrust scale, which was constructed by averaging the individual responses to the two items above. Those with a scale of 1 (score 1 for both items) were noted in 1100 (41.0%) participants.

Table 6.3 presents the results from logistic regression of interpersonal mistrust for unhappiness, adjusted for age, gender, marital status, income, education, occupation, religious belief, and self-rated health. Interpersonal mistrust was associated significantly with unhappiness with an OR of 2.06 (95% CI, 1.25–3.38). Other features that were associated significantly with unhappiness included age of 50–59 years (OR 2.43; 95% CI, 1.34–4.40), marital status other than married/partnered (OR 3.64; 95% CI, 2.48–5.36), low income (OR 2.58; 95% CI, 1.41–4.70), mid-education (OR 1.70; 95% CI, 1.16–2.51), and poor health (OR 3.91; 95% CI, 2.69–5.67). Gender, occupation and religious belief were not associated with unhappiness.

Table 6.3 Multivariable adjusted logistic regression model for unhappiness

Variable	OR	95% CI	P-value
Age			
20–29 (reference)	1.00		
30–39	1.43	(0.80–2.56)	0.233
40–49	1.53	(0.82–2.85)	0.184
50–59	2.43	(1.34–4.40)	0.003**
60–69	0.29	(0.08–1.07)	0.063
Gender			
Male	1.31	(0.90–1.92)	0.160
Female (reference)	1.00		
Marital status			
Others***	3.64	(2.48–5.36)	<0.001**
Married/Partnered (reference)	1.00		
Income			
Low	2.58	(1.41–4.70)	0.002**
Mid	1.70	(0.89–3.26)	0.109
High (reference)	1.00		
Education			
Low	1.24	(0.64–2.41)	0.523
Mid	1.70	(1.16–2.51)	0.007**
High (reference)	1.00		
Occupation			
Unemployed	1.10	(0.58–2.07)	0.775
Employed	0.99	(0.58–1.67)	0.956
Self-employed (reference)	1.00		
Religious belief			
No religious belief	0.79	(0.54–1.15)	0.213
Having religious belief (reference)	1.00		
Self-rated health			
Poor health	3.91	(2.69–5.67)	<0.001***
Good health (reference)	1.00		
Interpersonal mistrust	2.06	(1.25–3.38)	<0.001**

OR odds ratio, *CI* confidence interval
**$P < 0.01$. ***Others include single, divorced, separated, or widowed

6.4   Discussion

Our study presents cross-sectional evidence of a significant association between interper- sonal mistrust and unhappiness among the Japanese people, after adjustment for age, gender, marital status, income, education, occupation, religious belief, and self-rated health. People with interpersonal mistrust are more likely to report that they are unhappy than people without mistrust in Japan. We also note other significant factors for unhappiness, including age of mid-life (50–59 years), marital

status of single, divorced, separated, or widowed, low- income, mid-education, and poor health. Gender, occupation and religious belief were not associated with unhappiness. Based on these findings, we suggest several policy implica- tions. Restoration of interpersonal mistrust may promote happiness among the Japanese people. Thus, development of a strategy to emphasize the acquisition of positive interper- sonal trust along with the elimination of mistrust may enhance happiness. Policies to improve social skills, interpersonal ties, and social support to spread positive interpersonal trust are likely to be important to improve happiness in Japan (Delamothe 2005).

There are several strengths of our study. Firstly, this is the first study to evaluate the association between interpersonal mistrust and unhappiness among the Japanese people. Our previous data, and other surveys, suggest that the Japanese people report being unhappy more often than people in other countries (Inglehart 1990; Inoguchi 2005), and that the Japanese also report higher levels of interpersonal mistrust than those in other countries (Inoguchi 2005). The significant association between interpersonal mistrust and unhappiness may explain why the Japanese are among the unhappiest people in industri- alized countries despite having the highest life expectancy and the greatest healthy longevity in the world.

Secondly, our results are based on a multivariable model adjusted for potential con- founders, such as demographic, socioeconomic, religious, and health status. In evaluating mistrust and unhappiness, these factors should be adjusted for. In par- ticular, it is well known that higher levels of interpersonal trust may improve health status at the individual level (Barefoot et al. 1998; Hawe and Shiell 2000; Hyyppa and Maki 2001; Poortinga 2006; Rose 2000), and that health status is also related to happiness (Barefoot et al. 1998). In addition, individuals with higher socioeconomic status perceive their societies as less hostile and friendly compared with those with lower socioeconomic status (Gallo et al. 2006). At the same time, socioeconomic status is also known to be related to happiness (Poortinga 2006; Shirai et al. 2006). Moreover, in addition to marital status, religious belief may possibly be related to both interpersonal trust and an individual's happiness (Helliwell and Putnam 2004; Oxman et al. 1995). Taken together, any one of these factors of health status, socio- economic status, marital status, and religious belief may confound the observed association between mistrust and unhappiness. Thus, our results based on the adjusted model are more reliable for estimating the possible association between inter- personal mistrust and unhappiness.

Thirdly, we were also able to assess the potential association between sociode- mographic factors and unhappiness after taking account interpersonal mistrust. The results of our study confirmed previous reports that found several factors associated with unhappiness: including mid-life age, marital conflict, low income, and poor health (Helliwell and Putnam 2004; Subramanian et al. 2005). In contrast, gender, occupation and religious belief were not associated with unhappiness in our study. There was no difference for unhappiness between mid income and high income, although low income was associated with unhappiness. The effect of income on happiness also seems to plateau among the Japanese. Thus, consistent with previous

reports (Diener et al. 1993; Kahneman et al. 2006), money does not seem to buy happiness.

Attainment of mid-education was associated with unhappiness, compared with attain- ment of high and low educational status in the current study results. There is a strong predominance of the social hierarchy system of prestigious national and private univer- sities in Japan. The university that one attends and graduates from has great impact on one's career and general social status in Japan. The tight linkage between graduation background and career among the Japanese produces intense competition in entrance exams for admission to the most prestigious universities. Those with only mid-education (high school graduates) may experience unhappi- ness due to higher stress related to past experience of failure to enter university. Therefore, the typical "unhappy" Japanese may be a person 50–59 years of age, single (or divorced, separated, or widowed), with low income, mid-education, poor health, and interpersonal mistrust.

Interpersonal mistrust may induce unhappiness through multiple mechanisms. Firstly, the higher levels of interpersonal mistrust are related to weaker ties to friends, family and society and the decreased perception of social support (Hibbard 1985). Consequently, having fewer social ties and networks leads to individuals decreased feelings of happiness (Diener and Seligman 2002). Seligman also pro- poses, in his book "Authentic Happiness" (Seligman 2002), that the critical compo- nents of happiness are pleasure, engagement (the depth of involvement with others), and meaning (using personal strengths to serve a larger end); based on the idea by Seligman, among these three components of happiness, engagement is the most important determinant. Secondly, interpersonal mistrust leads to poor affective sup- port and fewer sources of mutual respect (Berkman and Kawachi 2000). These psy- chosocial resources lead to greater unhappiness in neighbors and communities. Thirdly, the theory of the diffusion of innovations suggests that innovative behaviors and ideas diffuse more rapidly when people trust each other (Rogers 2003). Rapid diffusion of innovation or valued creative ideas makes people happier. Conversely, the diffusion of innovation is likely to be stagnant in societies with higher mistrust and thus people easily miss the chance to increase their happiness levels in such societies. Fourthly, a neighborhood that is poor in interpersonal trust is less success- ful for access to local services and amenities. Thus, local pressure groups that lobby for the provision of services are not available to make a difference in terms of access to such amenities and resources (Berkman and Kawachi 2000).

Our study is based on the analysis of cross-sectional data and therefore it has inferential limitations. It may also be possible that unhappiness leads to social isola- tion and mistrust. Another possibility could be that unhappiness and mistrust may reflect different facets of a common underlying construct, such as the mental com- ponent of poor "psychological well- being". However, evidence has now accumu- lated, indicating that psychosocial attitudes are also critical determinants for happiness (Kahneman and Krueger 2006). Since inter- personal mistrust is one of the more notorious negative psychosocial attitudes, the link between interpersonal mistrust and unhappiness can be investigated in this context.

Our study suggests that interpersonal mistrust is associated with unhappiness among the Japanese. Further research may be needed to generalize this finding among people in other countries. Although it may be difficult to improve interpersonal trust in individual adults, there are potential ways to enhance the collective characteristics of interpersonal trust in communities. More investment is needed in policies that promote interpersonal trust. In this context, an important task for future investigations will be to identify the character- istics of civic associations and public policies that are more likely to serve the common interests and therefore improve interpersonal trust.

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Chapter 7
Interpersonal Trust and Quality-of-Life: A Cross-Sectional Study in Japan

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Abstract *Background*: There is growing interest in psychosocial factors with positive attitudes, such as interpersonal trust, as determinants for Quality-of-life (QOL) or subjective well-being. Despite their longevity, Japanese people report a relatively poor subjective well-being, as well as lower interpersonal trust. Our aim in this study was to evaluate the possible association between interpersonal trust and QOL among Japanese people.

Methodology and Principal Findings: Based on the cross-sectional data for Japanese adults (2008), we analyzed the relationship between interpersonal trust and each of four domains of the WHOQOL-BREF. Interpersonal trust was assessed using three scales for trust in people, in human fairness and in human nature. In a total of 1000 participants (mean age: 45 years; 49% women), greater trust was recognized among women (vs. men), those aged 60–69 (vs. 20–29), or the high-income group (vs. low-income). Each of three trust scales was positively correlated with all domains of QOL. Multiple linear- regression models were constructed for each of QOL and the principal component score of the trust scales, adjusted for

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age, gender, area size of residence, income, education, and occupation. For all QOL domains, interpersonal trust was significantly and positively associated with better QOL with p,0.001 for all four domains including physical, psychological, social, and environmental QOL. Other factors associated with QOL included gender, age class, area size of residence, and income. Education and occupation were not associated with QOL.

Conclusions and Significance: Greater interpersonal trust is strongly associated with a better QOL among Japanese adults. If a causal relationship is demonstrated in a controlled interventional study, social and political measures should be advocated to increase interpersonal trust for achieving better QOL.

7.1 Introduction

Quality of life (QOL), or subjective well-being, is a critical aspect of individual welfare and is a worthy goal for societies. In addition to health-related common risk factors, such as genetics, demographics, life-styles, and environmental factors, a growing body of research shows that multiple socioeconomic factors are also considered as important determinants for QOL.

For example, previous studies have demonstrated relationships between income and subjective well-being. High-income provides a better QOL when it lifts them out of abject poverty and into the middle class, but it does little to increase QOL thereafter [1]. Next, work provides income as well as extra-meaning of life to individuals through a feeling of contributing to society. Unem- ployment reduces income, but also it reduces the level of QOL. In addition, the level of control that individual workers have over their jobs is also an important issue. For instance, among British civil servants in all hierarchical ranks, those who perform the most uncontrollable and routine work are at the highest risk for poor health and premature mortality [2].

There is growing interest in psychosocial factors with positive attitudes, such as trust, optimism, and sociability, as determinants for subjective well-being [3–6]. Among these factors, interpersonal trust is now considered as an important positive predictor of subjective well-being [7, 8]. Trust is a belief that the sincerity or the good will of others can be generally relied upon [9]. Development of the capacity to trust others is essential for developing an integrated personality and successful social adjustment [10].

In contrast, negative attitudes, such as mistrust, hostility, suspiciousness, and cynicism, are related to poor psychological well-being [11]. Among these negative attitudes, mistrust is the cognitive habit of interpreting the intentions and behavior of others as dishonest, unsupportive, and self-seeking. The central cognitive compo-

nent of mistrust is suspicion of others based on a belief that they are looking out for their own good and they will even victimize you in pursuit of their own personal goals [12].

Mistrusting people believe it is safer to keep their distance from others. Mistrust can also hinder the development, maintenance, and the use of social support networks. Further, mistrusting individuals are less likely to seek social support when in need, may be uncomfortable with any support, and may even reject offers of support. By establishing this vicious cycle, mistrusting individuals can elicit hostile responses from others and unfriendly conditions that may justify their beliefs. Moreover, they can be easy targets of exploitation and crime due to little reciprocity and no mutual assistance among social networks. Mistrust thus causes poor well-being and can even develop into paranoia with a higher risk for suicide [13].

There are warning indications of trends within industrialized countries with regard to social disconnection and poor subjective well-being [14, 15]. For instance, Japan is one of the richest countries, and the degree of income equality has been relatively stable based on international comparative data [16]. Furthermore, the Japanese people have the highest life expectancy in the world [17]. However, according to the international values survey, the Japanese are poor regarding subjective well-being, or "the most unhappy", among the industrialized countries [18]. Furthermore, based on our previous survey, the Japanese report relatively lower levels of interpersonal trust compared with other countries [19].

Despite the importance of investigating the association between trust and QOL, few studies have evaluated this relationship in Japan and it is unclear whether interpersonal trust is related to the QOL of the Japanese people. Thus, we aimed to evaluate the association between interpersonal trust and the QOL among Japanese adults. If this association could be confirmed in this population, controlled interventional studies should be conducted to confirm its causal relationship and then a policy could be instituted to enhance people's QOL in Japan. Furthermore, these findings might be generalizable to populations in other countries.

7.2 Methods

7.2.1 Study Participants

Ethics approval was obtained from the University of Tokyo, Graduate School of Medicine prior to beginning the study. Verbal informed consent was obtained from all participants because of the limited time for survey interviewing and waiver of written consent was authorized by the ethics committees. We classified all municipalities in Japan into 10 regions, including Hokkaido, Tohoku, Kanto, Tokai, Chubu, Hokuriku, Kinki, Chugoku, Shikoku and Kyushu. In each region, municipalities were stratified into four categories correspond- ing to their population sizes, as follows; (1) 12 metropolises: Sapporo, Sendai, Chiba, Tokyo (metropolitan area),

Yokohama, Kawasaki, Nagoya, Osaka, Kobe, Hiroshima, Kita-Kyushu and Fukuoka; (2) cities with a population of 100,000 or greater, (3) cities with a population less than 100,000, and (4) towns or villages.

All municipalities in Japan were stratified into 100 blocks. Within each block, primary sampling units (census tracts) were randomly chosen through probability proportionate to the sampling size, similar to the national census data of population distributions for 20–69 years old in 2005. Eligible household individuals were randomly chosen from each resident registration ledger of the census tracts. Within a unit identified for sampling, the households were selected randomly using the Right Hand Walk rule, in which households were contacted in clusters around the selected starting points. From the first household contacted, two households were skipped and the next one contacted. If we would have interviewed the first eligible member who was available at the time of the survey, this could lead to a non- random sample, since it could lead to an over-representation of women, as women are easier to interview and are more likely to be available. To avoid this problem, we used the Kish Grid, a method of selecting eligible respondents randomly from within a household using a random number table. Using this method, we did not stop the sampling until we obtained a sample size of 1000 persons.

7.2.2   Data Collection

Face-to-face interviews were used to administer structured questionnaires between January 10 and 27, 2008. Data collection included demographics, marital status, socioeconomic factors (income, education, and occupation), health-related quality of life (QRQOL), and interpersonal trust, in addition to information on political, environmental and social issues, which were related to the Asia Barometer Survey [19].

Age was categorized into five groups of 20–29, 30–39, 40–49, 50–59, and 60–69 years. Categories of marital status included; married (including unmarried but partnered) or others (single, divorced, separated, or widowed). Annual household income was used as a variable of income. Two income cutoff points of 5 and 8 million Japanese Yen (JY) were used to generate three income categories (Note: the average exchange rate to one US dollar in Jan 2008 was about 100 JY).

For educational attainment, the low-education group included participants who had completed primary school or junior high school. The mid-education group included participants who had completed high school. The high-education group included participants who had completed technical school, college, university or graduate school.

For occupational status, four categorical levels were used, including self-employed, homemaker, employed, or unemployed. The self-employed group included: (1) self-employed in agriculture, forestry or fisheries; (2) business owner in mining or manufacturing industry of an organization with up to 30 employees; (3) vendor or street trader; (4) business owner or manager of an organization; and, (5)

self-employed professional. The employed group included: (1) senior manager; (2) employed professional or specialist; (3) clerical worker; (4) sales; (5) manual worker; (6) driver; and, (7) other worker. The unemployed group included: (1) student; (2) retired; and, (3) the unemployed.

The QOL was assessed using the Japanese version of the WHOQOL-BREF, which is the brief version of the WHOQOL-100. One item from each of the 24 facets contained in the WHOQOL-100 was included into this version to obtain a broad and comprehensive assessment. In addition, two items from the overall quality of life and general health facet were included. The WHOQOL-BREF contains a total of 26 items assessing four domains consisting of physical, psychological, social and environ- mental QOL. We excluded a single item regarding sexual satisfaction because we thought this item was considered likely to cause an emotional response in interviewees, and thus our instrument contained a total of 25 items (see Appendix S1). For comparing the scores between the domains, the WHOQOL- BREF scores were transformed into scores from 0 to 100 with the lowest score of zero and the highest score of 100. The reliability and validity of this instrument were confirmed previously [20].

For measuring interpersonal trust, we utilized the widely-used three items related to trust in people, human fairness and human nature [21–23]. For trust in people, we asked: "would you say that (1) most people can be trusted; or do you think (2) you can't be too careful in dealing with people?" By using the scale printed on a card, participants were required to choose one from a total of 11 natural numbers between 0 and 10. Choosing the first sentence in the highest agreement was considered to have a score of 10 (greatest trust), while the second sentence in the highest agreement had a score of zero (lowest trust).

For trust in human fairness, we asked: "do you think that (1) most people would try to be fair; or do you think that (2) they would try to take advantage of you if they got the chance. For trust in human nature, we asked: "Would you say that (1) most of the time people try to be helpful; or that (2) they are mostly looking out for themselves?" The choice of responses was similar to the above item and thus the higher the score, the greater the trust.

7.2.3 Statistical Analysis

Descriptive statistics were calculated and presented as the mean with standard deviation or count number with proportion where appropriate. Mean scores in interpersonal trust scales and in the QOL domains were calculated for each sociodemographic group. Mean scores between-groups were compared using ANOVA with pairwise comparisons based on Tukey's method. Correlation coefficients between the QOL domains and trust scales and among trust scales were calculated using Pearson's correlation coefficients.

Reliability and validity was examined for the WHOQOL- BREF. As a reliability measure, Cronbach's alpha was estimated for each domain. A multiple linear regres-

sion model was constructed for the combined general facet items (overall health plus overall QOL) as a dependent variable and the four domains as covariates, and R-square and standardized beta coefficients were estimated as a validity measure.

Principal component analysis (PCA) was employed to the three trust scales for yielding the principal component score (interper- sonal trust score). In PCA, a set of variables is transformed into some linear combinations of the original variables by assigning weights to each variable so that the resulting composite variables as a set may have maximum variance under the restrictions that different linear composites are orthogonal to each other. The first PCA score attains the maximum variance among the linear combination of the three scales.

We then considered the following multiple regression models:

$$QOL_{ij} = \alpha + X_{ij}\beta + Z_j\delta + Trust_{ij}\theta + \varepsilon_{ij} \tag{7.1}$$

where QOL_{ij} measured the QOL for the individual i living in the area j, X_{ij} was a set of participants' characteristics, Z_j is a set of regional variables, $Trust_{ij}$ was the first principal component score (interpersonal trust score) described above, and ε_{ij} was the error term. In the current study, the parameter of interest was θ adjusted for X_{ij} and Z_j, since we aimed to examine possible association between $Trust_{ij}$ and QOL_{ij}. Standard errors of regression coeffi- cients were estimated for each QOL domains by bootstrapping since the equations included the generated regressor (interpersonal trust score) from PCA. The coefficients of >zero indicated a positive relation to each QOL domain.

Finally, a structural equation modeling was constructed for examining the relationship between interpersonal trust and QOL as well as for assessing the magnitude of effect sizes for interrelationships among associated variables. Latent variables for three trust scales and for four QOL domains (trust and overall QOL, respectively) were constructed and path coefficients were estimated using the maximum likelihood method. For testing possible differences of the coefficients in the path of trust and overall QOL between both genders and between five age groups, the simultaneous multi-group analysis was conducted using equality restriction on these coefficients. The model was selected based on the Akaike's Information criterion (AIC), with a lower AIC indicating a better model. All statistical analyses were performed using SPSS 15.0J (SPSS Japan, Tokyo, Japan). Two- tailed p-values <0.05 were considered statistically significant.

7.3   Results

Table 7.1 presents the sociodemographic characteristics of the participants. The mean age was 45 years with a standard deviation of 14 and women comprised 49%. There were 778 (78%) participants who were married. The highest number of participants (340, 34%) lived in the Kanto region. Regarding socioeconomic status,

328 (33%) reported an annual household income less than 5 million JY; 74 (7%) reported an attained education of junior high school or lower.

Table 7.2 presents the mean scores of the three trust scales by sociodemographic factors. Based on the between-group compar- isons, women were more likely to report a greater trust in all three scales than men. Compared to other age groups, persons aged 60 years or older reported a greater trust in human fairness and nature, while those 20–29 years old reported a lower trust in human nature. There was no significant difference of these trust scales by area size of residence. Compared to

Table 7.1 Sociodemographics of participants

Demographic	Subcategory	Participant (N = 1000)	
		n	%
Gender	Men	505	51
	Women	495	49
Age	20–29	191	19
	30–39	215	22
	40–49	189	19
	50–59	212	21
	60–69	193	19
Region	Hokkaido/Tohoku	120	12
	Kanto	340	34
	Chubu	180	18
	Kinki	160	16
	Chugoku/Shikoku	90	9
	Kyushu	110	11
Area of residence	12 major cities	250	25
	Cities with population > = 100k	410	41
	Cities with population < 100k	200	20
	Rural areas	140	14
Annual household income, JY	< 5 million	328	33
	>= 5 million & <8 million	259	26
	>= 8 million	166	17
	N/A	247	25
Educational attainment	Junior high school or lower	74	7
	High school	430	43
	College or higher	493	49
	N/A	3	1
Occupation	Self-employed	134	13
	Homemaker	164	16
	Employed	587	59
	Unemployed	275	28
	N/A	4	1

JY Japanese Yen, *N/A* data not available
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Table 7.2 Mean scores in interpersonal trust by sociodemographics

Sociodemographic	Subcategory	Trust in people		Trust in human fairness		Trust in human nature	
		Mean	SD	Mean	SD	Mean	SD
Gender	Men	5.3	2.1	5.7	1.7	4.8	1.8
	Women	5.6	2.1	6.1	1.8	5.3	1.9
	t-statistic, P-value	2.206	0.028	3.675	<0.001	3.931	<0.001
Age	20–29	5.2	2.2	5.7	1.8	4.4[a]	1.7
	30–39	5.2	2.1	5.7	1.6	4.9	1.8
	40–49	5.5	1.9	5.7	1.5	5.1	1.6
	50–59	5.5	2.3	6.1	1.9	5.2	2.1
	60–69	5.6	2.2	6.3[a]	1.9	5.7[a]	1.9
	F-statistic, P-value	1.681	0.152	4.411	0.002	11.825	<0.001
Area size of residence	12 major cities	5.3	2.1	6.0	1.7	5.0	1.8
	Cities with population > = 100k	5.6	2.2	6.0	1.8	5.2	1.9
	Cities with population <100k	5.4	2.1	5.7	1.7	4.9	1.9
	Rural areas	5.2	2.0	5.9	1.8	5.0	1.8
	F-statistic, P-value	1.381	0.247	0.839	0.473	1.707	0.164
Annual household income, JY	<5 million	5.1	2.1	5.7	2.0	5.0	2.0
	> = 5 million & < 8 million	5.5	2.2	5.9	1.6	5.1	1.8
	> = 8 million	6.1[a]	1.9	6.3[a]	1.5	5.3	1.6
	F-statistic, P-value	11.948	<0.001	6.620	0.001	1.982	0.138
Educational attainment	Junior high school or lower	5.0	2.2	5.9	1.9	5.2	2.2
	High school	5.4	2.1	5.9	1.9	5.1	1.8
	College or higher	5.5	2.1	5.9	1.6	5.0	1.8
	F-statistic, P-value	1.978	0.139	0.080	0.923	0.283	0.754
Occupation	Self-employed	5.4	2.4	6.0	1.9	5.2	1.7
	Homemaker	5.5	2.3	6.2	1.8	5.5[a]	1.9
	Employed	5.4	2.0	5.8	1.7	4.9[a]	1.9
	Unemployed	5.2	2.2	5.7	2.0	4.9	1.8
	F-statistic, P-value	0.337	0.798	1.936	0.122	3.478	0.016

[a] Indicates a significant difference based on Tukey pairwise comparisons
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other income groups, persons with ≥8 million JY reported a greater trust in people and human fairness. There was no significant difference in these trust scales by educational attainment. For occupational status, compared to the employed groups, homemakers reported a greater trust in human nature.

Cronbach's alpha of QOL domains was 0.74 for physical QOL, 0.73 for psychological QOL, 0.63 for social QOL, and 0.72 for environmental QOL. Multiple linear regression for the QOL domains with the overall health plus overall QOL showed an R- square value of 0.61; standardized beta coefficients were 0.34 (p<0.001) for physical, 0.21 (p<0.001) for psychological, 0.08 (p = 0.01) for social, and 0.10 (p = 0.004) for environmental QOL.

Table 7.3 shows the mean scores in QOL domains by sociodemographics. Based on the between-group comparisons, women had a higher social QOL than men. Regarding sub- groupings by 10-year age increments, a greater environmental QOL was noted among persons aged 60–69 years, while a lower environmental QOL was recognized among those aged 40–49. Persons living in cities with a population ≥100,000 had a greater environmental QOL but persons living in major cities had a lower environmental QOL.

For annual household income, persons with an income <5 million JY had a lower physical QOL, whereas those with an income ≥8 million had a greater physical and environmental QOL. Similarly, for educational attainment, persons with junior high school or lower had a lower physical and psychological QOL. There was no significant difference in all QOL domains by occupation.

Table 7.4 presents the correlation coefficients between QOL and trust scales and also among trust scales. Moderate positive correlations were present between all domains of QOL and all three trust scales and high positive correlations were recognized among the trust scales. Based on the principal component analysis performed for these trust scales, a single factor with an eigenvalue of 1.76 and variance proportion of 59% was retained (interpersonal trust scale) and eigenvalues of no other principal components exceeded unity. The principal component loadings for the principal component were 0.76 for trust in people, 0.83 for trust in human fairness, and 0.71 for trust in human nature.

Table 7.5 shows the results of multiple linear-regressions for QOL domains of sociodemographics and interpersonal trust. In these adjusted analyses, interpersonal trust was significantly and positively associated with all four domains of QOL. Higher interpersonal trust was related to the greater scores in all four QOL domains.

For other variables associated with QOL domains, including gender, age, area size of residence and income, women had a greater social QOL than men. Compared to persons aged 20–29, those aged 40–49 had a lower physical and social QOL; those aged 50–59 had a lower physical, psychological and social QOL. Compared to persons living in 12 major cities, those living in cities with population ≥100,000 had a greater environmental QOL; those living in cities with population <100,000 had a greater psychological and environmental QOL. Compared to persons with an income <5 million JY, those with income ≥8 million had greater physical, psycho-

Table 7.3 Mean scores in QOL domains by sociodemographics

Sociodemographic	Subcategory	Physical (N = 989)		Psychological (N = 973)		Social (N = 987)		Environmental (N = 930)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender	Men	69.4	15.1	55.1	14.8	65.2	16.0	59.3	13.5
	Women	70.4	14.2	54.5	14.9	69.0	13.8	60.2	12.3
	t-statistic, P-value	0.989	0.323	0.670	0.503	3.954	<0.001	−0.996	0.320
Age	20–29	71.7	14.3	55.3	16.6	67.8	16.6	60.0	13.1
	30–39	69.4	16.4	56.3	16.0	67.9	14.0	58.6	13.1
	40–49	69.8	13.7	53.6	14.0	65.5	15.8	58.1[a]	13.2
	50–59	68.5	14.7	53.0	14.5	65.2	15.2	60.3	13.0
	60–69	70.2	13.7	55.9	12.6	68.9	13.4	61.9[a]	11.8
	F-statistic, P-value	1.319	0.261	1.932	0.103	2.316	0.056	2.442	0.045
Area size of residence	12 major cities	69.0	14.1	53.4	13.4	65.7	13.7	57.8[a]	12.0
	Cities with population > = 100k	70.8	14.6	55.8	14.5	67.6	14.2	61.1[a]	13.0
	Cities with population <100k	70.4	15.2	56.1	15.8	67.9	17.4	60.7	13.3
	Rural areas	68.1	14.9	52.4	16.6	66.7	16.3	57.9	13.2
	F-statistic, P-value	1.644	0.178	2.943	0.032	1.100	0.348	4.577	0.003
Annual household income, JY	<5 million	68.2[a]	15.8	54.3	14.8	66.2	15.5	57.5	13.6
	>=5 million & < 8 million	70.3	14.0	54.8	14.1	66.8	15.8	59.2	12.4
	> = 8 million	72.4[a]	13.3	57.6	15.2	69.4	14.1	63.7[a]	12.1
	F-statistic, P-value	4.683	0.010	2.916	0.055	2.483	0.084	12.335	< 0.001

Educational attainment	Junior high school or lower	65.4[a]	14.3	51.1[a]	12.8	64.7	14.4	58.2	10.4
	High school	69.9	13.3	54.2	14.3	66.6	14.7	58.7	12.8
	College or higher	70.5	15.6	55.9[a]	15.3	67.8	15.5	60.9	13.2
	F-statistic, P-value	3.999	0.019	4.051	0.018	1.611	0.200	3.499	0.031
Occupation	Self-employed	69.5	13.1	55.1	13.9	67.2	13.1	60.2	11.3
	Homemaker	71.9	13.2	55.6	14.1	69.7	13.2	61.5	12.7
	Employed	69.6	15.1	54.7	15.1	66.5	15.6	59.0	13.3
	Unemployed	69.4	15.7	54.0	16.2	66.1	16.5	60.8	12.9
	F-statistic, P-value	1.145	0.330	0.303	0.824	2.042	0.106	1.799	0.146

[a] Indicates a significant difference based on Tukey pairwise comparisons

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Table 7.4 Correlation between QOL and trust scales and among trust scales

Domains of HRQOL	Trust in people		Trust in human fairness		Trust in human nature	
	r	P-value	r	P-value	r	P-value
Physical (N = 989)	0.135	<0.001	0.154	<0.001	0.093	0.003
Psychological (N = 973)	0.137	<0.001	0.191	<0.001	0.149	<0.001
Social (N = 987)	0.179	<0.001	0.228	<0.001	0.169	<0.001
Environmental (N = 930)	0.136	<0.001	0.221	<0.001	0.138	<0.001
Trust in people	–	–	0.458	<0.001	0.265	<0.001
Trust in human fairness	–	–	–	–	0.396	<0.001
Trust in human nature	–	–	–	–	–	–

HRQOL health-related quality of life, *r* Pearson's correlation coefficient
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logical and environmental QOL. There was no significant difference in all QOL domains by educational attainment and occupation.

Figure 7.1 presents the structural equation model for interpersonal trust and QOL. Latent variables of trust and overall QOL were linked with the significant path coefficient (0.33, p<0.001). Among the QOL, the psychological domain contributed most to overall QOL, while the social domain contributed the least. For trust scales, trust in human fairness contributed most in the latent scale of trust, while trust in human nature contributed the least.

Based on the simultaneous multi-group analysis with equality restriction on these path coefficients by both genders and by five age groups, the models with equality restriction resulted in the better fit as compared with the model without the equality condition, because the AIC of the models by genders were: 87.1 for the model without the equality restriction and 85.8 for the model with the equality restriction. In addition, the AIC of the models by age groups were 252.3 for the model without the equality restriction and 250.6 for the model with the equality restriction.

7.4 Discussion

Our study presents cross-sectional evidence of a significant association between interpersonal trust and better QOL in the Japanese people, after adjustment for age, gender, regions, area size of residence, income, education, and occupation. People with a greater sense of interpersonal trust are more likely to report that they have greater QOL in all domains, including physical, psychological, and environmental QOL, than people with lower trust.

These results are consistent with previous studies which have shown that a higher level of interpersonal trust is associated with better individual-level health status, including better health satisfaction and longer healthy longevity in an elderly popu-

Table 7.5 Multiple linear-regressions for QOL dimensions of sociodemographics and interpersonal trust

Covariate	Subcategory	Physical			Psychological			Social			Environmental		
		Coefficient	SE	P-value	Coefficient	SE	P-value	Coefficient	SE	P-value	Coefficient	SE	P-value
Gender	Men	reference			reference			reference			reference		
	Women	−0.48	1.25	0.70	−1.97	1.24	0.11	4.13	1.20	<0.001	−0.63	1.15	0.57
Age	20–29	reference			reference			reference			reference		
	30–39	−2.31	1.78	0.19	0.53	1.91	0.76	−0.42	1.80	0.81	−1.68	1.61	0.28
	40–49	−3.87	1.78	0.04	−3.39	1.96	0.07	−5.36	1.97	<0.001	−2.93	1.64	0.07
	50–59	−6.10	1.86	<0.001	−5.82	1.94	<0.001	−5.99	1.92	<0.001	−2.50	1.64	0.13
	60–69	−3.00	1.85	0.12	−0.94	1.93	0.63	−1.39	1.89	0.48	0.97	1.70	0.58
Area size of residence	12 major cities	reference			reference			reference			reference		
	Cities with population > = 100k	1.10	1.29	0.40	1.48	1.23	0.26	1.40	1.23	0.30	2.81	1.11	0.02
	Cities with population < 100k	1.51	1.60	0.33	3.28	1.62	0.04	2.90	1.73	0.07	4.12	1.40	<0.001
	Rural areas	−0.68	1.80	0.72	0.28	1.86	0.88	2.81	1.92	0.14	0.88	1.69	0.60
Annual household income, JY	<5 million	reference			reference			reference			reference		
	> = 5 million & < 8 million	2.49	1.29	0.05	0.60	1.30	0.64	0.51	1.32	0.70	1.97	1.12	0.09
	> = 8 million	4.40	1.47	<0.001	3.35	1.45	0.03	2.53	1.51	0.10	5.89	1.32	<0.001

(continued)

Table 7.5 (continued)

Covariate	Subcategory	Physical			Psychological			Social			Environmental		
		Coefficient	SE	P-value	Coefficient	SE	P-value	Coefficient	SE	P-value	Coefficient	SE	P-value
Educational attainment	Junior high school or lower	reference			reference			reference			reference		
	High school	3.09	2.30	0.17	1.64	2.03	0.46	2.73	2.18	0.23	1.60	1.76	0.43
	College or higher	2.82	2.40	0.22	2.71	2.10	0.23	4.19	2.21	0.07	2.88	1.84	0.16
Occupation	Self-employed	reference			reference			reference			reference		
	Homemaker	1.01	2.08	0.65	−0.08	2.16	0.97	−3.03	2.18	0.19	2.05	2.03	0.32
	Employed	−1.56	1.58	0.38	−1.46	1.79	0.41	−2.87	1.75	0.12	−0.59	1.52	0.72
	Unemployed	0.71	2.44	0.78	−0.78	2.35	0.76	−2.55	2.63	0.33	1.95	2.19	0.40
Interpersonal trust	(PCS based on the trust scales)	2.24	0.57	<0.001	2.94	0.59	<0.001	3.50	0.62	,0.001	2.51	0.56	<0.001

QOL quality of life, *JY* Japanese Yen, *PCS* principal component score, *SE* standard error
doi:10.1371/journal.pone.0003985.t005
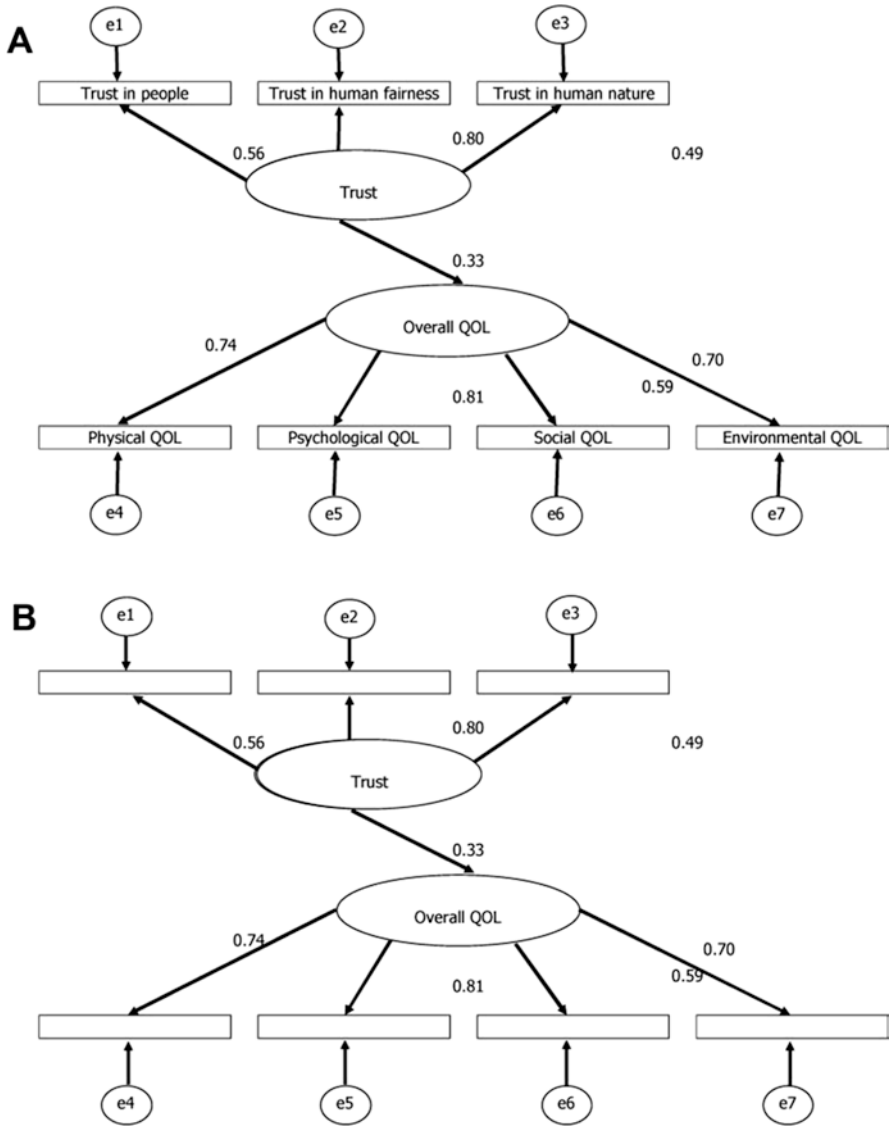
Fig. 7.1 *QOL* quality of life, Values indicate standardized coefficients. *e* error term (doi:10.1371/journal.pone.0003985.g001)

lation [7], lower mortality [24], better self-rated health in a Swedish bilingual community [25], better health in countries with high levels of social capital [26], and better physical and emotional health in Russians [27].

Based on the results of our study, we suggest several implications for further studies and public health policy-making. Policies to improve social skills, interper-

sonal ties, and social support to spread positive interpersonal trust might be important for improving global QOL. However, before developing a formal strategy to emphasize the acquisition of positive interpersonal trust along with the elimination of interpersonal mistrust, we need evidence showing a causal pathway from greater trust to better QOL and the significance and magnitude of this pathway can be evaluated in the context of a controlled interventional study. Regional pilot trials using a community randomized design may be optimal as the effects from interventions may spill over the adjacent communities from the intervened area and these can be examined longitudinally. After being proven in these experimental contexts, restoration of interpersonal trust could be considered to promote public health.

Several interventions could raise levels of interpersonal trust. First, possible intervention may be the more widespread participation in civil society organizations; for instance, sports clubs, social clubs, geriatric clubs, volunteer organizations, or advocacy organizations. Secondly, redesign of our public structures may also be effective to provide pleasant public spaces for better social engagements, including trees, parks, a community hall, a public house, a dance hall, or a meeting house. Third, it might help to encourage the mass media focus more on role models of trustful people. Fourth, in schools and social societies, people could learn good social skills for enhancing trust. Fifth, getting rewards for verbal and social achievements would recognize and promote their use and excellence. Sixth, public policy measures, such as prohibition of inadequate gambling or usurious lending in communities, could be instituted to prevent collapse of social cohesion. In addition, the measures that promote interpersonal trust might be different by country and by cultures and thus studies comparing differences across cultures and country boundaries would be also needed.

Our results are based on a multivariable model adjusted for potential confounders, such as demographic and socioeconomic status. In evaluating trust and QOL, we believe that these factors should be adjusted for. Individuals with higher socioeconomic status may perceive their societies as less hostile, more friendly, and have greater trust, compared with those with lower socioeconomic status [11]. At the same time, socioeconomic status is also known to be related to health status [28–31]. Thus, factors of socioeconomic status may confound the observed association between trust and unhappiness. Thus, our results based on the adjusted model can be considered reliable for estimating the association between interpersonal trust and QOL.

We were also able to examine the relationships between sociodemographic factors and QOL. The significant factors for better QOL included gender, age, area size of residence, and income. The better social QOL among women compared with men in this study was consistent with previous studies [32]. Thus, the results of our study, showing poor QOL in physical, psychological, and social domains, confirmed previous reports that found poor health in people with mid-life age of 50–59 years [33, 34]. The influence of mid-life age on environmental QOL was not statistically significant but shows a pattern similar to other QOL domains in terms of the effect size of beta coefficients of age classes for this domain.

The greater psychological and environmental QOL among those living in moderate-size cities may reflect the two benefits of these cities. First, these cities

may have better living conditions, such as less air and water pollution, noise, traffic volume and living cost, compared with bigger cities [35]. Second, these cities are likely to have better access to social and commercial services, such as more places for exercise, public transportation, education, art & entertainment, and shopping malls or stores [35].

The greater QOL in physical, psychological and environmental domains among the high-income group is consistent with recent surveys of Japanese adults showing that high income is associated with greater QOL [36, 37], as well as a recent European study involving seven countries, in which a higher income was associated with greater self-rated health throughout these countries [38].

Several mechanisms may explain the association between high income and greater QOL. First, high-income people may be less likely to engage in high risk behaviors, including smoking, alcohol dependence, pathological gambling, drunken or reckless driving, and commercial sexual contacts [39, 40]. Second, high-income people may be more likely to participate in regular health checkups and to receive health-related educational opportunities [41]. Third, a higher-wage job may be associated with greater job control and less job demand with less stress [42, 43]. Therefore, in considering significant covariates for QOL, the typical "healthy" Japanese may be a woman aged 20–39 or 50–59 years, living in a moderate-size city, with high-income and greater interpersonal trust.

Interpersonal trust may induce better QOL through multiple mechanisms. First, the higher levels of interpersonal trust are related to stronger ties to friends, family and society and the increased perception of social support [44]. Consequently, having more social ties and networks leads to an individual's sense of greater well-being [45, 46]. Among the critical components for sense of well-being, including pleasure, engagement (the depth of involvement with others), and meaning (using personal strengths to serve a larger end), engagement is now considered as the most important determinant [47].

Second, interpersonal trust can lead to greater overall health in neighbors and communities and thus to more effective support and many more sources of mutual respect [28]. Third, based on the theory of the diffusion of innovations, innovative ideas diffuse more rapidly when people trust each other [48]. Rapid diffusion of valued healthy ideas may make people healthier. Conversely, the diffusion of innovation is likely to be stagnant in societies with mistrust and thus people may easily miss the opportunity to enhance health in such societies. Finally, a neighborhood rich in interpersonal trust has access to local services and amenities, and local activity groups lobbying for the provision of services are available to make a difference in terms of access to such resources [28].

Because of the analysis of cross-sectional data, our study has inferential limitations. Studies relying on instrumental variables may possibly be one of alternative procedures for correcting the endogeneity of trust and thus indicating direction of the causality. Sir Austin Bradford Hill provided nine considerations for assessing whether an observed association involved a causal component or not, including strength of association, consistency, specificity, temporality, biological gradient, plausibility, coherence, experiment, and analogy [49]. Thus, we need further

research, especially an experimental study based on longitudinal data, to consolidate our finding by accumulating evidence for its causality.

Therefore, different interpretations might have been possible for our findings. For instance, self-reported QOL may be the cause of greater interpersonal trust, rather than the other way around as suggested above. It may be possible that poor QOL, particularly psychological and social QOL, may lead to social isolation and mistrust. Moreover, a third unknown and unmeasured factor could have caused higher levels of both interpersonal trust and QOL. For example, good health and greater trust may reflect different facets of an unmeasured underlying construct, such as better mental component of general well-being. However, evidence has now accumulated, indicating that psychosocial attitudes are also critical determinants for general well-being [50]. Since interpersonal trust is one of the positive psychosocial attitudes, the link between interpersonal trust and health could be understood in this context.

We conclude that interpersonal trust is associated with better QOL among Japanese adults. Further research may be needed to confirm and generalize this finding among people in other countries. Although it may be difficult to improve interpersonal trust in individual adults, there are potential measures to enhance the collective characteristics of interpersonal trust in societies. In particular, resources and investment may be needed in implementation for promoting interpersonal trust in the context of a community-based randomized interventional study. In this context, an important task for future investigations would be to identify the characteristics of civic associations and public policies that are more likely to serve the common interests and therefore improve interpersonal trust.

Supporting Information

Appendix S1

Found at: doi:10.1371/journal.pone.0003985.s001 (0.05 MB DOC)

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Chapter 8
Individual and Country-Level Effects of Social Trust on Happiness: The Asia Barometer Survey

Yasuharu Tokuda, Seiji Fujii, and Takashi Inoguchi

Abstract The relationship of individual-level and country-level social trust to individuals' happiness was investigated, using cross-national data of 39,082 participants from 29 Asian countries. For self-reported happiness, 2.0% of the participants responded they were *very happy*, while 18.7% were *very unhappy*. The significant variables associated with happiness were female gender, being age 20–29 years or 60–69 years, married, high income and education, students/retired/homemaker, religious belief, good health, and higher individual and aggregate social trust. Individual health, social trust, and aggregate social trust were all independently associated with people's happiness. People were more likely to be happy if they lived in countries with higher aggregate social trust than countries with poor social trust.

Happiness is one of the most important outcomes of human life and is an important concept in economic, social, and psychological research (Di Tella, MacCulloch and Oswald 2003; Helliwell and Putnam 2004; Layard 2005). Although previous medical

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literature has used the term *subjective well-being* to indicate happiness, recent medical research has begun using the term *happiness* and has shown increasing interest in happiness research (Subramanian et al. 2005; Yip et al. 2007). Results of medical research on this outcome have provided evidence for a positive correlation between health and happiness in individuals (Subramanian et al. 2005; Yip et al. 2007).

In addition to health status, several individual characteristics have been shown to influence happiness, including sociodemographic factors (e.g., age, gender, marital status, income, education, employment; Di Tella et al. 2003; Layard 2005). For instance, people with a low income generally report lower levels of happiness, as do people with little education (Di Tella et al. 2003).

Unemployed people also report more unhappiness (Di Tella et al. 2003). Another important individual determinant of happiness is spiritual belief: Those who profess spiritual beliefs are likely to report being happier (Helliwell and Putnam 2004).

Diener and Seligman (2002) characterized the psychological features of happiness. Based on their results, very happy people were highly social and had stronger romantic and other social relationships than did less happy groups. The very happy people were also more extraverted and more agreeable, and experienced positive feelings most of the time. Diener et al. suggested that very happy people have a functioning emotional system that reacts appropriately to life events.

Aside from individual characteristics, macroeconomic and societal features may also influence happiness. A study by Di Tella et al. (2003) suggested that per capita gross domestic product (GDP), rapid change of GDP, unemployment rate, and inflation rate are likely to influence people's happiness. Further, increasing attention has been paid to social capital as an important predictor of happiness (Helliwell and Putnam 2004).

Social capital has been developed as a concept indicating the quantity and quality of social interactions in a community (Petrou and Kupek 2007). A society with high levels of social capital is considered to have high social participation among its citizens, high social trust, and high levels of institutional or organizational trust. Studies have suggested that better social capital may have positive effects on various aspects of physical and psychological health and may also enhance people's happiness (Helliwell and Putnam 2004; Yip et al. 2007). Other studies using cross-national data have shown a high correlation between social capital and happiness (Bjonskov 2003; Gundelach and Kreiner 2004).

However, the mechanism of the interrelationships among social capital, health, and happiness does not seem to be simple. Helliwell and Putnam (2004) conceptualized a pathway from social capital through health to wellbeing. Using cross-national data from the World Values Survey (Canada and the U.S.), their study hypothesized that social capital may be not only independently associated with happiness, but may also act through health on happiness. Additional studies are needed to validate their hypothesis.

Furthermore, there has been considerable debate about whether social capital is a collective or individual resource, regarding its beneficial properties for individual health and well-being. For instance, Kawachi et al. (1999) indicated that people living in states with low social trust report poorer subjective health than do people living in states with high social trust, whereas other studies have shown that only

individual-level social trust is associated with people's well-being (Barefoot et al. 1998; Hyyppa and Maki 2001; Rose 2000).

As a tool for exploring and examining hypotheses in social epidemiology, the statistical technique using multilevel mixed-effects modeling is now considered suitable for investigating simultaneous multilevel data, such as analyzing compositional (i.e., individual-level), as well as contextual (i.e., community-level or country-level) variables (Poortinga 2006; Subramanian et al. 2002). By using this technique, Subramanian et al. reported that the action of social capital operates not on the community level, but on the individual level, and that there is a cross-level interaction effect, indicating that social capital does not seem to uniformly benefit individuals in the same society (Subramanian et al. 2002). Consequently, it has been suggested that individuals with higher social capital more often report better health in countries with a higher level of aggregate (i.e., community-level) social capital than do individuals with lower social capital. But they are less likely to report better health in countries with a lower level of aggregate social trust (Poortinga 2006; Subramanian et al. 2002). Since these studies were based on Western nations, further studies are needed to validate their hypothesis, especially in Asian nations.

Regarding the literature on the happiness of nations (including Asian nations), Diener's (2000) and Inglehart and Klingemann's (2000) research groups contributed to the important theoretical and empirical development of this field. Based on multinational perspectives, Diener suggested the importance of better understanding the components of happiness, the significant cultural influences on happiness, and the need for additional research using representative selection of respondents in each nation for producing national indicators of happiness. Based on the Euro-Barometer Surveys, Inglehart and Klingemann showed the large differences in the happiness levels of different nations. For instance, among European nations, many more people in Denmark, Belgium, or The Netherlands reported that they were *very happy* than in France, Portugal, or Italy throughout the survey periods from 1973 to 1998. More recently, however, based on time-series data from representative national surveys carried out from 1981 to 2007, Inglehart and Klingemann showed that happiness rose in 45 of the 52 countries. According to Inglehart and colleagues (Inglehart et al. 2008), happiness is increased in a society that allows free choice. Economic development, democratization, and social tolerance have led to more free choice, resulting in higher levels of happiness around the world.

Thus, in the current study, we aim to investigate the interrelations between social capital and people's health and happiness, based on a multilevel, mixed-effects model. We examined the effects of aggregate social capital in models adjusted for self-rated health and other important individual-level factors for happiness. We also examined the significance of possible cross-level interaction on happiness between individual- and aggregate-level social capital. Social trust was used as a variable of interest among social capital dimensions.

Using data from a large sample of the Asia Barometer Survey, the current investigation may be the first study to analyze happiness across nations in Asia. The novelty of our study includes investigation of the interrelationships between social trust and health and happiness; examination of possible cross- level interaction on happiness between individual- and aggregate-level social trust; and use of current multinational data throughout Asian countries.

8.1   Method

8.1.1   Study Participants

We used data from the Asia Barometer Survey (2003–2006), which includes information on individuals from 29 Asian countries on a vast range of subjects (Inoguchi 2005). The countries included in our analysis were Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia, China, Hong Kong, India, Indonesia, Japan, Kazakhstan, Kyrgyzstan, Laos, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, Singapore, South Korea, Sri Lanka, Taiwan, Tajikistan, Thailand, the Philippines, Turkmenistan, Uzbekistan, and Vietnam. For the purpose of the study, Hong Kong and Taiwan were considered as independent countries, considering their socio- economic characteristics. Prior ethics committee approval from the Chuo University was obtained. We received written, informed consent from the survey participants.

The sampling method involved three stages (Inoguchi 2004). First, capital and major metropolitan cities were purposely chosen for the survey districts in countries, and the sampling areas in these cities were randomly selected using the method of probability proportionate to its size. The wards for sampling in each district were then randomly selected from a list of total wards for the city. The more highly populated wards were given a higher probability of being selected, so that all households had an equal probability of being selected, ensuring that the sample was geographically representative of the city.

Second, within a ward that was identified for sampling, the households were randomly selected using the right-hand-walk rule, in which households were contacted in clusters around the selected starting points. From the first household contacted, two households were skipped, and the next one was contacted.

Third, when we interviewed the first eligible member who was available at the time of the survey, this could lead to a nonrandom sample, since it could lead to an overrepresentation of women, as women are easier to interview and are more likely to be available. To avoid this problem, we used the Kish Grid, which is a method of selecting eligible respondents randomly from within a household using a random number table. Because of the necessity of obtaining written consent, we made sure that all participants were literate.

8.1.2   Data Collection

Face-to-face interviews were used to provide structured questionnaires in this survey. The detailed content of the questionnaires was previously published elsewhere (Inoguchi 2005). Data collection included demographics, marital status, socioeconomic factors (i.e., income, education, occupation), religious beliefs, self-rated health, self-reported happiness, and social capital (social trust: general trust,

interpersonal trust, and mutual help), in addition to information on political, environmental, and daily-life issues, which were related to the Asia Barometer Survey.

The dependent variable in all analyses (i.e., self-reported happiness) was based on the following question: "All things considered, would you say that you are happy these days?" The item was rated on a 5-point scale ranging from 1 (*very unhappy*) to 5 (*very happy*). This was treated as a continuous variable. The item has been widely used and validated in the happiness literature (Kahneman et al. 2006).

The individual-level independent variables included gender, age (range = 20–69 years), marital status, religious belief, income, education, employment, and individual-level social trust. Age was categorized into the following five groups: *20–29 years*, *30–39 years*, *40–49 years*, *50–59 years*, and *60–69 years*. Categories of marital status included *single*, *married*, *divorced/separated*, or *widowed*. For religious belief, we asked each participant "Do you regard yourself as belonging to any particular religion?" Participants responded *Yes* or *No* to the question.

Annual household income was used as an income variable in the present study. Categories of income groups included *low*, *middle*, and *high*. The criterion used to assign these categories was based on the income distribution to divide the samples into three categories with similar frequencies. Thus, we divided the samples of each country into subsamples with frequencies as close to 33% each as possible.

For educational attainment, we also used three categories (*low*, *middle*, and *high*), based on the distribution of educational attainment in each country. For instance, in the data from 2003 to 2005, the *low-education* category included no formal education or elementary school/junior high school/middle school; the *mid-education* category included high school or vocational-technical school; and the *high-education* category included professional school/technical school or university/graduate school.

For occupational status, we used six categorical classes: *self-employed*, *employed*, *unemployed*, *retired*, *homemaker*, and *student*. The self-employed group included self-employed in agriculture, forestry, or fisheries; business owner in mining or manufacturing industry of an organization with up to 30 employees; vendor or street trader; business owner or manager of an organization; and self-employed professional. The employed group included senior manager, employed professional or specialist, clerical worker, sales, manual worker, driver, and "other" worker.

Self-rated health was defined as the individual's personal satisfaction with his or her overall health. In the survey we asked, "Please tell me how satisfied or dissatisfied you are with your health." The item was rated on a 5-point scale ranging from *very dissatisfied* to *very satisfied*. The categories were collapsed to form a dichotomous variable of 1 (*poor health*, for *very dissatisfied*, *somewhat dissatisfied*, or *neither satisfied nor dissatisfied*) or 0 (*good health*, for *very satisfied* or *somewhat satisfied*).

Social trust, which is the dimension of cognitive social capital, was measured by a composite index constructed from a factor score of three questionnaire items related to general trust, interpersonal trust, and mutual help. The general trust question was "Would you say that most people can be trusted or that you can't be too careful in dealing with people?" The question on interpersonal trust in merit-based

utility was "Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?" And the question on mutual help was "If you saw somebody on the street looking lost, would you stop to help?" For the last question, the responses were *I would always stop to help*, *I would help if nobody else did*, and *It is highly likely I wouldn't stop to help*.

These questions have been used widely in previous studies to measure cognitive social trust (Dekker and Broek 2004; Olsen and Dahl 2007; Putnam 2000; Yip et al. 2007). Factor analysis of these items provides a one-factor solution with an eigenvalue of 1.43. All items were loaded above 0.40, and no other factors exceeded unity. The individual scores were calculated using the regression equation with the factor loadings, and a higher score indicated higher trust. The standardized scores ($M = 0$, $SD = 1$) were used in descriptive statistics, and for the multivariable models, they were collapsed to form a dichotomized variable: 0 (*high social trust* for values less than 0) and 1 (*low social trust* for values of 0 or more).

Country-level social capital was constructed using aggregate social trust. Aggregate social trust was calculated using the mean score of individual-level scores in each country and collapsed to form a dichotomized variable: 0 (*high social trust* for values less than 0) and 1 (*low social trust* for values of 0 or more).

8.1.3 Statistical Analysis

We used mixed-effects linear regression models to analyze the relationship of individual- and country-level features to happiness by considering individuals nested in each country, as data structures in the Asia Barometer Survey were hierarchical multilevels (Level 1 = individual; Level 2 = country). The data provide information on individuals, but the individuals are also grouped in their countries. The random-effects covariance matrix was set to unstructured form.

We constructed five different mixed-effects models: (a) the model including individual-level characteristics, except for self-rated health and social trust (Model A); (b) the model including health in Model A (Model B); (c) the model including social trust in Model A (Model C); (d) the model including health and social trust in Model A (Model D); and (e) the model including aggregate social trust and the interaction term between individual and aggregate social trust in Model D (Model E). Beta coefficients greater than 0 indicate that the effect related positively to happiness, whereas beta coefficients less than 0 indicate that the effects related negatively to happiness.

Descriptive statistics were calculated and presented as the mean with standard deviation or the count number with proportion to the overall sample population where appropriate. Effect sizes of each significant characteristic were estimated using Cohen's method based on the absolute value of beta coefficients of Model E divided by the population standard deviation of Likert-scale responses to the happiness item. All statistical analyses were performed using STATA version 10 (College Station, TX). Two-tailed *p* values less than .05 were considered statistically significant.

8.2 Results

Table 8.1 shows descriptive statistics of the study participants. Their mean age was 37.8 years (*SD* = 11.9). The majority of participants were married (72.4%). The three levels of both income and education had almost even distributions. In terms of job status, the majority were employed (employed = 48.2%; self-employed = 16.5%). The majority rated their health as good (68.6%), but more than half of the participants were classified as having low social trust (55.4%). In terms of happiness, 43.1% reported that they were *not too happy*, followed by *neither happy nor unhappy* (24.6%), *very unhappy* (18.7%), *pretty happy* (8.6%), and *very happy* (2.0%; missing data, 3.0%).

   Table 8.2 and Figs. 8.1 and 8.2 present the mean happiness, health, and social trust scores for each of the 29 countries. By construction, the social trust score was centered on 0 (*SD* = 1). People in Brunei reported the highest level of happiness, while people in Tajikistan reported the lowest level of happiness. In terms of self-rated

Table 8.1 Descriptive statistics of all participants

Characteristic	*n*	%
Gender		
Women	19,800	50.7
Men	19,282	49.3
Age (in years)		
20–29	11,413	29.2
30–39	11,128	28.5
40–49	9147	23.4
50–59	5784	14.8
60–69	1610	4.1
Marital status		
Single	8680	22.2
Married	28,278	72.4
Divorced/separated	1035	2.6
Widowed	1057	2.7
N/A	32	0.1
Income		
High	12,420	31.8
Mid	12,219	31.3
Low	12,426	31.8
N/A	2017	5.2
Education		
High	11,861	30.3
Mid	14,549	37.2
Low	12,518	32.0
N/A	154	0.4

(continued)

Table 8.1 (continued)

Characteristic	n	%
Employment		
Employed	18,843	48.2
Unemployed	2979	7.6
Self-employed	6467	16.5
Retired	1514	3.9
Homemaker	7230	18.5
Student	1958	5.0
N/A	91	0.2
Religious belief		
Yes	29,866	76.4
No	8021	20.5
N/A	1195	3.1
Self-rated health		
Good	26,808	68.6
Poor	12,080	30.9
N/A	194	0.5
Social trust		
High	14,450	37.0
Low	21,642	55.4
N/A	2990	7.7
Happiness		
Very happy	800	2.0
Pretty happy	3344	8.6
Neither happy nor unhappy	9600	24.6
Not too happy	16,856	43.1
Very unhappy	7289	18.7
N/A	1193	3.1

Note: $N = 39,082$, *N/A* = not available

Table 8.2 Happiness, health, and social trust in 29 Asian countries

		n	Happiness[a]		Health[b]		Social trust[c]	
			M	SD	M	SD	M	SD
1.	Afghanistan	874	3.44	0.93	4.11	0.98	0.25	1.01
2.	Bangladesh	1008	3.77	0.90	3.87	1.05	−0.18	0.82
3.	Bhutan	801	4.13	.81	4.38	0.81	0.01	0.97
4.	Brunei	804	4.45	0.64	4.62	0.57	0.21	0.94
5.	Cambodia	812	3.06	0.77	3.29	1.05	−0.64	0.65
6.	China	3800	3.70	0.89	3.71	0.95	0.54	1.02
7.	Hong Kong	1000	3.53	0.70	3.57	0.71	0.06	1.06
8.	India	2060	3.93	0.96	4.25	0.94	−0.08	0.97
9.	Indonesia	825	3.93	0.75	4.35	0.84	0.07	0.90
10.	Japan	2685	3.66	0.82	3.66	0.98	−0.01	1.01
11.	Kazakhstan	800	2.94	1.13	3.47	1.16	−0.41	0.80
12.	Kyrgyzstan	800	3.21	1.25	3.57	1.27	−0.32	0.73

Table 8.2 (continued)

		n	Happiness[a]		Health[b]		Social trust[c]	
			M	SD	M	SD	M	SD
13.	South Korea	2642	3.48	0.88	3.55	0.91	0.46	1.02
14.	Laos	800	3.66	0.76	3.92	0.98	−0.33	0.86
15.	Malaysia	1600	3.97	0.80	4.22	0.75	−0.28	0.92
16.	Maldives	821	4.21	0.87	4.34	0.87	0.55	0.97
17.	Mongolia	800	3.55	0.74	3.42	1.09	−0.18	0.88
18.	Myanmar	1600	3.67	0.93	3.78	1.12	−0.17	0.84
19.	Nepal	800	3.55	1.08	3.82	0.78	−0.24	0.79
20.	Pakistan	1086	3.47	1.01	3.51	1.02	0.49	1.01
21.	Philippines	800	3.91	0.99	4.21	0.84	−0.50	0.80
22.	Singapore	1838	4.00	0.85	4.06	0.75	0.10	1.02
23.	Sri Lanka	1613	4.01	0.81	4.13	0.86	−0.32	0.93
24.	Taiwan	1006	3.55	0.92	3.62	0.84	0.09	1.13
25.	Tajikistan	800	2.93	1.00	3.85	1.04	−0.07	0.97
26.	Thailand	1600	3.82	0.82	3.82	1.07	−0.33	0.89
27.	Thailand	800	3.45	1.04	3.07	1.56	0.02	1.31
28.	Uzbekistan	1600	3.44	1.05	3.43	1.15	−0.25	0.94
29.	Vietnam	2607	3.95	0.90	3.56	0.95	0.11	0.94
Total		39,082	3.70	0.95	3.81	1.02	0	1

[a]Based on a 5-point scale ranging from 1 (*very unhappy*) to 5 (*very happy*)
[b]Based on a 5-point scale ranging from 1 (*very dissatisfied with health*) to 5 (*very satisfied with health*)
[c]Based on a single-factor analysis from the three questionnaires. Greater values indicate higher trust
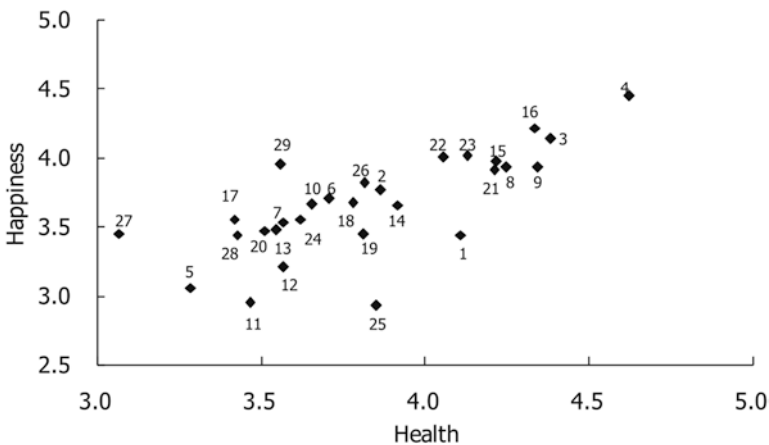
Fig. 8.1 Health and happiness in 29 Asian countries (Note: The number of the dot indicates the number of each country in Table 8.2)
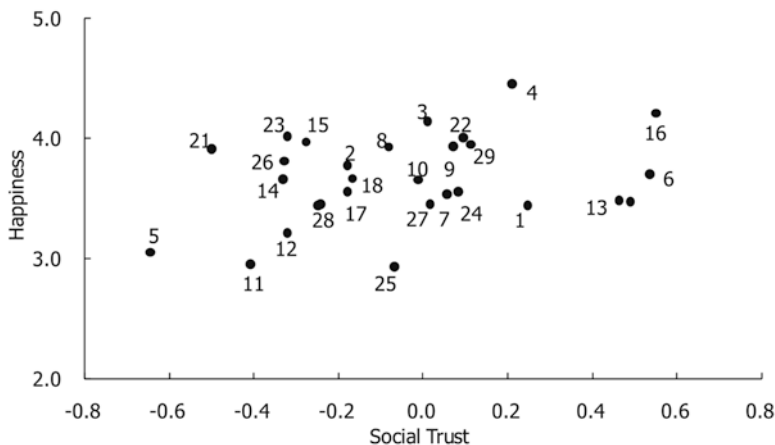
Fig. 8.2 Social trust and happiness in 29 Asian countries (Note: The number of the dot indicates the number of each country in Table 8.2)

health, people in Brunei also reported the highest level. People in Turkmenistan reported the lowest level of health. For the social trust score, people in the Maldives reported the greatest level of trust. People in Cambodia reported the lowest level of trust. Correlation coefficients between happiness, health, and social trust were significant at the individual level: .283, .101, and .057 for happiness and health, happiness and social trust, and health and social trust, respectively ($p < .001$).

Table 8.3 presents the results of the five successive multilevel models, using aggregate social trust as an indicator of country-level social capital. The first model (Model A) shows that the significant variables that were positively associated with happiness were married status, being a homemaker, and being a student. The significant variables that were negatively associated with happiness included male gender, being 30–59 years old, being divorced/ separated, being widowed, having a low or middle income, being poorly or moderately educated, being unemployed, and having no religious belief.

Model B added self-rated health to Model A as both fixed- and random- effects variables. Model B shows that poor health was negatively related to happiness. In this model, adjusted for health, self-employed and retired statuses, which were not significant in Model A, became significantly associated with happiness. Model C added individual-level social trust to Model A as both fixed- and random-effects variables, and shows that low trust was negatively related to self-reported happiness. In this model, adjusted for individual-level social trust, the age range of 60–69 years, which was not significant in Model A, became significantly associated with happiness.

Model D shows that both self-rated health and individual-level social trust were independently related to happiness. The final model (Model E), adjusted for both self-rated health and individual-level social trust, reveals that aggregate social trust was significantly related to self-reported happiness ($p = .043$). People tend to report

Table 8.3 Multilevel models of individual- and Country-level characteristics for happiness

Characteristic	Model A			Model B			Model C			Model D			Model E		
	Beta	SE	p	Beta	SE	p	Beta	SE	p	Beta	SE	p	Beta	SE	p
Gender (base group: women)															
Men	−.037	.011	<.001	−.050	.011	<.001	−.035	.011	.002	−.049	.011	<.001	−.049	.011	<.001
Age (base: 20–29 years)															
30–39 years	−.071	.014	<.001	−.059	.014	<.001	−.071	.014	<.001	−.059	.014	<.001	−.059	.014	<.001
40–49 years	−.100	.015	<.001	−.076	.015	<.001	−.107	.015	<.001	−.083	.015	<.001	−.083	.015	<.001
50–59 years	−.130	.018	<.001	−.088	.017	<.001	−.140	.018	<.001	−.096	.018	<.001	−.095	.018	<.001
60–69 years	−.054	.030	.073	−.008	.030	.797	−.070	.031	.023	−.019	.030	.541	−.019	.030	.534
Marital status (base: single)															
Married	.155	.015	<.001	.148	.015	<.001	.149	.015	<.001	.142	.015	<.001	.142	.015	<.001
Divorced/separated	−.227	.032	<.001	−.220	.032	<.001	−.222	.033	<.001	−.214	.033	<.001	−.213	.033	<.001
Widowed	−.147	.033	<.001	−.113	.033	.001	−.150	.034	<.001	−.121	.033	<.001	−.121	.033	<.001
Income (base: high income)															
Mid	−.081	.012	<.001	−.071	.012	<.001	−.079	.012	<.001	−.068	.012	<.001	−.068	.012	<.001
Low	−.197	.012	<.001	−.175	.012	<.001	−.199	.012	<.001	−.176	.012	<.001	−.176	.012	<.001
Education (base: high education)															
Mid	−.053	.012	<.001	−.052	.012	<.001	−.052	.012	<.001	−.053	.012	<.001	−.053	.012	<.001
Low	−.121	.014	<.001	−.105	.014	<.001	−.116	.015	<.001	−.102	.014	<.001	−.102	.014	<.001
Employment (base: employed)															
Unemployed	−.077	.019	<.001	−.071	.019	<.001	−.071	.020	<.001	−.066	.019	.001	−.066	.019	.001
Self-employed	.026	.014	.066	.028	.014	.044	.026	.014	.066	.027	.014	.051	.027	.014	.052
Retired	.042	.029	.151	.072	.029	.012	.036	.029	.225	.064	.029	.028	.064	.029	.028
Homemaker	.050	.016	.001	.047	.015	.002	.054	.016	.001	.050	.016	.001	.050	.016	.001
Student	.139	.025	<.001	.130	.024	<.001	.139	.025	<.001	.127	.025	<.001	.127	.025	<.001

(continued)

Table 8.3 (continued)

Characteristic	Model A Beta	SE	p	Model B Beta	SE	p	Model C Beta	SE	p	Model D Beta	SE	p	Model E Beta	SE	p
Religious belief (base: *Yes*)															
No	−.103	.016	<.001	−.099	.016	<.001	−.095	.016	<.001	−.095	.016	<.001	−.095	.016	<.001
Self-rated health (base: good)															
Poor				−.377	.032	<.001				−.372	.031	<.001	−.372	.030	<.001
Individual social trust (base: high)															
Low							−.138	.018	<.001	−.119	.017	<.001	−.140	.022	<.001
Aggregate social trust (base: high)															
Low													−.254	.125	.043
Cross-level interaction (social trust)															
Aggregate × Individual													.040	.029	.166
Intercept	3.794	0.070	<.001	3.872	0.066	<.001	3.881	0.073	<.001	3.948	0.068	<.001	4.087	0.096	<.001

Note: $N = 33,736$

Table 8.4 Effect sizes of characteristics for happiness

Rank	Characteristic	Model E (absolute value of beta)	Effect size[a]
1	Self-rated health (good vs. poor)	.372	.39
2	Married vs. divorced/separated	.355	.37
3	Aggregate social trust (high vs. low)	.254	.27
4	Income (high vs. low)	.176	.19
5	Individual social trust (high vs. low)	.140	.15
6	Employment (student vs. employed)	.127	.13
7	Education (high vs. low)	.102	.11

Note: Only factors with an effect size greater than .10 are shown with the ranking by the greater effect size

[a]Based on the absolute value of beta coefficients of Model E divided by the population *SD*

less happiness in countries with low aggregate social trust, and social capital seems to benefit individuals in the same country uniformly.

There was no significant cross-level interaction between individual-level social trust (Level 1) and country-level aggregate social trust (Level 2). Based on the standard deviation of 0.95 in the happiness item and the beta coefficients of Model E, effect sizes of characteristics for happiness are shown in Table 8.4. The ranking by the magnitude of these effect sizes indicated that good self-rated health, married status, and aggregate social trust were among the top three characteristics associated with happiness.

8.3 Discussion

Examining contextual effects of social capital on people's happiness may be a challenge. However, this Asian cross-national research indicated that higher levels of aggregate social trust are associated with happiness through its contextual effects. Self-rated health, individual-level social trust, and aggregate social trust are all independently associated with people's happiness in Asian countries. Regardless of individual-level social trust, people are more likely to be happier if they live in countries with higher levels of aggregate social trust. Differences in country-level social trust can partly explain happiness differences among Asian countries. Based on the magnitude of the effect sizes, good self-rated health and married status, in addition to aggregate social trust, are the most important characteristics associated with happiness.

The results of the current studies may confirm the importance of social capital (both individual and aggregate) as predictors of happiness, suggested by previous studies. In a study using cross-national data from the World Values Survey from the U.S. and Canada, Helliwell and Putnam (2004) found that civic engagement and social ties were associated with subjective well-being. A study of European countries by Gundelach and Kreiner (2004) found a high correlation between both com-

munity- and individual-level membership in organizations and self-reported happiness, even after adjusting for other social factors, and concluded that, in an aggregated analysis, social capital was the most important predictor of happiness. Another study also suggested that an index of social capital was positively associated with satisfaction with life (Bjonskov 2003).

Although happiness seems to be related to aggregate social capital, the mechanism of how social capital at the societal level relates to individual happiness can be debated. It is easily understandable that persons with higher levels of individual social trust would receive some benefits to their happiness through active engagement in diverse social activities and integration in their communities. However, higher social trust does have a positive effect on the resources, securities, and friendliness of communities of individuals.

A recent study conducted in rural China (Yip et al. 2007) suggested that social trust is strongly associated with emotional support, and this may facilitate social networks and support mechanisms, which can positively affect well-being. The mechanisms through which social capital affects subjective well-being may be linked to a better social network. Thus, people living in countries with higher social trust may be happier because of better emotional support. People in countries with low social trust may experience more stress from poor emotional support.

The current study indicated that there is a difference in mean levels of happiness between these countries. Better social capital in a country may enhance the average happiness level of that country, whereas poor social capital may produce social disintegration. Unhappiness may be induced as a result of underinvestment in several forms of social capital, such as social services, civic activity, and cultural activities. Public policymakers and public-service professionals may be advised to consider the role of improvement of country-level aggregate social capital in enhancing the happiness of individuals by contextual effects of social capital on happiness. In particular, policies are needed to enhance environments that strengthen existing social networks and facilitate social support at both the individual and the country level (Yip et al. 2007).

The current study identified several individual characteristics as important determinants for happiness, including age, gender, socioeconomic status (SES), marital status, and religious belief. In terms of the effects of age on happiness, the relationship is not linear. Age has a U-shaped effect on people's happiness, with a low level of happiness in midlife, but recovery occurs at older ages, in spite of the effects of aging on physical health. This U-shaped pattern linking age and happiness is persistent among studies, including the Euro Barometer Study (Di Tella et al. 2003). Midlife unhappiness may be conceptualized generally as *midlife crisis*, in which people are faced with major life changes and often fear inactivity and meaninglessness (Erikson 1998; Johnson and Krueger 2006).

Women tend to have a higher level of happiness than do men, and this finding is in line with the results of the World Values Survey, in which happiness was higher among women than men (Helliwell and Putnam 2004). For a specific explanation of the gender difference, Helliwell and Putnam suggested that living in a country with a high-quality government increases happiness more for women than for men.

Being married improves subjective well-being, a finding that has been consistent across studies (Helliwell and Putnam 2004; Mroczek and Kolarz 1998; Ross 2005).

Our study also suggested that marriage has beneficial effects on happiness. Marital status is considered by some investigators to be family-level social capital, emphasizing the importance of family through frequent interactions with family members to enhance happiness (Helliwell and Putnam 2004).

The current study indicated that happiness is found to be lower for persons with low SES. Low income, low educational attainment, and low job positions were all associated with being unhappy. Although a careful interpretation of the impact of SES on happiness may be needed in cross-national studies (Layard 2005), multiple studies have found that individuals with low SES were at greater risk of unhappiness (Di Tella et al. 2003; Helliwell and Putnam 2004). The relationship between SES and happiness can be explained partly by the previous findings that people in lower hierarchical positions are more prone to increased stress from low job control and manual labor (Amagasa et al. 2005; Kawakami et al. 2004; Shigemi et al. 2000). People in higher positions in the hierarchy are less exposed to stressful events and may also have greater social and psychological resources when coping with such events (Adler and Newman 2002).

The current study also shows that the level of happiness was higher for homemakers and students. Since the literature is scarce, we may propose some explanations. Although the combination of household work and family obligations may increase the workload for homemakers, household labor may not cause adverse effects, but may enhance happiness through better ability to control the work situation at home and less stress related to home- making. Students may be happier since learning something may improve their level of happiness.

We found that there was a positive link between happiness and religious belief. Multiple transnational studies have shown similar results with slightly different degrees of effects on happiness (Helliwell and Putnam 2004). Although data for frequency of attendance at church or temple were not available in our dataset, attending these kinds of social networks may create community-level social capital. More frequent interactions with other people in a religious community may enhance happiness through better resources for social capital.

There are some limitations of the current study. First, Asian countries have different cultural backgrounds, and these differences may influence how people respond to questions regarding individual happiness. Little research has been conducted to examine the cultural aspects in measuring happiness. Psychometric analysis may be needed to investigate this issue. Second, our measure of social capital in Asian countries analyzed only one dimension (i.e., social trust) of social capital. Other aspects of social capital (e.g., civic participation, collective action) may or may not show different results. Third, although we found no evidence of interaction between aggregate social trust and individual-level social trust in the current study, other dimensions of social capital may still have an interaction with individual-level social trust. Finally, we analyzed the dataset without any weighting, although the countries have great variations in their populations and are different from the sample distributions of our dataset.

In conclusion, happiness differences among Asian countries may partly arise from differences in social capital. Country-level aggregate social trust is significantly associated with people's happiness, and this association is independent from self-rated health and individual-level social trust. High- trust Asian nations generally have a happier population than do low-trust nations.

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Part II
Institutional Trust

Chapter 9
Confidence in Institutions

Takashi Inoguchi

Abstract Using the Asia-Europe Survey carried out in 2000 in eight countries in Asia (Japan, South Korea, Taiwan, Singapore, Malaysia, Indonesia, Thailand, the Philippines) and nine countries in Europe (Ireland, France, Germany, Sweden, Italy, Spain, Portugal, Greece), confidence in political and other institutions (i.e., parliament, political parties, elected government, law and the courts, leaders, police, civil service, military, big business, and mass media) are examined. Key findings are summarized: (1) Asian countries register higher confidence in political and other institutions than European countries; (2) both in Asia and in Europe, two meritocratically and non-democratically recruited institutions, the police and the military, tend to enjoy highest confidence; (3) Those satisfied with life and with politics tend to register high confidence in political and other institutions; (4) globalization exposures and experiences, like job and website about it, about family and friends, about TV news and entertainment, about employment, work consistently in the direction of reducing confidence in domestic institutions.

9.1 Citizen's Confidence in Political and Other Institutions

Institutions are created by certain schemes. Sometimes created democratically, sometimes not. Even under democracy, not all institutions democratically choose their leaders. Although academic and policy debates never end as to which electoral procedures are more representative and fair, and thus broadly more democratic (Shugart and Wattenberg 2001), the point that under democracy parliament is one of the institutions widely regarded as the most democratically-elected institution is not disputed. In addition to electoral procedures, the extent to which mass media exposure (TV ads, for instance, Zeller 1992; Norris 1999) is allowed and the extent to which a thinly disguised public bribery called campaign promises is closely monitored seem to make an enormous difference as to outcomes of selection. But these and other aspects of democratic electoral procedures are not given more attention than formal electoral procedures. As a matter of fact, the existence of a

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democratically-elected parliament is often said to be a minimum condition to be called democracy. Instead of requiring relatively strict conditions of openness, rule of law, and accountability (Rose and Shin 2001), a minimalist procedural requirement of holding a free and fair election under a multi-party setting is more commonly observed (Inoguchi et al. 1998; Marsh et al. 2000). That is why the number of democracies has increased from thirty odd to 120 within a short time span of less than a quarter of a century (Huntington 1993; Diamond 1997; Vanhanen 2003).

Aside from these democratically-elected institutions, there are a whole array of institutions under democracy, which do not necessarily meet the above three troika requirements of openness, rule of law, and accountability (Rose and Shin 2001). By openness, I mean the degree to which one feels free to know. By rule of law, I mean the impersonal application of a certain set of norms and laws with effectiveness. By accountability, I mean the ability and willingness to answer questions coming from outside an institution as to how an institution is run. Take political parties. Political parties choose their leaders according to their preferred ways: sometimes by all party members (e.g., U.S. Republicans and Democrats): sometimes by all parliamentary party members (e.g., Japanese Liberal Democrats in the 1990s); sometimes through designation of a successor by an outgoing leader (with an endorsement such as "With you in charge, my heart is at ease"); sometimes through contestation among executive committee members; and oftentimes their preferred ways change. The point is that unlike democratically-elected parliamentarians, political party leaders are selected in a variety of ways in which they are not compelled to follow those rules that govern democratic elections for the parliament. If it is a political party with some chance of ascending to power, contenders for the leadership position promise a certain policy package that is most likely to attract the maximum number of voters as well as assure the most supporters. Such promises are often associated with the promise of appointment to certain party executive positions and cabinet ministerial positions. Such intra-party processes of selecting a leader of a political party often conjures up an image of a smoke-filled hall where deals are struck. Oftentimes they are far from transparent or accountable (Shefter 1985). Yet political parties are one of the key institutions to sustain a democracy. Similarly, the key leader, president or prime minister, is chosen democratically in a democracy. Yet what kind of rules and procedures that govern the selection are most likely to produce the "best" person for the position is the subject for never-ending academic and policy debates (Blondel 1980).

Some political institutions are reproduced not by democratic selection even under democracy. They include the civil service, the military, the police, and the courts. They are institutions giving professional services to the democratic state and society. They are increasingly exposed to the norms of transparency and accountability. Still some other institutions are not at all political institutions. They include mass media (Inoguchi 2001) and big business. Their reproduction is not governed by democratic principle. Nor are they meant to play primarily political roles.

As institutions are said to be instruments that translate individual preferences into some collective choice and sometimes action, how much confidence the individual places in such institutions may give some insights into how people relate to

a society and how democracy functions in a society. In other words, confidence in institutions can be a barometer of how closely people relate to a society. The question asked is:

How much confidence do you have in the following institution? (A great deal, Quite a lot, Not much, None at all)

parliament
political parties
(elected) government
law and the courts
leaders
police
civil service
military
big business
mass media

Tables 9.1 and 9.2 give a summary of popular confidence in institutions in 17 societies. The Chinese authorities excluded this question from the survey. Hence, 17 societies on this question rather than 18 societies, 9 in East and Southeast Asia (Table 9.1), and 9 in Western Europe (Table 9.2). The following key observations are made.

1. People have higher confidence in such professional institutions that are not necessarily governed by democratic principle. They are the military, the police, the civil service and the courts.
2. People have lower confidence in such democratic institutions as political parties, parliament, elected government, and political leaders.

These observations are made irrespective of being fully democratic or not. It is with some sense of unease to realize that in all the nine European democracies we have surveyed, people tend to have a very high degree of confidence in the military and the police and the lowest confidence in political parties, the parliament, the elected government, and political leaders. This may be extremely disturbing to many with a strong belief in democracy. But this picture appears to remind one of the unchanging nature of government (Finer 1999). Government should be able to have power and competence. By power, I mean the ability to get a person to do what otherwise a person may not do (Dahl 1957). Power is often the ability to impose and coerce. How to contain the use of violence other than its own is the first requirement of the state in the Weberian sense of the word. The military and the police are two of such institutions. By competence, I mean the specialized ability to deliver service in a certain policy area. Those who work in such institutions are mostly professionals. Those professional institutions have been till recently relatively closed as contrasted to open, relatively free to use their own idiosyncratic rules and procedures, and relatively unaccountable as contrasted to accountable. Those institutions are the courts and the civil service. Their principle of selection is some combination of meritocratic, technocratic and bureaucratic, but not necessarily democratic, rules.

Table 9.1 Citizen's confidence in political institutions (Asia)

%	Japan	South Korea	Taiwan	Singapore	Malaysia	Indonesia	Thailand	Philippines
80–90				Police courts govt civil service military leaders			Military	
70–80				Parliament business parties media		Civil service		Media
60–70					Gov't courts military leaders civil service	Military media gov't parliament	Business civil service media	
50–60		Military	Civil service		Police parliament media business parties	Police	Courts	Military civil service gov't courts
40–50	Military courts police civil service	Media	Military leaders gov't business			Leaders parties	Police	Parliament police
30–40		Police courts civil service	Police media courts			Courts business	Leaders parliament	Leaders business parties
20–30	Business media parliament	Gov't	Parties				Gov't parties	
10–20	Gov't parties leaders	Business	Parliament					
0–10		Leaders parties parliament						

Table 9.2 Citizen's confidence in political institutions (Europe)

%	UK	Ireland	France	Germany	Sweden	Italy	Spain	Portugal	Greece
80–90									
70–80	Military		Business civil service					Military	Military
60–70	Police	Police military	Police military	Police		Police business		Media civil service business police	
50–60		Civil service courts	Media		Police courts	Military	Police parliament		
40–50	Courts business civil service	Media	Courts parliament gov't	Courts military	Business	Media	Military courts gov't media civil service	Parliament gov't courts	Police courts
30–40	Parliament	Business gov't parliment		Parliament business leaders	Military parliament civil service		Parties leaders business	leaders	Gov't business
20–30	Media gov't	Leaders parties	Leaders	Gov't civil service media	Media gov't leaders	Civil service courts gov't parliament	Parties	Media parliament civil service	
10–20	Leader parties		Parties	Parties	Parties	Leader parties			Leader parties
0–10									

The picture is not much different in Asian democracies either. In Asian democracies the highest confidence people have tends to be with the military and the civil service rather than the military and the police, the standard pattern in European democracies. Before moving into the question of why, let me further register the more region-specific and society-specific characteristics.

In Asia, three groups exist: Northeast Asia, Singapore-Malaysia, and Thailand-the Philippines-Indonesia (cf. Alagappa 1995, 2002, 2004). These groups are in harmony with the Freedom House-generated composite indicators of political rights and civil liberties (Freedom House 2001). A low-level of trust in institutions commonly characterizes the Northeast Asian democracies of Japan, South Korea and Taiwan. In comparison, the most authoritarian democracies in Asia, Singapore and Malaysia, and the intermittently stumbling Third-Wave democracies in Southeast Asia, Thailand, the Philippines and Indonesia, register much higher confidence in democratic institutions. It looks as if the more democratic a regime is, the lower the level of popular confidence in democratic institutions. Singapore and Malaysia register a very low degree of freedom in Freedom in the World (2001) whereas popular perceptions of their authoritarian democracies register a very high degree of being democratic. Conversely, Japan, South Korea and Taiwan register a very high degree of freedom in Freedom in the World whereas popular perceptions of their democracies register a very low degree of being democratic.

One can dispute these three groups in Asia by saying that five of the eight, South Korea, Taiwan, Indonesia, Thailand and the Philippines are all Third-Wave democracies in which the malaise of "democratization backwards" (Rose and Shin 2001) is manifested sometimes most glaringly. I agree with Richard Rose and Doh Chul Shin on the overall problematic nature of Third-Wave democracies, but more nuanced observations can be made on the basis of region-specific and society-specific data. First, Japan is the sole democracy in Pacific Asia with a half-century record of democracy and the highest per-capita-income-level group of rich nations. It is Japan that exhibits most lucidly the malaise of advanced industrial democracies in that people strongly believe in democracy but that they show a very high level of distrust in politicians and political parties (Inoguchi 2004; Pharr and Putnam 1999; Putnam 2004). Similar to Japan in this regard are Taiwan and South Korea. South Koreans exhibit an even stronger distrust in their politicians and parties than Japanese (2001). Common to these Northeast Asian democracies and to Southeast Asian democracies is the relatively high level of trust in the civil service along with the military. This is in good contrast to the common pattern of European democracies in that the police, along with the military, are highly trusted. The high level of trust in the civil service is sometimes linked to bureaucratic authoritarianism in that it sometimes leads to the opinion that instead of delegating power to politicians and parties, one should entrust power to the civil service. After all, bureaucrats tend to be perceived as less partisan, less corrupt and more public-spirited (see Inoguchi 2001, on such a strong stream of thinking in Japan). The three Southeast Asian democracies, Thailand, the Philippines and Indonesia, have a common trusted troika, that is, the civil service, the military and the media, ranked as the top three institutions. In Thailand, the military is viewed as the most highly trusted, in the

Philippines it is the media, and in Indonesia it is the civil service. The Philippines and Thailand are ranked especially high in terms of media freedom (Rose and Shin 2001). Singapore and Malaysia are the most authoritarian democracies of the nine societies examined here. Singapore and Malaysia show the relatively concentrated and thus less differentiated location of popular confidence in various institutions. Singaporean institutions are all ranked high and Malaysian institutions are also all ranked high, but less so, perhaps because of a stronger opposition to the regime, which tends to abstain from answering such a question, hence, the lower figures of confidence in institutions.

The most striking observation of the eight democracies in Pacific Asia is that they exhibit a relatively high level of confidence in those institutions, enabling them to enjoy a minimum level of rule of law, that is, the military, the police, the civil service, and the media. Another no less striking observation is that this is common to the nine European democracies.

Besides these observations similar to the eight Asian democracies, one is struck by the European diversity (Rose and Shin 2001). Germans and Italians place the military in much lower esteem in terms of their confidence than other Europeans. This may come from the legacy of war and their defeat and humiliation and subsequent neutralization of the military as a political instrument. Many Germans and Italians may regard the North Atlantic Treaty Organization as a substitute for their own national armed forces (Niedemeyer and Sinnott 1998; Isernia and Everts 2001). Japan, similarly situated in the legacy of World War II, places the military at the top. Until the mid-to-late 1990s, the Japanese public did not view the military in positive terms, but since then a very striking change in rising public confidence toward the military has occurred (Katzenstein 1998). Events of the 1990s, starting from the Gulf War of 1991, the Cambodian peace building of 1991–1992, the North Korean crisis of 1993–1994, the Taiwan straits crisis of 1995–1996, the North Korean shooting of a missile over the Japanese archipelagoes in 1998, and the Japanese hot pursuit of a North Korean boat in the Sea of Japan in 2000, seem to convince many Japanese that the military can be trusted somehow despite the still dominant post-1945 political culture of peace in Japan in the steady rise of nationalism (Berger 2003, 2012; Katzenstein 1998). The United Kingdom, Portugal and Greece rank the military at the top whereas the seven other European countries place the police in first place for public confidence. The former group of three countries trusts the military perhaps because they are not as deeply integrated in the European Union, which is also reinforced by the lack of importance they place on land borders. Of course, one can recall the existence of contingencies for the United Kingdom to deal with Northern Ireland and for Greece to deal with Turkey and Turkish Cyprus as contributing factors to their high regard of the military. Business is highly trusted in France, Italy and Portugal in comparison to other more political institutions. It might be in part because political institutions of Napoleonic states use more authoritarian and arbitrary measures and that business is relatively freer (plus laissez fair) from these characteristics and therefore more trusted. In Asia, business is highly ranked in Taiwan and Thailand in terms of popular confidence. It might be interpreted that

when politics exhibits its frivolous and arbitrary nature, Taiwanese and Thais tend
to focus on business and money.

9.2 Confidence in Democratic and Non-democratic Institutions Compared

Most salient across all the societies examined (except China in which this question
was not asked) is the tendency to place higher trust in non-democratic institutions.
There are no exceptions to this observation. This may be called the paradox of
democracy. The more the public gets involved in selecting leaders democratically,
the less confidence is placed in such institutions. As these institutions become closer
and more familiar to the public, the more the public becomes aware of deficiencies
in such institutions. It is similar to a secretary of a leader suddenly seeing the weak-
ness of that leader as he or she takes care of speeches, scheduling, meals, and the
proximity to the leader with all his or her strengths and flaws visible. Democratization
is like de-sanctification if not debasement of institutions from this perspective. As
long as democratization means bringing institutions to the level of people, the para-
dox of democracy is bound to be robust, ubiquitous and significant. One can glimpse
the opposite phenomenon in some less than fully liberal democratic societies.
Singapore, Malaysia and, to a lesser extent, Indonesia exhibit the reduced influence
of the paradox of democracy, presumably largely because their democratic institu-
tions have not been fully brought to the grassroots level of people. This reinforces
the observation that the paradox of democracy is robust. Further reinforcing the
paradox of democracy argument is the observation that once mass media and big
business are included as non-democratic institutions (Table 9.3 as compared to
Table 9.4), the divergence in average confidence in democratic and non-democratic
institutions are reduced and in such societies as Singapore, Malaysia, Indonesia and
Spain the difference in confidence in democratic and non-democratic institutions
are blurred. Still, further reinforcing the paradox of democracy argument is the
effect of globalization on undermining confidence in domestic institutions, which is
empirically demonstrated later in this chapter. Anticipating the result, it is that those
more densely wired and webbed connections across national boundaries and those
having family and friends abroad tend to have less confidence in domestic institu-
tions, including democratic institutions. Thus the paradox of democracy seems
undeniable. The beauty of the argument is that it is not only intrinsically plausible
but also very interesting in light of the vestige of authoritarianism in some societies
we examined and of the demonstrated and tangible effect of globalization in under-
mining confidence in domestic institutions.

Table 9.3 Citizen's confidence in democratic and non-democratic institutions compared (When mass media and big business are excluded from non-democratic institutions.)

	Confidence in non-democratic institutions (a)	Confidence in democratic institutions (b)	a–b	p value
Japan	2.458	1.984	0.474	0.000
South Korea	2.221	1.608	0.614	0.000
Taiwan	2.333	2.097	0.237	0.000
Singapore	3.238	3.158	0.080	0.000
Malaysia	2.886	2.925	−0.039	0.992
Indonesia	2.588	2.605	−0.017	0.843
Thailand	2.684	2.159	0.525	0.000
Philippines	2.650	2.494	0.156	0.000
(Asia)	2.635	2.373	0.262	0.000
UK	2.642	2.125	0.515	0.000
Ireland	2.442	2.167	0.275	0.000
France	2.640	2.125	0.515	0.000
Germany	2.442	2.167	0.275	0.000
Sweden	2.461	2.120	0.341	0.000
Italy	2.300	1.813	0.487	0.000
Spain	2.456	2.372	0.084	0.000
Portugal	2.637	2.169	0.468	0.000
Greece	2.427	1.880	0.547	0.000
(Europe)	2.520	2.087	0.433	0.000
All	2.520	2.087	0.433	0.000

Table 9.4 Citizen's confidence in democratic and non-democratic institutions (When mass media and big business are included from non-democratic institutions.)

	Confidence in non-democratic institutions (a)	Confidence in democratic institutions (b)	a–b	p value
Japan	2.353	1.956	0.398	0.000
South Korea	2.168	1.600	0.568	0.000
Taiwan	2.323	2.090	0.233	0.000
Singapore	3.165	3.166	−0.001	0.515
Malaysia	2.817	2.900	−0.082	1.000
Indonesia	2.574	2.581	−0.007	0.641
Thailand	2.753	2.172	0.581	0.000
Philippines	2.681	2.494	0.188	0.000
(Asia)	2.608	2.361	0.248	0.000
UK	2.514	2.027	0.487	0.000
Ireland	2.615	2.160	0.455	0.000
France	2.668	2.129	0.538	0.000
Germany	2.331	2.174	0.158	0.000
Sweden	2.451	2.144	0.307	0.000
Italy	2.364	1.819	0.545	0.000
Spain	2.422	2.386	0.036	0.012
Portugal	2.647	2.179	0.468	0.000
Greece	2.302	1.875	0.427	0.000
(Europe)	2.478	2.094	0.384	0.000
All	2.539	2.218	0.321	0.000

9.3 Determinants of Citizen's Confidence in Political Institutions

Looking at how confidence in institutions is determined by a number of factors, a slightly different picture emerges of confidence in institutions. I examine the contribution of factors to confidence in institutions in terms of logit regression analyses. Regression model one examines parliament, regression model two is for political parties and regression model ten is for mass media. Ten regression models are summarized in Tables 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.13, and 9.14. Their summary table is Table 9.15. Each column has to do with a set of major determinants: (1) satisfaction with life and with politics; (2) ideology and policy preferences; (3) political action; (4) impacts of globalization; and (5) socio-economic attributes of respondents. First, I explain why I have examined determinants of confidence in institutions this way.

The first set of factors is satisfaction with life and with politics. If one is content with life and furthermore with politics, it is logically clear that one has overall confidence in institutions. Tables 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.13, and 9.14 tell quite explicitly that this first set of factors is primordial. Both factors are positive to confidence in institutions across all of the ten institutions examined here. This is a very robust finding. Similar results emerge when one examines this regression model, not for the entire sample minus China, but for each sample of the 17 countries.

The second set of factors has to do with ideology and political tenets. The traditional left-right distinction does not seem to matter very much while those political tenets that have to do with intense empathy or antipathy with certain political tenets and doctrines do make some difference as to whether one has confidence in institutions or not. Most institutions are determined strongly by political tenets and doctrines. Fairly direct influences of such factors are discernible.

At this point, I distinguish three groups of institutions: (1) courts, police, civil service and military; (2) parliament, political parties, (elected) government, political leaders; and (3) business, mass media. The first one represents those institutions whose tasks are to maintain law and order, to defend the country, to run the government and which are not elected by the public. The second one represents those institutions that are based largely on popular mandates. They are often called the key institutions of democracy. The third one represents those outside formally public institutions: big business and mass media. Of the three groups of institutions, the first group of institutions is more significantly determined by political tenets and doctrines (See the sum for each row for such institutions.)

Those prone to taking political action do not necessarily place much confidence in institutions. Those who participate in neighborhood community activities tend to have confidence in political parties, elected government, civil service and military. Those who participate in demonstrations tend to have confidence in police, military, and big business. Those who discuss public affairs with family members tend to not have confidence in political leaders and political parties.

Table 9.5 Determinants of citizen's confidence in the parliament

Q101a	Confidence in parliament	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.05**	0.01	4.41	0.00
Q403	Ideology	0.01	0.01	1.47	0.14
Q411	Political Satisfaction	0.31**	0.01	27.87	0.00
Q506	Gender	0.04	0.02	1.79	0.07
Q507	Age	0.02**	0.00	4.14	0.00
Q508	Marriage	0.01	0.03	0.25	0.80
Q508	Family Size	−0.03*	0.02	−2.15	0.03
Q515	Unemployment experience	0.00	0.03	−0.10	0.92
Q516	Life Standard	0.01	0.02	0.34	0.73
Q305	International effects through work and web	0.11*	0.05	2.51	0.01
Q305	International effects through family and friends	−0.03	0.03	−1.00	0.32
Q305	International effects through TV news & entertainment	−0.14**	0.03	−4.00	0.00
Q301d	International effects through Job security	−0.03*	0.01	−2.24	0.03
Q201	Political duty	0.19**	0.02	12.30	0.00
Q201	Apathy	−0.08**	0.02	−5.07	0.00
Q201	Animosity	−0.22**	0.01	−17.53	0.00
Q306	Attitude towards free competition	0.03	0.01	1.83	0.07
Q306	Attitude towards Government invention	0.05**	0.02	3.31	0.00
Q306	Attitude towards Government inefficiency	−0.06**	0.01	−5.39	0.00
Q405	Political Activity: Talk with family and friends	−0.01	0.00	−1.76	0.08
Q405	Political Activity: Demonstration	0.00	0.01	0.04	0.97
Q405	Political Activity: Local Community	0.02	0.01	1.61	0.11
	Japan	−0.17*	0.07	−2.36	0.02
	Korea	−1.06**	0.07	−14.85	0.00
	Taiwan	−0.59**	0.06	−9.26	0.00
	Singapore	0.74**	0.06	11.73	0.00
	Malaysia	0.58**	0.07	8.66	0.00
	Indonesia	0.50**	0.07	7.51	0.00
	Thai	−0.07	0.06	−1.09	0.27
	Philippines	0.48**	0.06	7.84	0.00
	Ireland	−0.06	0.06	−1.07	0.28
	France	0.08	0.06	1.42	0.16
	Germany	0.01	0.06	0.25	0.80
	Sweden	−0.03	0.06	−0.41	0.68
	Italy	−0.24**	0.06	−3.96	0.00
	Spain	0.26**	0.07	3.95	0.00
	Portugal	0.04	0.06	0.59	0.55
	Greece	−0.23**	0.06	−3.68	0.00
	Cut off1	−0.18	0.14		
	Cut off2	1.20	0.14		
	Cut off3	2.69	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.6 Determinants of confidence in the political party

Q101b	Confidence in Political Party	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.03**	0.01	2.62	0.01
Q403	Ideology	0.01	0.01	1.73	0.08
Q411	Political Satisfaction	0.33**	0.01	29.66	0.00
Q506	Gender	0.03	0.02	1.58	0.12
Q507	Age	0.02**	0.00	4.11	0.00
Q508	Marriage	−0.02	0.03	−0.64	0.52
Q508	Family Size	−0.03*	0.02	−2.09	0.04
Q515	Unemployment experience	0.07*	0.03	2.53	0.01
Q516	Life Standard	0.00	0.02	0.11	0.91
Q305	International effects through work and web	−0.03	0.05	−0.55	0.58
Q305	International effects through family and friends	−0.06	0.03	−1.82	0.07
Q305	International effects through TV news & entertainment	−0.12**	0.03	−3.61	0.00
Q301d	International effects through Job security	−0.04**	0.01	−2.88	0.00
Q201	Political duty	0.18**	0.02	11.59	0.00
Q201	Apathy	−0.08**	0.02	−5.03	0.00
Q201	Animosity	−0.21**	0.01	−16.58	0.00
Q306	Attitude towards free competition	0.04**	0.02	2.91	0.00
Q306	Attitude towards Government invention	0.05**	0.02	3.27	0.00
Q306	Attitude towards Government inefficiency	−0.02	0.01	−1.82	0.07
Q405	Political Activity: Talk with family and friends	−0.02**	0.00	−3.58	0.00
Q405	Political Activity: Demonstration	0.02	0.01	1.74	0.08
Q405	Political Activity: Local Community	0.04**	0.01	3.13	0.00
	Japan	0.19**	0.07	2.65	0.01
	Korea	−0.61**	0.07	−8.58	0.00
	Taiwan	0.07	0.06	1.06	0.29
	Singapore	1.12**	0.06	17.51	0.00
	Malaysia	0.71**	0.07	10.77	0.00
	Indonesia	0.58**	0.07	8.61	0.00
	Thai	−0.15*	0.06	−2.44	0.02
	Philippines	0.46**	0.06	7.44	0.00
	Ireland	0.18**	0.06	2.99	0.00
	France	−0.50**	0.06	−8.11	0.00
	Germany	−0.13*	0.06	−2.15	0.03
	Sweden	0.05	0.06	0.85	0.39
	Italy	−0.46**	0.06	−7.38	0.00
	Spain	0.20**	0.07	2.94	0.00
	Portugal	−0.06	0.06	−1.01	0.31

Table 9.6   (continued)

Q101b	Confidence in Political Party	Coef.	Std. Err.	z	P > |z|
	Greece	−0.34**	0.06	−5.45	0.00
	Cut off1	0.32	0.14		
	Cut off2	1.79	0.14		
	Cut off3	3.23	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.7   Determinants of Confidence in the (elected) government

Q101c	Confidence in the (elected) government	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.04 **	0.01	3.71	0.00
Q403	Ideology	−0.01	0.01	−1.65	0.10
Q411	Political Satisfaction	0.38**	0.01	33.89	0.00
Q506	Gender	0.03	0.02	1.20	0.23
Q507	Age	0.02**	0.00	4.43	0.00
Q508	Marriage	0.00	0.03	0.00	1.00
Q508	Family Size	−0.02	0.01	−1.57	0.12
Q515	Unemployment experience	0.03	0.03	1.05	0.29
Q516	Life Standard	−0.01	0.02	−0.76	0.45
Q305	International effects through work and web	0.07	0.04	1.62	0.11
Q305	International effects through family and friends	−0.04	0.03	−1.40	0.16
Q305	International effects through TV news & entertainment	−0.08*	0.03	−2.53	0.01
Q301d	International effects through Job security	−0.07**	0.01	−4.77	0.00
Q201	Political duty	0.19**	0.02	12.33	0.00
Q201	Apathy	−0.05**	0.01	−3.08	0.00
Q201	Animosity	−0.23**	0.01	−18.75	0.00
Q306	Attitude towards free competition	0.00	0.01	0.30	0.76
Q306	Attitude towards Government invention	0.10**	0.02	6.17	0.00
Q306	Attitude towards Government inefficiency	−0.08**	0.01	−7.34	0.00
Q405	Political Activity: Talk with family and friends	−0.01*	0.00	−2.30	0.02
Q405	Political Activity: Demonstration	−0.01	0.01	−0.86	0.39
Q405	Political Activity: Local Community	0.04**	0.01	2.96	0.00
	Japan	0.19**	0.07	2.60	0.01
	Korea	0.11	0.07	1.58	0.11
	Taiwan	0.62**	0.06	9.81	0.00

Table 9.7 (continued)

Q101c	Confidence in the (elected) government	Coef.	Std. Err.	z	P > |z|
	Singapore	1.20**	0.06	18.87	0.00
	Malaysia	1.07**	0.07	16.16	0.00
	Indonesia	0.83**	0.07	12.50	0.00
	Thai	−0.05	0.06	−0.76	0.45
	Philippines	0.88**	0.06	14.36	0.00
	Ireland	0.25**	0.06	4.20	0.00
	France	0.45**	0.06	7.54	0.00
	Germany	0.21**	0.06	3.47	0.00
	Sweden	0.13*	0.06	2.02	0.04
	Italy	0.11	0.06	1.80	0.07
	Spain	0.31**	0.07	4.68	0.00
	Portugal	0.28**	0.06	4.56	0.00
	Greece	0.11	0.06	1.81	0.07
	Cut off1	0.22	0.14		
	Cut off2	1.54	0.14		
	Cut off3	3.08	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.8 Determinants of confidence in the courts

Q101d	Confidence in the courts	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.09**	0.01	7.73	0.00
Q403	Ideology	0.02**	0.01	4.43	0.00
Q411	Political Satisfaction	0.21**	0.01	19.90	0.00
Q506	Gender	0.04	0.02	1.93	0.05
Q507	Age	−0.01	0.00	−1.91	0.06
Q508	Marriage	−0.01	0.03	−0.45	0.66
Q508	Family Size	0.00	0.01	−0.03	0.98
Q515	Unemployment experience	−0.03	0.03	−1.20	0.23
Q516	Life Standard	−0.03	0.02	−1.76	0.08
Q305	International effects through work and web	0.12 **	0.04	2.78	0.01
Q305	International effects through family and friends	−0.12**	0.03	−3.93	0.00
Q305	International effects through TV news & entertainment	−0.11**	0.03	−3.28	0.00
Q301d	International effects through Job security	−0.02	0.01	−1.56	0.12
Q201	Political duty	0.11**	0.01	7.54	0.00
Q201	Apathy	−0.04*	0.01	−2.53	0.01

(continued)

Table 9.8 (continued)

Q101d	Confidence in the courts	Coef.	Std. Err.	z	P > |z|
Q201	Animosity	−0.16**	0.01	−13.40	0.00
Q306	Attitude towards free competition	0.07**	0.01	5.10	0.00
Q306	Attitude towards Government invention	0.06**	0.02	3.75	0.00
Q306	Attitude towards Government inefficiency	−0.06**	0.01	−6.25	0.00
Q405	Political Activity: Talk with family and friends	0.01	0.00	1.22	0.22
Q405	Political Activity: Demonstration	−0.01	0.01	−0.59	0.55
Q405	Political Activity: Local Community	0.00	0.01	−0.07	0.94
	Japan	0.40**	0.07	5.78	0.00
	Korea	−0.36**	0.07	−5.47	0.00
	Taiwan	−0.33**	0.06	−5.31	0.00
	Singapore	0.79**	0.06	12.66	0.00
	Malaysia	0.16*	0.06	2.43	0.02
	Indonesia	−0.29**	0.06	−4.47	0.00
	Thai	0.03	0.06	0.46	0.65
	Philippines	0.25**	0.06	4.15	0.00
	Ireland	0.17**	0.06	2.90	0.00
	France	−0.14*	0.06	−2.34	0.02
	Germany	0.06	0.06	1.00	0.32
	Sweden	0.03	0.06	0.53	0.60
	Italy	−0.49**	0.06	−8.33	0.00
	Spain	−0.23**	0.06	−3.49	0.00
	Portugal	−0.34**	0.06	−5.69	0.00
	Greece	0.04	0.06	0.70	0.49
	Cut off1	−0.30	0.13		
	Cut off2	0.85	0.13		
	Cut off3	2.27	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.9 Determinants of confidence in political leaders

Q101e	Confidence in political leaders	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.06**	0.01	5.50	0.00
Q403	Ideology	0.02**	0.01	4.36	0.00
Q411	Political Satisfaction	0.35**	0.01	31.35	0.00
Q506	Gender	0.04	0.02	1.76	0.08
Q507	Age	0.01**	0.00	3.58	0.00
Q508	Marriage	−0.03	0.03	−1.20	0.23
Q508	Family Size	0.01	0.02	0.54	0.59
Q515	Unemployment experience	−0.01	0.03	−0.21	0.83

Table 9.9 (continued)

Q101e	Confidence in political leaders	Coef.	Std. Err.	z	P > |z|
Q516	Life Standard	0.00	0.02	0.13	0.90
Q305	International effects through work and web	−0.06	0.05	−1.29	0.20
Q305	International effects through family and friends	−0.05	0.03	−1.59	0.11
Q305	International effects through TV news & entertainment	−0.02	0.03	−0.73	0.46
Q301d	International effects through Job security	−0.05**	0.01	−3.60	0.00
Q201	Political duty	0.19**	0.02	12.55	0.00
Q201	Apathy	−0.04**	0.02	−2.81	0.01
Q201	Animosity	−0.24**	0.01	−19.10	0.00
Q306	Attitude towards free competition	0.03*	0.01	2.07	0.04
Q306	Attitude towards Government invention	0.08**	0.02	4.70	0.00
Q306	Attitude towards Government inefficiency	−0.06**	0.01	−6.17	0.00
Q405	Political Activity: Talk with family and friends	−0.01**	0.00	−3.06	0.00
Q405	Political Activity: Demonstration	0.01	0.01	0.49	0.62
Q405	Political Activity: Local Community	0.01	0.01	0.88	0.38
	Japan	0.09	0.07	1.20	0.23
	Korea	−0.41**	0.07	−5.87	0.00
	Taiwan	0.66**	0.06	10.50	0.00
	Singapore	1.19**	0.06	18.78	0.00
	Malaysia	0.86**	0.07	13.21	0.00
	Indonesia	0.58**	0.07	8.75	0.00
	Thai	0.23**	0.06	3.67	0.00
	Philippines	0.60**	0.06	9.93	0.00
	Ireland	0.26**	0.06	4.35	0.00
	France	0.17**	0.06	2.79	0.01
	Germany	0.33**	0.06	5.53	0.00
	Sweden	0.05	0.06	0.78	0.43
	Italy	−0.21**	0.06	−3.45	0.00
	Spain	0.19**	0.07	2.81	0.01
	Portugal	−0.05	0.06	−0.81	0.42
	Greece	−0.30**	0.06	−4.75	0.00
	Cut off1	0.53	0.14		
	Cut off2	1.90	0.14		
	Cut off3	3.38	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.10 Determinants of confidence in the police

Q101f	Confidence in the police	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.09**	0.01	7.94	0.00
Q403	Ideology	0.04**	0.01	6.94	0.00
Q411	Political Satisfaction	0.16**	0.01	14.70	0.00
Q506	Gender	0.08**	0.02	4.13	0.00
Q507	Age	0.02**	0.00	5.76	0.00
Q508	Marriage	0.08**	0.03	3.05	0.00
Q508	Family Size	−0.01	0.01	−0.98	0.33
Q515	Unemployment experience	−0.03	0.02	−1.18	0.24
Q516	Life Standard	−0.03	0.02	−1.63	0.10
Q305	International effects through work and web	−0.07	0.04	−1.66	0.10
Q305	International effects through family and friends	−0.15**	0.03	−4.83	0.00
Q305	International effects through TV news & entertainment	−0.06	0.03	−1.69	0.09
Q301d	International effects through Job security	−0.03*	0.01	−2.07	0.04
Q201	Political duty	0.14**	0.01	9.82	0.00
Q201	Apathy	−0.04*	0.01	−2.57	0.01
Q201	Animosity	−0.09**	0.01	−7.35	0.00
Q306	Attitude towards free competition	0.09**	0.01	6.13	0.00
Q306	Attitude towards Government invention	0.05**	0.02	3.00	0.00
Q306	Attitude towards Government inefficiency	−0.05**	0.01	−5.10	0.00
Q405	Political Activity: Talk with family and friends	0.00	0.00	1.02	0.31
Q405	Political Activity: Demonstration	−0.07**	0.01	−4.89	0.00
Q405	Political Activity: Local Community	0.02	0.01	1.55	0.12
	Japan	−0.50**	0.07	−7.35	0.00
	Korea	−0.77**	0.07	−11.81	0.00
	Taiwan	−0.74**	0.06	−12.02	0.00
	Singapore	0.50**	0.06	8.04	0.00
	Malaysia	−0.43**	0.06	−6.86	0.00
	Indonesia	−0.51**	0.06	−7.89	0.00
	Thai	−0.71**	0.06	−11.76	0.00
	Philippines	−0.50**	0.06	−8.50	0.00
	Ireland	0.16**	0.06	2.69	0.01
	France	−0.14*	0.06	−2.47	0.01
	Germany	−0.13*	0.06	−2.20	0.03
	Sweden	−0.24**	0.06	−3.95	0.00
	Italy	−0.09	0.06	−1.55	0.12
	Spain	−0.31**	0.06	−4.86	0.00
	Portugal	−0.23**	0.06	−3.93	0.00
	Greece	−0.50**	0.06	−8.37	0.00
	Cut off1	−0.24	0.13		
	Cut off2	0.81	0.13		
	Cut off3	2.38	0.13		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.11 Confidence in the civil service

Q101g	Confidence in the civil service	Coef.		Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.08**		0.01	7.07	0.00
Q403	Ideology	0.02**		0.01	3.93	0.00
Q411	Political Satisfaction	0.18**		0.01	16.90	0.00
Q506	Gender	0.06**		0.02	3.12	0.00
Q507	Age	0.01*		0.00	2.06	0.04
Q508	Marriage	0.02		0.03	0.81	0.42
Q508	Family Size	−0.01		0.01	−0.81	0.42
Q515	Unemployment experience	−0.06*		0.03	−2.30	0.02
Q516	Life Standard	−0.03		0.02	−1.57	0.12
Q305	International effects through work and web	−0.13**		0.04	−2.87	0.00
Q305	International effects through family and friends	−0.11**		0.03	−3.66	0.00
Q305	International effects through TV news & entertainment	−0.04		0.03	−1.26	0.21
Q301d	International effects through Job security	−0.05**		0.01	−3.33	0.00
Q201	Political duty	0.16**		0.02	10.35	0.00
Q201	Apathy	0.00		0.01	0.05	0.96
Q201	Animosity	−0.12**		0.01	−9.98	0.00
Q306	Attitude towards free competition	0.06**		0.01	3.86	0.00
Q306	Attitude towards Government invention	0.06**		0.02	3.97	0.00
Q306	Attitude towards Government inefficiency	−0.04**		0.01	−3.75	0.00
Q405	Political Activity: Talk with family and friends	0.00		0.00	0.15	0.88
Q405	Political Activity: Demonstration	−0.02		0.01	−1.82	0.07
Q405	Political Activity: Local Community	0.04**		0.01	2.93	0.00
	Japan	−0.07		0.07	−0.92	0.36
	Korea	−0.38**		0.07	−5.57	0.00
	Taiwan	0.14*		0.06	2.20	0.03
	Singapore	0.80**		0.06	12.47	0.00
	Malaysia	0.24**		0.07	3.58	0.00
	Indonesia	0.24**		0.07	3.58	0.00
	Thai	0.04		0.06	0.70	0.49
	Philippines	0.30**		0.06	4.84	0.00
	Ireland	0.40**		0.06	6.49	0.00
	France	0.47**		0.06	7.76	0.00
	Germany	−0.46**		0.06	−7.55	0.00
	Sweden	−0.05		0.07	−0.77	0.44
	Italy	−0.57**		0.06	−9.38	0.00
	Spain	−0.33**		0.07	−4.98	0.00

Table 9.11 (continued)

Q101g	Confidence in the civil service	Coef.		Std. Err.	z	P > |z|
	Portugal	0.39**		0.06	6.26	0.00
	Greece	−0.81**		0.06	−12.97	0.00
	Cut off1	−0.01		0.14		
	Cut off2	1.17		0.14		
	Cut off3	2.83		0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.12 Determinants of confidence in the military

Q101h	Confidence in the military	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.06**	0.01	5.02	0.00
Q403	Ideology	0.05**	0.01	8.49	0.00
Q411	Political Satisfaction	0.15**	0.01	14.01	0.00
Q506	Gender	−0.03	0.02	−1.46	0.15
Q507	Age	0.01**	0.00	3.61	0.00
Q508	Marriage	0.05*	0.03	1.99	0.05
Q508	Family Size	0.01	0.01	0.41	0.68
Q515	Unemployment experience	−0.04	0.03	−1.56	0.12
Q516	Life Standard	−0.04**	0.02	−2.71	0.01
Q305	International effects through work and web	−0.19**	0.04	−4.13	0.00
Q305	International effects through family and friends	−0.08**	0.03	−2.62	0.01
Q305	International effects through TV news & entertainment	0.02	0.03	0.47	0.64
Q301d	International effects through Job security	−0.04*	0.01	−2.39	0.02
Q201	Political duty	0.17**	0.02	11.11	0.00
Q201	Apathy	0.00	0.01	0.16	0.87
Q201	Animosity	−0.06**	0.01	−4.47	0.00
Q306	Attitude towards free competition	0.11**	0.01	7.48	0.00
Q306	Attitude towards Government invention	0.06**	0.02	4.05	0.00
Q306	Attitude towards Government inefficiency	−0.03**	0.01	−3.07	0.00
Q405	Political Activity: Talk with family and friends	0.01*	0.00	2.36	0.02
Q405	Political Activity: Demonstration	−0.07**	0.01	−5.32	0.00
Q405	Political Activity: Local Community	0.04**	0.01	3.41	0.00
	Japan	−0.88**	0.07	−12.44	0.00
	Korea	−0.84**	0.07	−12.53	0.00
	Taiwan	−1.04**	0.06	−16.23	0.00

Table 9.12 (continued)

Q101h	Confidence in the military	Coef.	Std. Err.	z	P > |z|
	Singapore	−0.29**	0.06	−4.56	0.00
	Malaysia	−0.66**	0.07	−10.10	0.00
	Indonesia	−0.90**	0.07	−13.51	0.00
	Thai	−0.28**	0.06	−4.41	0.00
	Philippines	−0.81**	0.06	−13.21	0.00
	Ireland	−0.54**	0.06	−8.74	0.00
	France	−0.51**	0.06	−8.39	0.00
	Germany	−1.05**	0.06	−17.33	0.00
	Sweden	−1.27**	0.06	−20.02	0.00
	Italy	−0.91**	0.06	−14.93	0.00
	Spain	−1.09**	0.07	−16.34	0.00
	Portugal	−0.45**	0.06	−7.23	0.00
	Greece	−0.22**	0.06	−3.64	0.00
	Cut off1	−0.35	0.14		
	Cut off2	0.61	0.14		
	Cut off3	2.15	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.13 Determinants of confidence in the business

Q101i	Confidence in the business	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.08**	0.01	6.66	0.00
Q403	Ideology	0.06**	0.01	10.02	0.00
Q411	Political Satisfaction	0.14**	0.01	13.02	0.00
Q506	Gender	0.01	0.02	0.57	0.57
Q507	Age	−0.01*	0.00	−2.06	0.04
Q508	Marriage	0.01	0.03	0.20	0.84
Q508	Family Size	−0.02	0.02	−1.33	0.18
Q515	Unemployment experience	−0.05*	0.03	−2.05	0.04
Q516	Life Standard	0.04*	0.02	2.43	0.02
Q305	International effects through work and web	0.15**	0.05	3.38	0.00
Q305	International effects through family and friends	−0.06	0.03	−1.86	0.06
Q305	International effects through TV news & entertainment	0.02	0.03	0.62	0.54
Q301d	International effects through Job security	−0.07**	0.01	−4.80	0.00
Q201	Political duty	0.12**	0.02	8.01	0.00
Q201	Apathy	−0.01	0.02	−0.48	0.63
Q201	Animosity	−0.07**	0.01	−5.87	0.00

(continued)

Table 9.13 (continued)

Q101i	Confidence in the business	Coef.	Std. Err.	z	P > |z|
Q306	Attitude towards free competition	0.20**	0.01	13.22	0.00
Q306	Attitude towards Government invention	0.03*	0.02	2.08	0.04
Q306	Attitude towards Government inefficiency	−0.03**	0.01	−3.23	0.00
Q405	Political Activity: Talk with family and friends	0.01	0.00	1.36	0.18
Q405	Political Activity: Demonstration	−0.05**	0.01	−3.97	0.00
Q405	Political Activity: Local Community	0.01	0.01	0.92	0.36
	Japan	−0.22**	0.07	−3.10	0.00
	Korea	−0.85**	0.07	−12.46	0.00
	Taiwan	−0.13*	0.06	−2.05	0.04
	Singapore	0.39**	0.06	6.12	0.00
	Malaysia	0.05	0.07	0.77	0.44
	Indonesia	−0.18*	0.07	−2.58	0.01
	Thai	0.60**	0.06	9.28	0.00
	Philippines	−0.03	0.06	−0.48	0.63
	Ireland	0.08	0.06	1.22	0.22
	France	0.67**	0.06	10.91	0.00
	Germany	−0.44**	0.06	−7.22	0.00
	Sweden	0.14*	0.06	2.27	0.02
	Italy	0.28**	0.06	4.58	0.00
	Spain	−0.30**	0.07	−4.41	0.00
	Portugal	0.20**	0.06	3.15	0.00
	Greece	−0.23**	0.06	−3.66	0.00
	Cut off1	0.54	0.14		
	Cut off2	1.68	0.14		
	Cut off3	3.29	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.14 Determinants of confidence in the mass media

Q101j	Confidence in the Mass Media	Coef.	Std. Err.	z	P > |z|
Q502	Life Satisfaction	0.03**	0.01	2.61	0.01
Q403	Ideology	0.02**	0.01	4.09	0.00
Q411	Political Satisfaction	0.15**	0.01	14.10	0.00
Q506	Gender	0.05*	0.02	2.22	0.03
Q507	Age	−0.01*	0.00	−2.43	0.02
Q508	Marriage	0.00	0.03	−0.10	0.92
Q508	Family Size	−0.01	0.01	−0.91	0.36
Q515	Unemployment experience	−0.04	0.03	−1.53	0.13

Table 9.14 (continued)

Q101j	Confidence in the Mass Media	Coef.	Std. Err.	z	P > |z|
Q516	Life Standard	−0.01	0.02	−0.83	0.40
Q305	International effects through work and web	−0.11*	0.04	−2.43	0.02
Q305	International effects through family and friends	−0.06*	0.03	−2.05	0.04
Q305	International effects through TV news & entertainment	0.07*	0.03	2.07	0.04
Q301d	International effects through Job security	−0.04*	0.01	−2.58	0.01
Q201	Political duty	0.10**	0.01	6.56	0.00
Q201	Apathy	0.03	0.01	1.96	0.05
Q201	Animosity	−0.08**	0.01	−6.61	0.00
Q306	Attitude towards free competition	0.12**	0.01	8.11	0.00
Q306	Attitude towards Government invention	0.11**	0.02	7.30	0.00
Q306	Attitude towards Government inefficiency	−0.02*	0.01	−2.22	0.03
Q405	Political Activity: Talk with family and friends	0.01	0.00	1.34	0.18
Q405	Political Activity: Demonstration	−0.03*	0.01	−2.41	0.02
Q405	Political Activity: Local Community	−0.02	0.01	−1.23	0.22
	Japan	0.18*	0.07	2.54	0.01
	Korea	0.32**	0.07	4.84	0.00
	Taiwan	0.16*	0.06	2.47	0.01
	Singapore	0.89**	0.06	14.28	0.00
	Malaysia	0.52**	0.06	7.96	0.00
	Indonesia	0.72**	0.07	10.92	0.00
	Thai	0.79**	0.06	12.67	0.00
	Philippines	1.18**	0.06	19.23	0.00
	Ireland	0.51**	0.06	8.41	0.00
	France	0.82**	0.06	13.83	0.00
	Germany	−0.12	0.06	−1.94	0.05
	Sweden	0.02	0.06	0.29	0.77
	Italy	0.41**	0.06	6.88	0.00
	Spain	0.43**	0.07	6.63	0.00
	Portugal	0.70**	0.06	11.55	0.00
	Greece	−0.19**	0.06	−3.01	0.00
	Cut off1	0.74	0.14		
	Cut off2	1.86	0.14		
	Cut off3	3.40	0.14		

*positive direction, significant with 5 % level
**positive direction, significant with 1 % level
*negative direction, significant with 5 % level
**negative direction, significant with 1 % level

Table 9.15 Daily experience of globalization as one of the determinants pf citizens' confidence in political and other institutions*

	Job&Web	Family&Friends	TV News& Entert'nt	Workplace
Parliament	+		――	–
Political Party			――	――
Government (Elected)			–	――
The Courts	++	――	――	–
Political Leaders				――
The Police		――		–
Public Service	――	――		――
The Military	――	――		–
Business	++			――
Mass Media	――	――		–

*Other determinants that are examined through logit regression analysis are (1) Satisfaction with life and society, (2) Ideology and policy, (3) political action, (4) Globalization's influence, (5) Socio-economic attributes of respondents. For example, those respondents who have experienced globalization through daily experiences through job and web (internet) improve confidence in parliament, significantly improve confidence in the courts, degenerate confidence in the civil service, degenerate confidence in the military, improve confidence in business.
+significant determination in positive direction
++very significant determination in positive direction
–significant determination in negative direction
――very significant determination in negative direction

Those who feel impacted by globalization tend to have negative confidence levels in institutions whether they are about job and website about it, about family and friends, about TV news and entertainment, or about employment. Although this is not as strong as often asserted (Stiglitz 2003), it seems fair to say that globalization as understood by those concrete questions seems to have negative impacts of undermining domestic political institutions. Clearly, once the door is open, one feels relatively free from the supposedly heavy weight domestic institutions may have had until recently. All the talk about the steady decay of domestic institutions, including the nation-state and nationally-based democracy, may be lent some credence by these findings. Needless to say, it is necessary to have more thorough systematic examinations over time and across space in order to be more confident about the argument that globalization melts domestic institutions.

Turning to socio-economic contributing factors, one is struck at the consistently strong impact of age on these attributes. The higher the age, the stronger the confidence people have in institutions. Gender, marriage and family size do not appear to impact confidence in institutions.

To sum up, of major determining factors of confidence in institutions, satisfaction with life and with politics appears to be the most important. Next are policy beliefs about politics (politics as civic duty, indifference to politics, antipathy to politics), and about market and government (free competition, government inter-

vention, or inefficiency). These two findings from a commonsense perspective are understood easily. More original are the robust coefficient estimates of globalization exposures and experiences that work consistently in the direction of reducing confidence in domestic institutions.

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Chapter 10
Sociotropic and Pocketbook Politics in Polling in Japan

Takashi Inoguchi

Abstract Those perspectives developed to see the angles and motives of voting are used to see how much confidence survey respondents have in institutions: They are (1) prospective perspective (i.e., assessment of prospective macro-economic conditions); (2) retrospective and sociotropic perspective (i.e., assessment of macro-economic conditions and social weather in the recent past), (3) retrospective and pocketbook perspective (i.e., assessment of macro-economic conditions and one's own pocketbook in the recent past); and (4) affiliated group (i.e., voter's identification with a certain socio-economic group). Using the Asia-Europe Survey data carried out in 2000 in both 8 countries in Asia and in 9 countries in Europe (in total 15,607 respondents) on such institutions as parliament, parties, government, courts, leaders, police, civil service, military, big business, and mass media, most importantly I have empirically validated the primacy of the retrospective and sociotropic perspective followed by the prospective perspective among 15,607 respondents. Secondly, I have discovered the non-democratically and meritocratically recruited institutions such as courts, police, civil service and military enjoy the high confidence: i.e., having positive responses larger than negative responses from all the four perspectives.

Democracy is reproduced minimally by free and fair elections. Under democracy universal voting is a common institutional feature used to ensure that democracy functions with the electorate's preferences bearing on electoral outcomes. But even under democracy, not all institutions are exposed to the occasional "testing" by the electorate. How can one express their preference? Voting is not necessarily the most common way of expressing the electorate's preferences. An alternative outlet is polling. Although polling does not necessarily constrain political deputies in government and parliament in any formal and institutional way, it does influence their thought and action more often than they themselves admit. The purpose of this chapter is to examine popular confidence in institutions by treating polling on

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confidence in institutions as a substitute of voting on institutions. By so doing, one can broaden the scope of examination from presidential, congressional and other kinds of voting to confidence in institutions of many kinds. This provides insight into popular mindsets and the public's heart with regard to the many kinds of institutions under democracy, which are not regularly scrutinized by the ordeal of elections, and thus to see to what extent democracies are indeed disaffected in a more comparatively systematic way than hithertofore been examined (Pharr and Putnam 1999; Norris 1999). Those voting perspectives that are used for the analysis of confidence in institutions are: (1) prospective, (2) retrospective and sociotropic, (3) retrospective and pocketbook, and (4) affiliated group. The prospective explanation tries to explain voting on the basis of the electorate's assessment about the prospect of macroeconomic conditions. Their guess often depends on the perceived level of platform credibility and of political competence by the incumbents (Budge and Hofferbert 1990). The retrospective and sociotropic explanation tries to explain voting on the basis of the electorate's assessment of recent national macroeconomic conditions (Kinder and Kiewiet 1981). The retrospective and pocketbook explanation tries to explain voting on the basis of the electorate's assessment of their own household's economic conditions (Broom and Price 1975; Tufte 1975). The affiliated group explanation tries to explain electorate voting on the basis of their identification with a certain socio-economic group.

The exact questions asked in the Asia-Europe Survey, which was carried out in October 2000 in 18 societies in Asia and in Europe, are as follows:

1. Prospective – How worried are you about your country?
2. Retrospective and Sociotropic – Thinking about your country, how do you feel things in general have developed in the last 10 years?
3. Retrospective and Pocketbook – How satisfied are you with your life as a whole?
4. Affiliated group – How would you describe your household's living?

Those institutions surveyed are:

1. parliament
2. parties
3. government
4. courts
5. leaders
6. police
7. civil service
8. military
9. big business
10. mass media

The exact question asked is:

How much confidence do you have in the following institution? (a great deal, quite a lot, not much, none at all)

To make analysis simple, I focus on certain response categories (details will be described later). Then I cross the question of confidence in institutions and each of the four socio-economic questions one by one. By so doing, I try to show which perspective is more powerful in "explaining" the level of confidence in institutions. I argue that the retrospective and sociotropic perspective is most powerful in "explaining" the level of confidence in institutions, thus giving more credence to the argument advanced by Donald Kinder and D. Roderick Kiewiet (1981).

In what follows, I first describe the profile of confidence in institutions, society by society, to show that the democratically elected institutions tend to be least trusted, both in Asia and Europe, and that the law-and-order related institutions, that is, the military, the police, the court and the civil service, are the most trusted, both in Asia and Europe. Then I move to examine to what extent each of the four perspectives purported to "explain" the level of confidence in ten institutions is powerful. In conclusion, I assess what implications these findings may have vis-à-vis the growing literature of globalization and governance such as "democracy undermined by globalization" (Guehennot 1993), "distrusted politicians" (Nye and Zelikow 1997), "disaffected democracy" (Pharr and Putnam 1999), "eroding national governance sandwiched by the growing assertions made and authority claimed by local and transnational non-governmental citizens" (Held 1995), and" democratic phoenix" (Norris 1999).

10.1 Sociotropic Politics in Polling

Given the extraordinary commonality of patterns of confidence in institutions observed across the 17 societies polled, let us further analyze data as a whole, that is, 17 societies (except China) or 15,607 respondents. I correlate confidence with institutions, on the one hand, and a few questions inspired by some well-known socio-economic theories of voting, on the other hand. Of socio-economic theories of voting, prospective versus retrospective voting, pocketbook versus sociotropic voting, and affiliated group voting are those that are incorporated into the questionnaire. Although these theories have been developed in the study linking congressional voting and presidential voting in the United States context with some economic conditions and climates prevailing at the time (Fiorina 1981; Kinder and Kiewiet 1981), I recast them as if confidence in institutions were in fact like voting. Respondents place (vote) confidence or do not place (vote) confidence in institutions. As a matter of fact, democracy hinges in a sense on how much confidence one can place on institutional arrangements. Even if institutional arrangements are democratically shaped when they are arranged, the ability for democracy to function well depends on how willing people are to utilize such arrangements productively. If institutions are abandoned in the hearts and minds of people, democracy becomes fossilized at least partially. In other words, the relationship of popular confidence with institutional arrangements is similar to the function of blood and the body. When one is interested in knowing how democratic politics function, it is very

important to examine how much trust people express in institutions of various kinds (Nye and Zelikow 1997; Norris 1999, 2002; Pharr and Putnam 1999; Inoguchi 2000, 2002).

The four theories are translated into the following four questions:

1. Prospective – How worried are you about your country? (Not worried at all)
2. Retrospective as well as Sociotropic – Thinking about your country, how do you feel things in general have developed in the last 10 years? (Improved a lot)
3. Retrospective and Pocketbook – How satisfied are you with your life as a whole? (Very satisfied)
4. Affiliated Group – How would you describe your household's living? (High)

The above four questions are not the same with those questions that are asked in testing those socio-economic voting theories. Yet the spirit is arguably the same.

To simplify analysis, I focused on the response categories that are positive or most positive in each question. For confidence in institutions, two positive categories, "A great deal" and "Quite a lot" are combined while two negative categories, "Not much" and "None at all" are combined. For the prospective question, I focused on the response category, "Not worried at all." For the retrospective or sociotropic question, I focused on the response category, "Improved a lot." For the pocketbook question, I focused on the response category, "Very satisfied." For the affiliated group question, I focused on the response category, "High." Next I examine whether the two positive response categories received more "votes" than the negative or indifferent categories combined. Then I cross reference the question of confidence in institutions with each of the four socio-economic questions one by one. The results are shown in:

Each box has either + or − signs. For instance, the entry in the box at the first row and the first column is plus. This means that of those very optimistic about the country (Not worried at all), those confident in the parliament are more numerous than those not confident in the parliament.

There are two ways to look at Table 10.1: Confidence in Institutions Correlated. First, the sum of plus signs by row indicates the extent to which institutions are trusted. For instance, parliament has two pluses. In other words, parliament is not very trusted by 15,607 respondents. Second, the sum of pluses by column indicates the extent to which theories are "valid."

Trusted institutions are ranked as follows:

four pluses: courts, police, civil service, military, big business
three pluses: mass media
two pluses: parliament, (elected) government
one plus: political parties, the leaders

If big business and mass media are deleted from the list as they are primarily non-political institutions, the overall picture is very much similar to the pattern that has been identified in the previous section of this chapter. That is,

1. the more partisan, the less trusted;

Table 10.1 Confidence in institutions correlated

Confidence in Institutions	Prospective optimism of the country (not worried at all)	Retrospective and sociotropic positive assessment of the country's development (improved a lot)	Pocketbook life satisfaction (very satisfied)	Affiliated group high living Standards (high)	
Parliament	+	+	−	−	2
Parties	−	+	−	−	1
Government	+	+	−	−	2
Courts	+	+	+	+	4
Leaders	−	+	−	−	1
Police	+	+	+	+	4
Civil service	+	+	+	+	4
Military	+	+	+	+	4
Big business	−	+	+	+	3
Mass media	+	+	+	−	3
	7	10	6	5	

+ denotes positive responses larger than negative responses
− denotes negative responses larger than positive responses

2. the more professionally run, the more trusted;
3. the more law-and-order-oriented, the more trusted.

Again, the irony of democratic politics is that key components such as political leaders, political parties, parliament, and (elected) government are not among those most highly trusted. Rather those institutions that are designed to maintain law and order are highly trusted and those institutions that focus on preserving the peace and justice of economic and social life are most highly trusted and appreciated. As noted in the previous section of this chapter, only in countries that are more authoritarian albeit within the framework of democracy, such as Singapore and Malaysia, can one find the highly trusted institutions of democratic politics given that respondents' answers are taken literally.

Second, to the four socio-economic theories, our respondents give the following ratings:

1. retrospective and sociotropic (positive assessment of the larger environment in the recent past)   10
2. prospective (optimistic outlook for the future)   7
3. pocketbook (positive feeling about one's life)   6
4. affiliated group (positive identification with high income group)   5

Judging from the above ranking, it is very clear that the larger environment does matter and that the individual's sense of happiness and affluence does matter only secondarily in terms of "voting" on certain institutions. As this analysis is very elementary, some caution is absolutely necessary. But the point here is that the larger environmental assessment appears to be of primordial importance. This result

gives further credence to the sociotropic argument that Kinder and Kiewiet (1981) advance.

10.2   Conclusion

I have advanced the argument that confidence in institutions can be analogously treated like voting on parties or candidates. Polling is done more frequently than voting and thus produces more data on confidence in institutions, including parties and politicians. The non-American survey data that is drawn from the Asia-Europe Survey (ASES) done in October 2000 in 18 countries in Asia and Europe by the project, globalization and the political cultures of democracy, is led by myself under the Ministry of Education research grant scheme (project number 10002001) for 1999–2003. I have examined which of the four explanations of determinants of voting is given further credence by the ASES data with respect to confidence in institutions, as obtained by polling. The key result is that the retrospective and sociotropic explanation have the strongest power, followed by the prospective and also sociotropic explanation. Although the pocketbook and affiliated group explanations do hold significant explanatory power, the evidence suggests strongly that the larger environment carries primordial importance. Although the individual sense of happiness and affluence does matter, it does only secondarily in terms of "voting" on such institutions The result does make more sense once one realizes that institutions constitute the larger environment. Needless to say, the ASES data is no more than a fraction of non-American survey data. Empirically grounded analysis on non-American as well as American data needs to be done much more vigorously in order to be more conclusive on this very important subject.

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Chapter 11
Influence of Income on Health Status and Healthcare Utilization in Working Adults: An Illustration of Health Among the Working Poor in Japan

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Abstract Little is known about health of the growing subpopulation of the working poor in Japan. We aimed to evaluate health status and healthcare utilization in relation to income among Japanese working adults. We conducted a one-month prospective cohort study using a health diary in working adults from a nationally representative random sample in Japan. Based on the government criterion, the working poor group was defined as earning an equivalent annual income of less than 1.48 million Japanese- yen. For health status, we measured symptomatic episodes and health-related quality of life (HRQOL). For healthcare utilization, we measured frequencies of visits to a physician or pharmacy, and use of complementary and alternative medicine (CAM). We constructed multiple linear regression models for these measures adjusted for age, gender, and co-morbidity, using annual equivalent income as a 4-level categorical variable.

Of 3568 participants originally enrolled in the study panel, 3477 completed the survey (response rate 97%). For the purpose of the study, of the 3568 participants, we analyzed 1406 working adults who were 20–65 years old (mean age, 40.8 year:

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58.4% men). There were 106 (7.5%) working poor: 56 men (6.8% of working men) and 50 women (8.5% of working women). Compared to the highest income group, the working poor reported the greater number of symptomatic episodes and a slightly lower score of physical component of HRQOL (PCS8). The numbers of symptomatic episodes among the working poor and the highest income group during the 1-month study period were (SD, 8.77) and 7.01 (SD, 7.34), respectively (p < 0.01). The PCS8 among the working poor was 48.71 (SD, 7.05) and it was 50.34 (SD, 6.55) among the highest income group (p < 0.01). There was no difference of healthcare utilization by the different levels of income.

We concluded that the working poor (7.5% of all working adults) more frequently report symptomatic episodes and show slightly poorer physical health status, compared to the highest income group. Healthcare utilization is not affected by income.

11.1   Introduction

Degree of income equality has been considered as relatively stable in Japan, in comparison to other industrialized countries (Marmot and Smith 1989; Tachibanaki 2006). Based on data from 2001, the Gini coefficient (an indicator measuring economic disparity in a population) of Japan (0.31) was lower than that of the UK (0.35) or the US (0.37) (Shirahase 2001). Despite this, there is increasing public attention to and awareness of working adults living in poverty, or the working poor, including reports in the popular Japanese media (Kadokura 2006; NHK Special 2006).

Because the working poor are less likely to have advanced job skills and to achieve a successful career in their occupational lives, the growing number of the working poor is a potentially serious socioeconomic issue in Japan. However, since Japanese labour statistics lump the working poor together with 'employed' adults, the issue of this growing number is usually not included as a public and political strategic priority. According to the Cabinet Office of the Japanese government, there are still no official data on the number of working poor in Japan (Japan Times 2007).

Since many of the working poor are temporary, part-time, or day labourers, they are less likely to benefit from social security programs such as a private pension plan, premium health insurance, or protected sick leave. Thus, these people may be at risk of poor health and also of inadequate access to healthcare services. A growing number of studies worldwide indicate that low income is associated with higher mortality, poor health status, lower use of health screening, or high-risk behaviours (Berkman and Kawachi 2000; Marmot and Wilkinson 2006). Fukuda et al. also have reported several studies demonstrating the associations between income and health using Japanese population data (Fukuda et al. 2005a, b, c, d, e). However, there are

few studies evaluating health status and healthcare utilization as related to different levels of income among Japanese working adults.

In this study, we aimed to determine the prevalence of working poor in a nationally representative random sample cohort and to explore the relationship of income to health status and healthcare utilization among working adults. Understanding the association between socioeconomic status and health status or healthcare utilization is important for planning rational and integrated economic and public health policies.

11.2   Methods

11.2.1   Study Design

We designed a prospective cohort study of the Japanese general population based on a health diary strategy for the analysis of healthcare use in communities (Fukui et al. 2005; Tokuda et al. 2007). We applied this approach to the investigation of health status and healthcare utilization among working adults and their relationships to income. We obtained approval from the Research Ethics Committee of Kyoto University Graduate School of Medicine and informed consent from each participant prior to the study.

There are advantages to using a health diary strategy for evaluating individual health status and health-related behaviors (White et al. 1961; Green et al. 2001; Gibson 1995; Bruijnzeels et al. 1998). A health diary provides an accurate and continuous record of daily health events and behaviors of the study participants. In addition, a health diary documents a record of daily events and behaviors without direct observation by the investigators (Gibson 1995; Bruijnzeels et al. 1998; Anhoj and Moldrup 2004).

11.2.2   Study Participants

From a nationally representative panel comprising 210,000 households belonging to the Japan Statistics & Research Co. Ltd., we selected a population-weighted random sample of households by controlling for the size of cities, towns, and villages. Since the purpose of this study was to examine health status and healthcare utilization among Japanese adult workers, we performed subgroup analyses using actively working adults aged 20–65 years old. We chose the upper age limit because the official definition of elderly in Japan is 65 years old and these individuals are typically not actively employed. Participants were those with full-time or part-time work. Homemakers, students, retirees, jobless, and those not able to work were excluded from this study.

11.2.3   Data Collection

We collected data for demographic, income, and health-related characteristics of all participants. In the health diary, we asked all participants for a daily record of health- related episodes for one month, from 1 to 31 October 2003. The health-related episodes included any symptoms that caused discomfort, healthcare access to physicians, or use of a pharmacy or complementary and alternative medicine (CAM). The health diary specifically sought daily responses to the following:

1. Did you have any pain or other symptoms that caused you discomfort today?
2. If so, in what part of the body did you have pain or discomfort?
3. If the answer to the first question was yes, did you consult a physician? (This includes visits to a primary care physician, a community hospital, or a university hospital.)
4. Did you go to a pharmacy to purchase an over-the-counter medication?
5. Did you use dietary supplements (dietary CAM) such as nutritional drinks, vitamins, calcium, herbs, kampo, or other dietary substances?
6. Did you seek physical manipulation (physical CAM), such as acupressure, acupuncture, massage, Judo-Seifuku, moxibustion, chiropractic, or other physical manipulations?

We collected data on current occupation and annual household income in 2003 (the study year) of the participants during the survey. Occupations were classified into eight categories: administration, office work, sales and service, transport and construction, agriculture and fishery, employer and trustee, professionals, and other. Consistent with the government criterion, we defined the working poor as those with an annual equivalent income of less than 1.48 million Japanese yen; the Japanese welfare system provides financial support based on annual income with a threshold at this level (119 Japanese yen = 1 US dollar in 2003) (Shirahase 2001). To obtain annual equivalent income, we divided annual household income by the square root of the number of family members to account for the marginal decrease in living cost for additional persons living in a household (Mackenbach 2005).

We used the SF-8 instrument to assess the health status of the participants. The SF-8 provides a health-related quality of life measurement consisting of eight scales and two summary components: a physical component summary (PCS8) and a mental component summary (MCS8) (Turner-Bowker et al. 2003). The SF-8 is scored and scaled such that 50 represent the mean SF-36 score for the Japanese population to each response category of the SF-8. A score higher than 50 indicates better health status than the mean of the Japanese general population; a score lower than 50 suggests poorer health status (Fukuhara and Suzukama 2004).

11.2.4 Statistical Analysis

We calculated descriptive statistics for demographics and occupational characteristics of the working adults. We compared demographic distribution between study participants and data for Japanese workers of the Ministry of Health, Labour, and Welfare in October, 2003 (http://stat.jil.go.jp). We also calculated the relative proportions of the different job categories, together with weekly hours worked. The cut-off points were 30, 40, 50, and 60 for age, population of 100,000 and 1000,000 for city residence or rural area (area of residence, mutually exclusive categories), and 15, 35, 43, 49, and 60 for weekly hours worked.

We constructed multiple linear regression analyses for the number of symptomatic episodes (counted as daily episodes), PCS8, MCS8, and healthcare utilizations in relation to income, adjusted for age, gender, and co-morbidity. For each participant, co- morbidity was measured by counting the number of chronic diseases with no weights (de Groot et al. 2003). Further, we determined the ten most frequent symptoms reported by the working adults and compared them between the working poor and other workers. Two-tailed p-values of less than 0.05 were considered as statistically significant. The SPSS software version 15.0 J (Tokyo, Japan) was used for all statistical analyses.

11.3 Results

Of 3568 participants originally enrolled in the study, 3477 completed the survey (response rate 97%). Of these participants, there were 1406 working adults who were 20–65 years old and completed the health diary. These working adults were analyzed for the purpose of the study. Figure 11.1 shows demographic distributions by age and gender to compare the study participants and labour statistics data for all Japanese workers (the Ministry of Health, Labour, and Welfare; October, 2003). Based on these labour statistics data, in a total of 61 million workers in Japan, 25 million (41.4%) were women and 36 million (58.7%) were men. Among the 1406 study participants, 585 (41.6%) were women and 821 (58.4%) were men. Age-stratified population distributions of the study participants were also similar to those of labour statistics data. There was no significant difference in overall age-stratified distributions between the labour statistics data and the study participants for both genders ($p = 0.579$ for men and $p = 565$ for women).

The mean age was 40.8 years old, and 821 (58.4%) were men. Of a total of 1406 working adults, 1059 (75.3%) were full-time workers and 347 (24.7%) were part-time workers. Among working men, 789 (96.1%) were full-time workers and 32 (3.9%) were part-time workers. Among working women, 270 (46.2%) were full-time workers and 315 (53.8%) were part-time workers. Table 11.1 shows the demographic characteristics of the working adults: 20.0% of these 1406 participants were
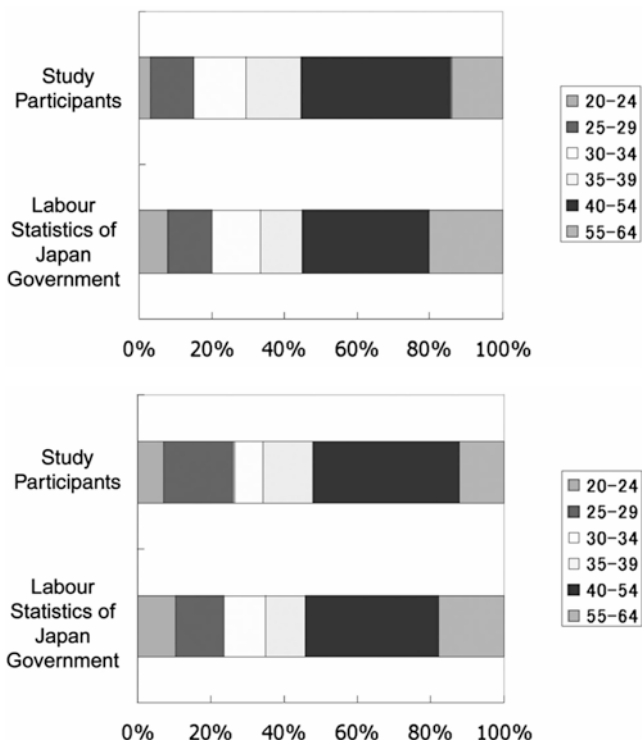
Fig. 11.1 Demographic distribution by age and gender: women (*top*) and men (*bottom*) *Notes:*
Data of the Japan Government are based on published data for Japanese workers of Ministry of
Health, Labour, and Welfare (October, 2003). The coloured divisions indicate proportions (%) of
population with different age class

20–29 years old and 6.1% were 60–65 years old; 18.3% lived in large cities and
21.2% in rural areas; 42.9% reported receiving a college degree or higher.

Table 11.1 also presents weekly work hours, occupational classifications, and
annual equivalent income of the working adults. For work hours, 184 (13.1%) adults
reported working 60 h or more per week, of which 173 (22.0%) were men and 11
(2.0%) were women. Transport and construction was the most popular job among
working men, while office work was the most popular job among working women.

Regarding annual income (Table 11.1), 106 (7.5%) working adults earned an
annual income less than 1.48 million yen (the working poor), of which 56 (6.8%)
were working men and 50 (8.5%) were working women. Among working poor men,
51 (91.1%) were full-time workers and 5 (8.9%) were part-time workers and among
working poor women, 14 (28.0%) were full-time workers and 36 (72.0%) were part-
time workers. By age stratification, the working poor comprised 10.8% of working
adults aged 20–29, 9.2% of those aged 30–39, 4.3% of those aged 40–49, 6.5% of
those aged 50–59, and 9.2% of those aged 60–65.

Table 11.1 Characteristics of the participants

Characteristic	All participants (N = 1406)	
Mean age, y, SD	40.82	10.94
Age category, n, %		
20–29	283	20.0%
30–39	369	26.1%
40–49	426	30.1%
50–59	250	17.7%
60–65	86	6.1%
Area of residence, n, %		
Population >1000,000	257	18.3%
Population of 100,000 to 1000,000	327	23.3%
Population <100,000	524	37.3%
Rural area	298	21.2%
Educational attainment, n, %		
High school graduate or lower	449	57.1%
College degree or higher	337	42.9%
N/A	620	44.1%
Weekly work hours		
1 to <15 h	153	10.9%
15 to <35	205	14.6%
35 to <43	279	19.8%
43 to <49	261	18.6%
49 to <60	264	18.8%
> = 60	184	13.1%
N/A	60	4.3%
Annual equivalent income		
<1.48 million yen/year	106	7.5%
1.48 to 4.00	824	58.6%
4.01 to 6.00	306	21.8%
> = 6.01	170	12.1%
Occupational classifications		
Administration	182	12.9%
Office work	205	14.6%
Sales & service	138	9.8%
Transport & construction	239	17.0%
Agriculture & fishery	90	6.4%
Employer & trustee	41	2.9%
Profession	16	1.1%
Other employee	138	9.8%
N/A	357	25.4%

N/A data not available

Table 11.2 Health status in the participants by income (N = 1406)

Income	Symptomatic episodes	PCS8	MCS8
<1.48 million yen/year			
Mean	9.79	48.71	47.97
SD	8.77	7.05	6.47
1.48 to 4.00 million yen/year			
Mean	8.21	49.97	47.15
SD	7.89	6.03	6.95
4.01 to 6.00 million yen/year			
Mean	7.62	49.86	48.04
SD	7.97	5.92	6.54
>6.01 million yen/year			
Mean	7.01	50.34	48.74
SD	7.34	6.55	6.30

SD standard deviation, *PCS8* physical component of SF8, *MCS8* mental component of SF8

Table 11.3 Relation of health status to income in the participants (N = 1406)[a]

Income	No. of symptoms	PCS8	MCS8
<1.48 million yen/year			
Beta coefficient	2.837	−2.063	−0.398
p Value	<0.01	<0.01	NS
1.48 to 4.00 million yen/year			
Beta coefficient	1.267	−0.772	−1.235
p Value	NS	NS	NS
4.01 to 6.00 million yen/year			
Beta coefficient	0.753	−0.714	−0.602
p Value	NS	NS	NS

PCS8 physical component of SF8, *MCS8* mental component of SF8
[a]Multiple linear regression for each measure of health status, adjusted for age, gender, and co-morbidity: Regression models include income as a categorical explanatory variable with the group >6.01 million yen/year for reference group

Table 11.2 presents health status stratified by annual income and Table 11.3 shows the results of multiple linear regression analyzing the relationships of health status to income adjusted for age, gender, and co-morbidity. The working poor reported a significantly greater number of symptomatic episodes (9.79 ± 8.77) during the one-month study period, compared to the highest income group (7.01 ± 7.34). This difference in symptomatic episodes was significant (p < 0.01) between the working poor and the highest income group. The working poor also reported the slightly lower score in the physical component (PCS8) of HRQOL (48.71 ± 7.05) during the one-month study period, compared to the highest income group (50.34 ± 6.55). This difference of PCS8 was also significant (p < 0.01), but the magnitude of the difference was modest. However, there was no significant difference in the mental component of HRQOL (MCS8) with different levels of annual income.

Table 11.4 Healthcare utilization in the participants by income (N = 1406)

Income	Visit to physicians	Visit to pharmacy	Use of CAM
<1.48 million yen/year			
Mean	0.56	2.53	1.58
SD	1.15	3.89	4.78
1.48 to 4.00 million yen/year			
Mean	0.40	2.67	1.32
SD	1.18	4.33	4.67
4.01 to 6.00 million yen/year			
Mean	0.42	2.31	1.94
SD	1.29	3.74	5.96
>6.01 million yen/year			
Mean	0.41	2.70	2.84
SD	1.24	4.44	7.63

SD standard deviation, *CAM* complementary and alternative medicine

Table 11.5 Relation of healthcare utilization to income in the participants (N = 1406)[a]

Income	Visit to physicians	Visit to pharmacy	Use of CAM
<1.48 million yen/year			
Beta coefficient	0.22	0.047	−1.145
p Value	0.162	0.927	0.100
1.48 to 4.00 million yen/year			
Beta coefficient	0.068	0.140	−1.368
p Value	0.531	0.692	0.087
4.01 to 6.00 million yen/year			
Beta coefficient	0.036	−0.222	0.844
p Value	0.769	0.575	0.300

CAM complementary and alternative medicine
[a]Multiple linear regression for each measure of health status, adjusted for age, gender, and co-morbidity: Regression models include income as a categorical explanatory variable with the group >6.01 million yen/year for reference group

Table 11.4 presents healthcare utilizations stratified by annual income and Table 11.5 shows the results of multiple linear regressions, analyzing the relationships of healthcare utilizations to income, adjusted for age, gender, and co-morbidity. Visits to physicians or a pharmacy and use of CAM were not different for different levels of annual income. However, beta coefficients for visits to physicians for different levels of annual income indicated a linear trend, although it was not statistically significant.

The ten most frequent symptoms reported by the working adults are described in Table 11.6. There was no overall difference of ranking distributions of common symptoms between the working poor and the non-poor workers. The common symptoms among the working poor included: back pain (the mean number of symptomatic episodes in one month period was 1.7), neck pain (1.1), fatigue (0.9), headache (0.9), and cough (0.8). Similarly, the common symptoms among the non-poor

Table 11.6 The mean number of episodes of frequent symptoms between working poor and other workers

Symptom	All participants (N = 1406)	Working poor (n = 106)[a]	Other workers (n = 1300)	P-value*
Back pain	1.2	1.7	1.2	0.166
Neck pain	0.9	1.1	0.9	0.570
Headache	0.7	0.9	0.7	0.442
Cough	0.7	0.8	0.7	0.696
Sore throat	0.6	0.8	0.6	0.422
Fatigue	0.6	0.9	0.6	0.125
Knee pain	0.4	0.6	0.4	0.263
Shoulder pain	0.3	0.7	0.2	0.021
Epigastralgia	0.2	0.2	0.2	0.662
Diffuse abdominal pain	0.2	0.3	0.2	0.124

The number of episodes indicates the mean number of symptomatic episodes
*P-values are based on t-test comparing mean between the working poor and other workers
[a]Working poor is defined as those with income <1.48 million yen/year

workers were: back pain (1.2), neck pain (0.9), headache (0.7), cough (0.7), and sore throat (0.6). By comparing each symptom between the working poor and other workers, only shoulder pain was reported significantly more among the working poor than among other workers.

11.4 Discussion

Increased public attention is now paid to socioeconomic disparities in Japan, particularly to the growing subpopulation of the working poor. This report documents, for the first time, two characteristics of this group: the prevalence of working poor in a random sample of Japanese working adults (7.5% overall), and the possible health disparities associated with the different levels of income. The working poor report a greater number of symptomatic episodes and a poorer physical component of HRQOL compared to the highest income group, although the magnitudes of these differences seem relatively modest. However, there is no difference in the mental component of HRQOL by income. Healthcare utilization is not affected by income in Japanese working adults. Our study results based on the year 2003 data also confirmed those of Fukuda et al. (2005a) based on the 2001 data. Taken together, there is now strong evidence showing that individual socioeconomic status influences health status in Japan.

This study is the first to determine the prevalence of working poor among Japanese working adults. Segregated by gender, we identified 6.8% of working men and 8.5% of working women as the working poor. Recent data (2006) of the Statistics Bureau of the Ministry of Internal Affairs and Communications show that,

in total, there are 38.6 million working men and 26.8 million working women (Communications of Japan Government 2007). Thus, we may estimate that there are approximately be 2.6 million working poor men and 2.3 million working poor women (a total of 4.9 million) in Japan (out of a total population of 127.7 million in 2005).

The results of the current study indicate that the working poor show a greater number of symptomatic episodes and a poorer score of physical component of HRQOL. Several recent surveys of Japanese adults similarly suggest that low income is associated with poorer HRQOL (Wang et al. 2005; Yamazaki et al. 2005; Honjo et al. 2006). This result is also in line with a recent European study involving seven countries, in which a lower household equivalent income is associated with poorer self-assessed health among men and women throughout these countries (Mackenbach et al. 2005). In addition, the results of the current study indicate that poor physical health is noted only among the working poor group compared to the middle—high income groups.

This may also support the notion of a greater marginal adverse effect to health per unit decrease in income at the lower income ranges (Mackenbach et al. 2005).

Several mechanisms may explain this association between low income and poor physical component of HRQOL. First, low-income people may be more likely to engage in high-risk behaviors, including smoking, alcohol dependence, pathological gambling, drunk or reckless driving, and commercial sexual contacts (Fukuda et al. 2005b, d). Second, low-income people may be less likely to participate in regular health check-ups and unlikely to receive health-related educational opportunities (Fukuda et al. 2005a). Third, a low-wage job may be associated with poor job control with subsequent poor self-rated health status (Pikhart et al. 2004; Tsutsumi et al. 2006). However, in the current study, there is no difference in mental component of HRQOL with different levels of income. Further research may be needed to investigate the background of differences between physical and mental components of HRQOL as quantifiers of health status among working adults.

In the current study, we prospectively assessed frequencies of visits to physician or pharmacy and use of CAM in the Japanese working adults. Healthcare utilization is not affected by income in Japanese working adults, including working adults. This equity in physician and pharmacy access may be the result of the following characteristics of Japan: universal insurance coverage, ready access to physicians, standardized rates of hospital payment, and availability of numerous clinics and hospitals throughout Japan. In addition, the current Japanese welfare system provides financial support to those with an annual equivalent income of less than 1.48 million Japanese yen on average, which we used as cut-off level for working poor in the current study (Shirahase 2001).

However, according to a recent public comment by the Minister of Economic Policy of the Japanese government, many young Japanese people who fail to become full-time workers upon college graduation often continue being unable to secure stable employment (Japan Times 2007). Indeed, the highest proportion of the working poor was identified among the working adults aged 20–29 (the youngest age class) in our study. These people also have no opportunity to enhance their

skills and thus fall into a vicious circle (ibid.). Since the Central Cabinet Office of the Japanese government indicated that there were still no official data on the number of the working poor in Japan (ibid.), the estimate of our study may be useful to adequately fund a safety net and to develop better solutions to the complex set of causes that produce poverty in this country. Potential solutions may include more access to improved job training, vocational education, and apprenticeship programs.

In tandem with the rise in the number of working poor, many young poor workers now stay at Internet cafes overnight because they cannot afford rent on their low salaries, while such people stayed at flophouses or capsule hotels in the past. The Japan Complex Cafe Association estimates that there are about 2800 Internet cafes nationwide and that some of the facilities provide individual cabins with computers, reclining chairs and cheap meals for 1000 yen to 2000 yen per night (Kyodo News 2007). As so-called 'net cafe refugees' or 'cyber homeless' are becoming more visible in these 24-h facilities, the government recently announced preparations to conduct its first survey on net cafe refugees to find ways to address this high-profile social problem (ibid.). Staying overnight in such a facility for a long-term period may adversely influence health status of its heavy users, who are considered as comprised of many young working poor, through poor quality of sleep and poor nutrition in small and uncomfortable cabins with easy access to unhealthy junk foods.

There were several limitations to this study. First, we were unable to determine a causal relationship between income and HRQOL because of the short length of the follow-up study period. Second, this study lacks data related to health risk behaviors including smoking, alcohol, gambling, and others. Third, the health diaries were self- reports and subjective, and information on the severity of symptoms was not requested. Fourth, there may be geographic differences in the cost of living throughout Japan. However, since there was no available poverty threshold adjusting for these differences, the single threshold was used in the current study. Fourth, the baseline panel was a nationally representative random sample of households in Japan, but we conducted a secondary analysis only on the working adults for the purpose of the study and excluded the jobless and those unable to work from the analysis. These selection criteria might have caused a selection bias.

In summary, this study determined the prevalence of working poor and explored the association between income and HRQOL among Japanese working adults. The current study indicates 7.5% of working adults are the working poor. The working poor were more likely to report symptomatic episodes in the one-month study period and showed a slightly lower physical HRQOL in comparison to the highest income group. We found no difference in healthcare utilization as a function of income in Japanese working adults. Since employment and economic policies affecting income disparity may potentially influence health status of the Japanese working poor, there is a need to integrate strategies to rectify social disparities to enhance the country's public health.

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Chapter 12
The Relationship Between Trust in Mass Media and the Healthcare System and Individual Health: Evidence from the AsiaBarometer Survey

Yasuharu Tokuda, Seiji Fujii, Masamine Jimba, and Takashi Inoguchi

Abstract **Background:** Vertical and horizontal trust, as dimensions of social capital, may be important determinants of health. As mass media campaigns have been used extensively to promote healthy lifestyles and convey health-related information, high levels of individual trust in the media may facilitate the success of such campaigns and, hence, have a positive influence on health. However, few studies have investigated the relationship between trust levels in mass media, an aspect of vertical trust, and health.

Methods: Based on cross-sectional data of the general population from the AsiaBarometer Survey (2003–2006), we analyzed the relationship between self-rated health and trust in mass media, using a multilevel logistic model, adjusted for age, gender, marital status, income, education, occupation, horizontal trust, and trust in the healthcare system.

Results: In a total of 39,082 participants (mean age 38; 49% male), 26,808 (69%) were classified as in good health. By the levels of trust in mass media, there were 6399 (16%) who reported that they trust a lot, 16,327 (42%) reporting trust to

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a degree, 9838 (25%) who do not really trust, 3307 (9%) who do not trust at all, and 191 (0.5%) who have not thought about it. In the multilevel model, trust in mass media was associated with good health (do not trust at all as the base group): the odds ratios (OR) of 1.16 (95% confidence interval (CI) = 1.05–1.27) for do not really trust; OR of 1.35 (95% CI = 1.23–1.49) for trust to a degree, and 1.57 (95% CI = 1.36–1.81) for trust a lot. Horizontal trust and trust in the healthcare system were also associated with health.

Conclusion: Vertical trust in mass media is associated with better health in Asian people. Since mass media is likely an important arena for public health, media trust should be enhanced to make people healthier.

12.1   Background

Social capital has developed as a concept indicating the quantity and quality of social interactions in the community and has emerged recently as an important determinant of health [1]. A society with high levels of social capital has high social participation among its citizens, high interpersonal trust, and high levels of institutional or organizational trust [2, 3]. Studies suggest that societies and individuals with higher social capital have positive effects on various aspects of physical and psychological health among individuals in those societies [4, 5]. Social capital is considered to promote health through mechanisms including effective reciprocal support, mutual respect, better access to local services, social control of deviant behavior and violence, and enhanced transmission of health information and healthy behavior [6].

Although social capital has been assessed as social participation or social trust [3], recent studies have suggested that a society with high social participation but with low social trust is associated with high-risk adverse behaviors to health [7–10]. Trust has emerged recently as the central means of achieving cooperation in inter-organizational and inter-individual relationships and promoting the accumulation of social capital [3, 11].

Social trust reflects the expectation that an individual or institution will act competently, fairly, openly, and with concern [12], and can be divided into horizontal (interpersonal) trust and vertical (institutional) trust [3]. Horizontal trust flows across and among ordinary people. Vertical trust flows upward from people to public institutions in a society [13]. Development of the capacity to trust others is an essential element for successful social adjustment [14], and is considered an important predictor of health and psychological well-being [15, 16].

Persons with high vertical trust consider public institutions or organizations as trustful social resources and the levels of this vertical trust may vary between societies with the level of social connectedness [17]. For instance, the healthcare system

is one of the important institutions in which people may feel different levels of trust. A higher vertical trust in the healthcare system has been shown to be associated with better self-rated health [17]. Patients with high trust in the healthcare system are likely to gain access to healthcare services, provide important medical information to healthcare providers, and may be better at following advice and completing prescriptions.

However, little is known about the nature or role of vertical trust in terms of health determinants between other institutions and individuals in society. In addition to the healthcare system, mass media is also considered one of the most important public institutions, and may have a considerable effect on public health through the levels of trust the people have in this institution [13], and vertical trust in mass media may be an important determinant of health.

Mass media may function well with respect to improving health, along with relevant aspects of trust. A potential pathway from high trust in mass media to better health is increased acceptance of health-related messages and the resultant dissemination of good behavior related to health throughout communities. For instance, a recent study has shown that improvements in exercise and diet mediated by community-level projects are associated with better mental health [18]. The authors of the study on the New Deal for Communities in the UK suggest that better mental health and health-related behavior occur through increasing community cohesion and social capital more widely in the neighborhood, beyond people involved directly in lifestyle interventions [18].

In addition, a recent study has shown that public health agencies, using their communication and marketing resources effectively to support people in making healthful decisions and to foster health-promoting environments, have considerable opportunity to advance public health [19]. Thus, those with high trust in both the healthcare system and mass media may be more likely to receive these positive, and possibly synergistic, effects on health.

Furthermore, the links between vertical and horizontal trust are well founded and are positively correlated in an amplifying cycle [20]. Indeed, a recent study has supported the trust propagation cycle, in which there are two types of vertical trust: vertical trust in representative institutions (input vertical trust) and trust arising from experience of the services provided (directly or indirectly) by such institutions (output vertical trust) [20]. Satisfaction with community services promotes vertical trust, as well as horizontal trust, and a trust cycle propagates trust within a community [20]. Thus, those with output vertical trust in mass media may be more likely to have higher trust in other institutions and horizontal trust, which can in turn lead to better health.

Despite the importance of examining the relationships between vertical trust in mass media, few studies have addressed these issues. Therefore, in this study, we aim at evaluating the association between distrust in mass media and poor health among Asians, using data from the Asia- Barometer Survey, comprising transnational and multidimensional surveys conducted throughout Asia.

12.2   Methods

12.2.1   Study Participants

We used data from the AsiaBarometer Survey (2003–2006), which included information on individuals from 29 Asian countries on a vast range of subjects [21]. The countries included in our analysis were Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia, China, Hong Kong, India, Indonesia, Japan, Kazakhstan, Kyrgyzstan, Laos, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, Singapore, South Korea, Sri Lanka, Taiwan, Tajikistan, Thailand, the Philippines, Turkmenistan, Uzbekistan, and Vietnam. For the purpose of the study, Hong Kong and Taiwan were considered independent countries, in view of their socioeconomic characteristics. Prior ethics committee approval was obtained from the Chuo University. We received written informed consent from the survey participants.

12.2.2   Data Collection

We used face-to-face interviews to administer structured questionnaires. The detailed content of the questionnaires has been published previously [21]. Data collection included demographics, marital status, socioeconomic factors (income, education, and occupation), self-rated health, interpersonal trust, and trust in the healthcare system and mass media, as well as information on political, environmental, and daily-life issues that were related to the AsiaBarometer Survey.

The individual-level independent variables included gender, age (range between 20 and 69 years), marital status, religious belief, income, education, employment, and individual-level social trust. Age was categorized into five groups of 20–29, 30–39, 40–49, 50–59, and 60–69 years old. Categories of marital status included single, married, divorced/separated, or widowed.

Annual household income was used as an income variable in this study. Categories of the income groups included low, middle, and high, based on the income distribution of each country (see Appendix A, in Additional file 1). For educational achievement, we also used three categories (low, middle, and high) based on the distribution of educational achievement in each country (see Appendix B, in additional file 1). For occupational status, six categorical classes were used: self-employed, employed, unemployed, retired, homemaker, and student. The self-employed group included: self-employed in agriculture, forestry or fisheries; business owner in mining or manufacturing industry of an organization with up to 30 employees; vendor or street trader; business owner or manager of an organization; and self-employed professional. The employed group included senior manager, employed professional or specialist, clerical worker, sales, manual worker, driver, and "other" worker.

In this study, self-rated health was defined as the individual's personal satisfaction with their overall health. In the survey, we asked "Please tell me how satisfied or dissatisfied you are with your health? Would you say you are very satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied, or very dissatisfied with your health?". These categories were collapsed to form a dichotomous outcome of self-rated health: poor health (1) for very dissatisfied, somewhat dissatisfied, or neither satisfied nor dissatisfied; and good health (0) for very satisfied, or somewhat satisfied.

Horizontal trust, a dimension of cognitive social capital, was measured by a composite index constructed from a factor (principal component) score of three questionnaire items related to general trust, interpersonal trust, and mutual help. The general trust question was, "Would you say that most people can be trusted or that you can't be too careful in dealing with people?". The question for interpersonal trust in merit-based utility was, "Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?". The question for mutual help was, "If you saw somebody on the street looking lost, would you stop to help?". For the last question, the responses were: "I would always stop to help", "I would help if nobody else did", and "It is highly likely I wouldn't stop to help". These questions have been widely used in previous studies to measure cognitive social trust [2, 5, 22, 23]. Factor analysis of these items provided a one-factor solution with an eigenvalue of 1.4. All items were loaded above 0.4 and no other factors exceeded unity. The individual scores were calculated using the regression equation with the factor loadings, and a higher score indicated lower trust. The scores were then standardized (mean 0; standard deviation 1). Before being included into the multivariable multilevel model, the scores were further collapsed to form a dichotomized variable: low social trust (0) for the values less than 0 and high social trust (1) for the values of 0 or more.

Trust in institutions (vertical trust) is an item that reflects the participant's trust in the healthcare system and in mass media (specified as newspapers and television). The item "Please indicate to what extent you trust the following institutions to operate in the best interests of society" offered the alternatives (a) the healthcare system and (b) mass media, with the six alternative responses: (1) "Trust a lot"; (2) "Trust to a degree"; (3) "Don't really trust"; (4) "Don't trust at all"; (5) "Haven't thought about it"; and (6) "I don't know".

12.2.3   Statistical Analysis

Descriptive statistics were calculated and presented as the mean with standard deviation or the count number in proportion to the overall sample population where appropriate. Bivariate correlation analyses were conducted among the trust variables using Pearson's correlation coefficients.

We used the multilevel (mixed-effects) logistic regression model to analyze the relationship of individual characteristics to self-rated health by considering

individuals nested in each country, as data structures in the Asia Barometer Survey were hierarchical multilevels (level 1, individual; level 2, country). The data provide information on individuals, while the individuals are also grouped in their countries. Analyzing hierarchical data at the individual level by conventional regression models does not meet the assumption of independence of observations. When ignoring the nesting of individuals in countries, the estimated standard errors would be smaller, thus inflating the risk of Type I errors [24]. The mixed- effects model can be used to analyze hierarchical data [24], and is used widely in social and epidemiological research. The random-effects covariance matrix was set to an unstructured form and we utilized three trust measures (horizontal trust, trust in the healthcare, and trust in mass media) as the random-effects parameters in the model. Variances and their standard errors were estimated for these random-effects parameters.

The model was constructed to evaluate the relations of trust in the healthcare system and mass media to self-rated health, adjusted for age, gender, marital status, income, education, occupation, and horizontal trust. We constructed a total of six models, including only baseline sociodemographic variables (base), such as age, gender, marital status, income, education, and occupation (Model 1), base plus horizontal trust (Model 2), base plus trust in the healthcare system (Model 3), base plus trust in mass media (Model 4), base minus income and education plus horizontal trust, trust in the healthcare system and trust in mass media (Model 5), and base plus horizontal trust, trust in the healthcare system and trust in mass media (Model 6; full model). Model 5 was constructed by eliminating income and education from the full model for examining the possible endogeneity to health of income and education.

No interaction terms were included in the model. To check the robustness of the model, we also conducted the logistic regression analysis including country fixed effects as well as the ordered probit model analysis using original dependent variable (self-rated health). The odds ratios (ORs) along with 95% confidence interval (CIs) were estimated in each variable for poor health. An OR value greater than one indicates greater effects that were positively related to poor health. All statistical analyses were performed using STATA 10.0 (College Station, TX, USA). Two-tailed P-values less than 0.05 were considered statistically significant.

12.3   Results

Table 12.1 presents the descriptive statistics of the study participants. The sample population was split almost evenly between women and men. The mean age was 37.8 years (standard deviation (SD) = 11.9). The majority of participants were married (72.4%). The three levels of both income and education were distributed almost evenly. In terms of job status, the majority were employed: employed (48.2%) and self-employed (16.5%).

In terms of self-rated health, 68.6% considered themselves to be in good health, while 30.9% were in poor health. More than half (55.4%) of the participants were classified as having low horizontal trust (Table 12.2). For the questionnaire involving

Table 12.1 Sociodemographics of all participants (N = 39,082)

Characteristic	No.	%
Demographics		
Gender		
*Women	19,800	50.7
Men	19,282	49.3
Age, year		
*20–29	11,413	29.2
30–39	11,128	28.5
40–49	9147	23.4
50–59	5784	14.8
60–69	1610	4.1
Marital status		
*Married/partnered	28,278	72.4
Others	10,772	27.6
NA	32	0.1
Socioeconomic status		
Income		
*High	12,420	31.8
Mid	12,219	31.3
Low	12,426	31.8
NA	2017	5.2
Education		
*High	11,861	30.3
Mid	14,549	37.2
Low	12,518	32.0
NA	154	0.4
Employment		
*Self-employed	6467	16.5
Employed	18,843	48.2
Unemployed	13,681	35.0
NA	91	0.2

NA data not available

*Reference categories used for subsequent regression analyses

trust in the healthcare system and mass media, the majority (64.1%) of participants were classified as having trust ("trust a lot" and "trust to a degree") in the healthcare system, and similarly, 58.1% of the participants were classified as having trust in mass media.

For horizontal trust, 37.9% of the participants with good health and 34.8% with poor health had high trust ($P < 0.001$). For trust in the healthcare system, 22.3% of the participants with good health and 12.8% with poor health reported as "having trust a lot" ($P < 0.001$). In addition, for trust in mass media, 17.9% of the participants with good health and 12.9% with poor health reported as "having trust a lot" ($P < 0.001$).

Table 12.2 Levels of horizontal trust and trust in the healthcare system and in mass media by health status

Characteristic	All participants (N = 39,082)		Good health (n = 26,808)		Poor health (n = 12,080)	
	No.	%	No.	%	No.	%
Horizontal trust						
High	14,450	37.0	10,170	37.9	4206	34.8
*Low	21,642	55.4	14,637	54.6	6918	57.3
NA	2990	7.7	2001	7.5	956	7.9
Trust in the healthcare system						
Trust a lot	7568	19.4	5971	22.3	1551	12.8
Trust to a degree	17,475	44.7	12,364	46.1	5062	41.9
Don't really trust	7934	20.3	4732	17.7	3161	26.2
*Don't trust at all	2344	6.0	1234	4.6	1086	9.0
Haven't thought about it	71	0.2	48	0.2	23	0.2
NA	3690	9.4	2459	9.2	1197	9.9
Trust in mass media						
Trust a lot	6399	16.4	4801	17.9	1554	12.9
Trust to a degree	16,327	41.8	11,716	43.7	4571	37.8
Don't really trust	9838	25.2	6401	23.9	3406	28.2
*Don't trust at all	3307	8.5	1948	7.3	1346	11.1
Haven't thought about it	191	0.5	119	0.4	72	0.6
NA	3020	2.6	1823	6.8	1131	9.4

NA data not available
*Reference categories used for subsequent regression analyses

The correlation coefficient between trust in the healthcare system and trust in mass media was 0.3434 ($P < 0.001$). The correlation coefficients between horizontal trust and trust in the healthcare system and between horizontal trust and trust in mass media were 0.0159 and 0.0160, respectively ($P < 0.001$ for both).

Table 12.3 presents the mean scores and standard deviations of health and trust for each of the 29 countries. By construction, the horizontal trust score of all participants was centered at 0 with a standard deviation of 1. In terms of self-rated health, people in Brunei also reported the highest level, followed by those in Bhutan and Indonesia. People in Turkmenistan reported the lowest level of health, followed by those in Cambodia and Mongolia.

People in the Maldives reported the highest level of trust in mass media, followed by those in Brunei and the Phil-ippines, while people in Hong Kong reported the lowest level of trust in mass media, followed by those in Taiwan and Uzbekistan. In addition, for the horizontal trust score, people in the Maldives reported the greatest level of trust, followed by those in China and Pakistan. People in Cambodia reported the lowest level of trust, followed by those in the Philippines and Kazakhstan. Lastly, people in Brunei reported the highest level of trust in the healthcare system,

Table 12.3 Health, horizontal trust, and trust in the healthcare system and in mass media in 29 Asian countries

Country	No.	Health *		Trust					
				Horizontal **		Healthcare system ***		Mass media ***	
		mean	SD	mean	SD	mean	SD	mean	SD
Afghanistan	874	4.11	0.98	0.25	1.00	1.96	0.81	1.83	0.92
Bangladesh	1008	3.87	1.04	-0.18	0.82	2.05	0.79	2.14	0.86
Bhutan	801	4.38	0.81	0.01	0.97	2.38	0.67	2.09	0.71
Brunei	804	4.62	0.57	0.21	0.94	2.71	0.49	2.20	0.68
Cambodia	812	3.29	1.05	-0.64	0.65	1.86	0.80	1.91	0.75
China	3800	3.71	0.95	0.54	1.02	1.54	0.75	1.48	0.79
Hong Kong	1000	3.57	0.71	0.06	1.06	1.65	0.73	0.95	0.72
India	2060	4.25	0.94	-0.08	0.97	1.84	0.82	2.12	0.84
Indonesia	825	4.35	0.84	0.07	0.90	2.27	0.67	2.06	0.68
Japan	2685	3.66	0.98	-0.01	1.01	1.56	0.67	1.16	0.68
Kazakhstan	800	3.47	1.16	-0.41	0.80	1.72	0.81	1.66	0.80
Kyrgyzstan	800	3.57	1.27	-0.32	0.73	1.66	0.90	1.72	0.83
South Korea	2642	3.55	0.91	0.46	1.02	1.41	0.69	1.33	0.74
Laos	800	3.92	0.98	-0.33	0.86	2.16	0.65	1.82	0.72
Malaysia	1600	4.22	0.75	-0.28	0.92	2.42	0.60	1.78	0.72
Maldives	821	4.34	0.87	0.55	0.97	2.69	0.56	2.67	0.75
Mongolia	800	3.42	1.09	-0.18	0.88	1.84	0.78	1.73	0.76
Myanmar	1600	3.78	1.12	-0.17	0.84	NA		1.94	0.70
Nepal	800	3.81	0.78	-0.24	0.79	1.74	0.70	2.11	0.64
Pakistan	1086	3.51	1.02	0.49	1.01	1.51	0.86	1.63	0.87
the Philippines	800	4.21	0.84	-0.50	0.80	2.17	0.68	2.16	0.70
Singapore	1838	4.06	0.75	0.10	1.02	2.21	0.57	1.74	0.69
Sri Lanka	1613	4.13	0.86	-0.32	0.93	1.92	0.72	1.59	0.84
Taiwan	1006	3.62	0.84	0.09	1.13	1.67	0.72	1.05	0.82
Tajikistan	800	3.85	1.04	-0.07	0.97	1.23	0.91	1.71	0.89
Thailand	1600	3.82	1.07	-0.33	0.89	2.17	0.70	1.80	0.70
Turkmenistan	800	3.07	1.56	0.02	1.31	1.55	1.18	2.02	1.01
Uzbekistan	1600	3.43	1.15	-0.25	0.94	1.32	0.89	1.11	0.92
Vietnam	2607	3.56	0.95	0.11	0.94	2.05	0.75	2.16	0.74
Total	39,082	3.81	1.02	0.00	1.00	1.86	0.83	1.72	0.86

*Based on 5-point Likert scale from very dissatisfied with health (1) to very satisfied with health (5)

**Based on 1-factor analysis from the three questionnaires. The greater value indicates the higher trust

***Based on 4-point Likert scale from "Don't trust at all" (0) to "Trust a lot" (3). *NA* data not available, *SD* standard deviation

followed by those in the Maldives and Malaysia, while people in Tajikistan reported the lowest level of trust in the healthcare system, followed by those in Uzbekistan and South Korea. Data for trust in the healthcare system in Myanmar was not available at the time of the survey.

Table 12.4 presents the results from six multilevel logistic regression models for good health, adjusted for age, gender, marital status, income, education, occupation, horizontal trust, and trust in the healthcare system and mass media. In Models 1, 2, 3, 4, and 6, the sociodemographic variables that were associated significantly with better health included women, younger age, marital status, high income, and high education (not mid education). Employment status was not associated with health in any of the models. Horizontal trust, trust in the healthcare system, and media trust were all significantly associated with good health in Models 2–6.

Based on the full model (Model 6), horizontal trust was associated significantly with good health, with an OR of 1.27 (95% CI = 1.17–1.38). For institutional trust ("don't trust at all" as the base group), trust in the healthcare system was associated significantly with good health, with ORs of 1.29 (95% CI = 1.14–1.45) for "don't really trust", 1.75 (95% CI = 1.54–1.99) for "trust to a degree", and, similarly, 2.29 (95% CI = 1.95–2.68) for "trust a lot". Overall, these results indicate a linear relationship between the levels of trust in the healthcare system and the ORs for good health (Model 3, 5, and 6 of Table 12.4). Similarly, trust in mass media was associated significantly with good health, with ORs of 1.16 (95% CI = 1.05–1.27) for "don't really trust", 1.35 (95% CI = 1.23–1.49) for "trust to a degree", and 1.57 (95% CI = 1.36–1.81) for "trust a lot". Again, these results indicate a linear relationship between the levels of trust in mass media and the ORs for good health (Models 4, 5, and 6 of Table 12.4). In addition to covariates in the full model, the regression model including country fixed effects showed similar findings and did not affect the results. Further, the ordered probit model analysis using the original dependent variable (self-rated health) produced the similar findings and did not affect the results.

12.4 Discussion

The results of the current study suggest that trust in mass media is associated significantly with self-rated health. Slightly over 50% of the Asian participants reported that they "trust a lot" or "trust to a degree" in mass media. Trust in mass media remains associated significantly with health in multilevel modeling. Consistent with previous studies, this study also indicated significant associations between horizontal trust and self-rated health and between vertical (institutional) trust in the healthcare system and health. Further, significant sociodemographic determinants for health include younger age, male gender, marital status, high income, and high education.

Although the current study has inferential limitations for causal direction due to the cross-sectional study design, the interpretation could be made that the levels of trust in mass media may be able to influence the individual's health status.

Table 12.4 Estimated odds ratios from multilevel logistic models (outcome of good health)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6 **
Fixed parameters						
Male gender	1.21 (1.15–1.27) *	1.22 (1.16–1.29) *	1.22 (1.15–1.28) *	1.21 (1.15–1.28) *	1.25 (1.18–1.32) *	1.23 (1.16–1.30) *
Age						
30–39 yr	0.73 (0.68–0.78) *	0.73 (0.68–0.79) *	0.73 (0.68–0.79) *	0.76 (0.70–0.81) *	0.71 (0.66–0.77) *	0.75 (0.69–0.81) *
40–49	0.59 (0.55–0.63) *	0.59 (0.55–0.64) *	0.60 (0.55–0.65) *	0.62 (0.57–0.67) *	0.57 (0.53–0.62) *	0.62 (0.57–0.67) *
50–59	0.45 (0.41–0.49) *	0.44 (0.41–0.48) *	0.46 (0.42–0.50) *	0.47 (0.43–0.51) *	0.42 (0.39–0.46) *	0.46 (0.42–0.50) *
60–69	0.41 (0.36–0.47) *	0.40 (0.35–0.45) *	0.42 (0.37–0.48) *	0.43 (0.37–0.49) *	0.36 (0.32–0.41) *	0.40 (0.35–0.46) *
Marital status						
Others	0.78 (0.74–0.83) *	0.80 (0.75–0.85) *	0.79 (0.74–0.84) *	0.82 (0.77–0.87) *	0.81 (0.76–0.86) *	0.81 (0.76–0.87) *
Income						
Mid	0.87 (0.82–0.93) *	0.87 (0.82–0.93) *	0.87 (0.82–0.93) *	0.88 (0.82–0.93) *		0.87 (0.81–0.93) *
Low	0.73 (0.69–0.77) *	0.73 (0.68–0.78) *	0.73 (0.69–0.78) *	0.73 (0.68–0.78) *		0.73 (0.68–0.78) *
Education						
Mid	1.00 (0.94–1.06)	1.01 (0.95–1.08)	0.99 (0.93–1.05)	1.00 (0.93–1.06)		1.00 (0.93–1.07)
Low	0.82 (0.76–0.88) *	0.82 (0.76–0.88) *	0.79 (0.74–0.86) *	0.82 (0.76–0.88) *		0.80 (0.74–0.87) *
Employment						
Employed	1.00 (0.94–1.07)	1.01 (0.94–1.08)	1.01 (0.94–1.09)	1.03 (0.96–1.11)	1.07 (0.99–1.15)	1.03 (0.95–1.11)
Unemployed	0.97 (0.90–1.05)	0.98 (0.91–1.06)	0.99 (0.92–1.08)	0.99 (0.92–1.08)	1.00 (0.92–1.09)	1.01 (0.93–1.10)
Horizontal trust						
High		1.29 (1.19–1.40) *			1.28 (1.17–1.39) *	1.27 (1.17–1.38) *
Trust in the healthcare system						
Don't really trust			1.32 (1.19–1.46) *		1.27 (1.13–1.43) *	1.29 (1.14–1.45) *
Trust to a degree			1.85 (1.64–2.08) *		1.72 (1.52–1.94) *	1.75 (1.54–1.99) *
Trust a lot			2.55 (2.18–2.97) *		2.27 (1.93–2.66) *	2.29 (1.95–2.68) *

(continued)

Table 12.4 (continued)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6 **
Trust in mass media						
Don't really trust				1.25 (1.15–1.37) *	1.17 (1.07–1.28) *	1.16 (1.05–1.27) *
Trust to a degree				1.55 (1.42–1.69) *	1.34 (1.22–1.47) *	1.35 (1.23–1.49) *
Trust a lot				1.98 (1.73–2.27) *	1.56 (1.35–1.79) *	1.57 (1.36–1.81) *
Random parameters						
Between-country variation	0.22 (0.83)	0.22 (0.82)	0.18 (0.64)	0.20 (0.74)	0.17 (0.61)	0.18 (0.63)

Figures in parentheses are the 95% confidence intervals (except for between–country variation, for which each of the numbers corresponds to the standard error and the variance)

*Statistically significant at the 0.05 level

**The regression model including country fixed effects showed the similar findings. In addition, the ordered probit model analysis using original dependent variable (self-rated health) produced the similar findings

Enhancement of trust in mass media among the general population could be utilized to promote people's health.

Regarding causal pathways for how trust in mass media operates to influence health, the following mechanism can be considered: greater media trust may lead to higher use of mass media for health information; this in turn may lead to higher awareness of important health information and may result in better health-related decision- making and behavior. Alternatively, media trust could reflect higher credibility of public information on health issues, and may lead to greater dissemination of accurate health information, which may, in turn, lead to better health-related behavior. However, since there may be intermediate variables that underlie the relationship between media trust and health, further studies are needed to explore these causal mechanisms.

Mass media can have beneficial effects on people's health through conveying useful information related to health by various approaches, such as educational campaigns, series programs, and advertisements. In particular, mass media campaigns can have beneficial effects on public health, because mass media, particularly newspaper and television, can reach population-wide consumers throughout Asian countries. Given the widespread influence of mass media, well-designed mass media campaigns can have beneficial effects not only on health knowledge and attitudes, but also on health behaviors, with a potentially huge public health impact [25].

TV advertisements can increase public knowledge and awareness of the important symptoms of various diseases. For instance, TV delivery of information regarding the early warning symptoms of stroke increases the number of presentations to the emergency department during the early stages of stroke, providing increased opportunity to receive potentially life-saving thrombolytic therapies that are only indicated during the early stage [26, 27]. A US study also showed that TV advertisements are the most frequently mentioned source of help among recent quitters of smoking [28]. Furthermore, a number of studies have shown that mass media campaigns enhance improvements in attitude toward healthy behavior, such as better diet, exercise, illegal drug prevention, safe sex, and smoking cessation [29–36]. The World Health Organization (WHO) reports on developing countries also support mass media interventions to increase the knowledge of HIV transmission and boost awareness of health providers [37].

Despite increased interest in obtaining health information by the public, a significant proportion of those diagnosed with a serious disease, such as cancer, report that they do not seek health information beyond that given by healthcare providers. One study, based on a national survey of American adults, demonstrated that compared with information-seeking groups, non-seeker patients showed low trust in mass media and paid less attention to health information in mass media [38]. Thus, trust in mass media is related to seeking behavior for health information and low trust may be associated with low levels of knowledge regarding important information relevant to their own health.

There are several strengths of our study. This may be one of the first studies to suggest a significant association between trust in mass media and health. Second,

our results are based on the multilevel and multivariable model adjusted for potential confounders, such as demographic and socioeconomic factors. In evaluating the relationship between trust and well-being, these factors should be adjusted for to avoid confounding effects. Individuals with higher socioeconomic status may perceive their societies as being friendly and may have high trust in most public institutions, compared with those with a lower socioeconomic status [39]. Furthermore, socioeconomic status is related to health status [40]. Marital status is also associated with an individual's health and may be related to trust in public institutions [4]. The results based on the adjusted model are more reliable for estimating the association between trust and health.

Third, we assessed the potential association between sociodemographic factors and health after accounting for horizontal and vertical trust. The results of our study confirmed previous reports that found several factors for good health: including younger age, marital status, high income, high education, horizontal trust, and trust in the healthcare system [4, 6, 41]. In contrast, employment was not associated with health in our study. Thus, the typical 'healthy' Asians may be young, married, high-income, and highly educated men with a high trust in interpersonal relations as well as in the healthcare system and mass media.

Our study is based on the analysis of cross-sectional data and thus it has inferential limitations. It is possible that poor health leads to social isolation and distrust in any institutions due to psychosocial mechanisms. In addition, health and trust may reflect different facets of a common underlying psychological construct of general well-being. Alternatively, media trust might act as a surrogate marker for other types of output vertical trust, economic development or income equity in a country, or it might approximate the political systems, such as democracy, freedom of the press, and multi-ethnic cohesion. These parameters are known to be related to health status. Another limitation of our study was the use of the self-reported health satisfaction measure. It would have been more accurate to obtain more explicit self-reported health dimensions, such as those from the SF-36, although these data were not available in the AsiaBarometer Survey. Finally, our study has both cross-sectional causality problems and the absence of objective measures of physical health [42]. Future studies with a panel structure with individual fixed effects and more objective health measures, such as healthcare access or disability, are needed to mitigate the bias from omitting unobservable, personal, psychosocial characteristics, and to address measurement problems relating to self-reported health status [42].

In summary, this study is the first to analyze the relationship between high institutional trust in mass media and good health. These results indicate that individuals with high trust in mass media have better health. Mass media programs may contribute towards better health, especially among those people who have trust in mass media. Mass media may need to recognize the importance of their social role in terms of public health. Further research is necessary to determine the characteristics of high-quality mass media with high trust among the public.

Competing Interests

The authors declare that they have no competing interests.

Authors' Contributions

YT was involved in the analysis and interpretation of data, critical revision of the manuscript for important intellectual content, statistical analysis, and also had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. SF was involved in the acquisition, analysis, and interpretation of data and critical revision of the manuscript for important intellectual content. MJ was involved in interpretation of data and critical revision of the manuscript for important intellectual content. TI was responsible for the study concept and design, obtaining funds, administrative, technical, and material support, and study supervision, and was also involved in the acquisition, analysis, and interpretation of data and critical revision of the manuscript for important intellectual content.

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Additional Material

Additional file 1

Appendix A and Appendix B
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