

An International Comparison of Hope and Happiness Between Japan, the United Kingdom, and the United States

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Yuji Genda

genda@iss.u-tokyo.ac.jp

Institute of Social Science

The University of Tokyo

Abstract

Using the method of back translation, comparative surveys were conducted to examine the differences and similarities in hope and happiness between Japan, the United Kingdom, and the United States. We find that there is a substantial difference in levels of hope between them; most people express hopes of realizing something in future in the UK and the US, but only a half of the population has feasible hopes in Japan. Looking at the similarities, the issue of family is consistently the most important content of hope in all three countries. The empirical estimations also reveal that marriage, jobs, health, friends, trust, and patriotism have similar effects on hope and happiness across the three countries. Lacks of friends, of experiences of trust, and of religious belief, result in less hope in Japan. Ordeals tend to reduce the degree of happiness, but at the same time, such difficulties encourage people to have hope that forward action will bring about better conditions. This counter trend to the impact on happiness implies that the positive setback effect operates on hope across the three countries studied.

Key words: hope; happiness; setback; back translation; Adam Smith; Japan.

JEL: I31; Y80; Z13

1. Introduction

Especially since the 2000s, insightful economic studies with respect to “happiness” have been accumulating in the literature; examples include Frey and Stutzer (2002), Layard (2005), Easterlin (2010), and Graham (2011). In contrast, there are notably fewer studies that examine the relationship between the economy and “hope.” Economic research treats the prediction of uncertain futures in general as “expectations” and thereby avoids creating a precise theory of hope. In analyzing economic behavior based on such expectations for the future, economic models represent the dynamics as probabilistic choices based on estimated risk levels, rather than actions undertaken with hope in the face of immeasurable uncertainties.¹

However, there are some exceptionally important works that deal with the concept of hope in economics. Adam Smith refers to the role of hope in economic life in *The Wealth of Nations* (1776). Smith suggests that a person is animated by the hope of a better life on average—what he calls “the comfortable hope of bettering his condition, and of ending his days perhaps in ease and plenty” (Smith [1776] 1976:99). At the same time, Smith also stresses that hope leads people to overestimate their chances of making a profit, while they tend to underestimate their chances of making a loss. There is often an excess of “the presumptuous hope of success” and “the hope of good luck,” as evidenced by the widespread popularity of lotteries, but not sufficient “fear of misfortune” (Smith [1776] 1976:126). These observations by Adam Smith that are the predecessors of more recent concepts in behavioral economics such as overconfidence theory (Camerer *et al.*, 2004).²

Taking a different approach, Kenneth Boulding defines hope in his “Sources of Reasonable Hope for the Future” as follows: “Hope is a complex concept, but in all its various meanings it implies optimism about the future. For a reasonable hope, therefore, we have to examine critically the reasons for pessimism, which in its extreme form is despair” (Boulding, 1984:221). And the “greatest resource of hope is, of course, Julian Simon’s “ultimate resource”—that is, the human mind and its extraordinary capacity for learning and the almost irreversible process of accumulation of human knowledge and know-how” ((Boulding, 1984:225).

Albert O. Hirschman, author of *A Bias for Hope* (1971), argues that hope often drives economic progress as “the Hiding Hand” which is “no doubt specially needed where the tradition of problem-solving is weak and where invention and innovation have not yet been institutionalized or routinized” (Hirschman, 1967:15). “The Hiding Hand is essentially a way of inducing action through error, the

¹ According to Frank Knight ([1921] 1985), *uncertainty* is characteristic of a situation in which it is not possible to assign any probability at all to an event, while with *risk* it is always possible to assess a situation in terms of probabilities.

² “The chance of gain is by every man more or less over-valued, and the chance of loss is by most men under-valued, and by scarce any man, who is in tolerable health and spirits, valued more than it is worth.” (Smith [1776] 1976:125)

error being an underestimate of the project's cost or difficulties" (Hirschman, 1967:29).

On the other hand, because of difficulties in both definition and analytical treatment, research on hope has not been a central issue theoretically or empirically in orthodox economics. This means, however, that challenging approaches for hope may clarify new issues that have not yet been treated adequately by conventional economics. As an example of such a challenge, Swedberg (2016) puts forward a universal definition of hope simply as "a wish for something to come true," based on social sciences (Tocqueville, 1862; Durkheim, 1893; Weber, 1946), religion (Aquinas, 1944; Houser, 2004), philosophy (Kant, 1781; Kierkegaard, 1843; Bloch, 1986), and anthropology (Crapanzano, 2003; Miyazaki, 2004).

The general state of empirical studies with respect to hope is one of open issues, while Swedberg proposes that hope should be considered as an important theoretical concept. An international comparison is a powerful method to capture universal characteristics of hope in society by finding common determinants of hope across national boundaries. Therefore, this paper empirically compares issues regarding hope between Japan, the United Kingdom, and the United States, paying attention to the similarities and differences with happiness.

2. Analytical method

In an international comparative survey, the same meanings of questions and answers should be appropriately translated into the different languages used in each country. This study therefore applies the method of back translation, which is used in sociology to undertake cross-cultural surveys requiring the use of different languages.

The back translation, as described below, was undertaken to confirm that the survey approach was used precisely in this study. First, the author, who is a Japanese native, made out a questionnaire written in Japanese, which is designated "Q-J1." Second, a professional translator A, who is an English native employed by a translation company, translated version Q-J1 into one written in English, which is designated "Q-E1." Third, another translator B independently translated the Q-E1 back into one written in Japanese, called "Q-J2." In preparing Q-J2, translator B never inspected Q-J1 nor had any contact with translator A.

After completing the process shown above, the author compared versions Q-J1 and Q-J2 in detail. If different meanings were observed between the two questionnaires, the corresponding parts of Q-J1 were revised by the author and translator A was asked to consider new expressions of Q-E1 for the revised Q-J1. Then translator B received the new Q-E1 revised by translator A and prepared a revised version of Q-J2. By repeating these processes, the author verified that the same meanings of questions and options for answers appeared in the back translation, so that the questionnaires were consistent in both English and Japanese. The final version of the survey in English is shown in the appendix.³

³ The final versions of questionnaires in Japanese are available on request from the author via the e-mail

The completed survey was then used to canvass respondents aged between 20 and 59 in Japan, the UK, and the US. The aim was to distribute samples as evenly as possible by sex and age category and to make about 1200 observations in each country. The survey was conducted via the internet by research agencies in November 2014. The title of the survey was the “International Surveys on Life and Hope.” As a result, 1276 respondents in Japan, 1316 in the UK, and 1321 in the US replied to the same twenty questions.

In Japan, candidate respondents were sampled from among the corresponding subjects aged between 20 and 59 who were registered in advance for internet surveys. The 4114 subjects so contacted were asked to cooperate with the current survey; 1321 samples were consequently obtained. Some doubtful samples in which the 20 questions were completed within one minute were deleted, along with others who replied that their years of school education were less than the nine years of compulsory school education in Japan. This left 1276 observations to be used for the empirical analyses. In the UK and the US, the observations also included those subjects who directly accessed the websites of research agencies by themselves, in addition to those who were asked by e-mail to cooperate with the survey.⁴

3. Hopes and Happiness

The questions employed and the available choices of answers are based on the outcomes of the project titled the “Social Sciences of Hope,” which has been undertaken since 2005 by the Institute of Social Science at the University of Tokyo to examine the relationship between hope and society in Japan. The empirical studies carried out by this project have revealed that individual characteristics, social circumstances, and previous experiences have various effects on feelings of hope among the Japanese people (Genda, 2009, 2016). Similar types of questionnaires are employed here for the UK and the US as well as Japan.

In the survey, in considering situations where people have hopes for something, the author asked the following questions: “Do you have ‘hopes’ in the sense of things you want to realize in future?” While the word “hope” is usually used as a verb in English, as in “do you hope to do something?” the word for hope, that is *kibou*, is generally a noun in Japanese, as in “my hope is to do that.” Different responses may also appear if the expressions used are “have aspirations,” “have dreams,” or “have goals,” which are more commonly used than “have hopes” in English.

Looking further, the concept of hope is related not only to personal issues, but also to solutions of social problems such as world peace and the eradication of poverty. This survey was rather limited to personal questions; if respondents replied affirmatively to having hopes, they were asked to choose

address given.

⁴ The information regarding the number of e-mail deliveries required to coordinate the survey was not revealed by the research agencies in the UK and the US.

the content of their hopes from the following answers: 1. Work; 2. Family; 3. Health; 4. Appearance; 5. Learning (study); 6. Play (entertainment); 7. Relations with friends; 8. Marriage; 9. Being in love; 10. Social contribution; 11. Other.

They further choose their most important hope as a single answer from these multiple choices. With respect to this most important hope, the survey asked, “Do you think you will realize this hope that is most important to you?” The respondents then choose one from the following options: 1. Absolutely; 2. Perhaps; 3. Perhaps not; or 4. Most certainly not. The most important hope that is expected to be realized “absolutely” or “perhaps” will be designated as the subject’s *feasible hope* in this paper.

The survey also asks respondents who report having feasible hopes the following: “Are you doing things in order to realize the hope that is most important to you?” They then choose one from the following: 1. Yes, lots of things; 2. Yes, a few things; or 3. No, nothing. If they choose “yes, lots of things,” or “yes, a few things,” they are defined as having *active hope*.

Similarly, those having feasible hopes are asked: “In order to realize the hope that is most important to you, are there people around you who will cooperate with you and support you?” They choose one from the following: 1. Yes, many people; 2. Yes, a few people; or 3. No, nobody. If they choose “yes, many people,” or “yes, a few people,” they are defined as displaying *cooperative hope*.

In addition to several questions regarding the subject’s hopes, the survey simply asks the following with respect to happiness: “Do you consider yourself to be happy?” The respondents then choose an answer from the following: 1. Very happy; 2. Somewhat happy; 3. Somewhat unhappy; or 4. Very unhappy.

Table 1 represents the percentages of the answers to the above questions. The proportion reporting “very happy” is 23.8 percent in the UK and 33.2 percent in the US, while it is relatively low in Japan at 18.5 percent. On the other hand, the proportion of “somewhat unhappy” or “very unhappy” is higher in Japan than in the UK or the US.

More substantial differences can be observed in all forms of hopes between the three countries. The proportion reporting having hope amounts to 86.7 percent in the UK and 93.0 percent in the US; that is, the great majority of people aged between 20 and 59 in the UK and the US hope to realize something in the future. In contrast, however, only 54.5 percent of Japanese express hope in the sense of having things they want to realize in the future.

While 59.3 percent in the US and 46.5 percent in the UK believe they will realize their most important hope “absolutely,” only 26.2 percent in Japan do so. Even the proportion believing their feasible hope may be realized “perhaps” or “absolutely” is substantially lower in Japan than in the UK and US.

The attribute of having active hope is also quite low in Japan compared with the UK and the US. While the proportion of those who are doing many things to realize their most important hope is 41.0

percent in the UK and 51.6 percent in the US, it is limited to 25.4 percent in Japan. Further, over 10 percent of Japanese respondents are doing nothing to realize their most important hope.

The answer that they have many people cooperating and supporting them in realizing their most important hope is chosen by 30.5 percent in the UK and 41.8 percent in the US, while it is just 22.1 percent in Japan. More than 10 percent replied that nobody cooperates with them and supports their most important hope in Japan.

In several aspects of hope, then, individuals respond more negatively in Japan than in the UK or the US.

4. Contents of hope

When respondents reply that they have hopes, they are also asked to indicate the contents of these hopes in a multiple choice format. Further, they choose the most important content among the choices available. The results from Japan, the UK, and the US are shown in Table 2.

The most frequently chosen answer is the same in three countries; this is the “family” option. The family is also chosen most frequently as being the most important hope in each country. It is common to all three countries that people tend to hope for the well-being of their family, such as having a peaceful life with their family members in the future.

The top three contents among several kinds of hopes are also commonly observed in Japan, the UK, and the US; they are the “family,” “health,” and “work.” Compared with the substantial proportions of these three, the choices of other contents are relatively few in the three countries.

Next to the family, the issue of work is chosen as the second most important hope in Japan, while health is more frequently chosen than work in the UK and US. When Genda (2009, 2016) examined the distribution of hope in Japan in 2006, using a similar survey, work issues such as high earnings, stable employment, and attractive jobs were chosen most often as hopes, while family issues were rated lower than work. Specifically, 66.3 percent of the respondents chose work from the options available, while 46.4 percent of them selected family issues.

It should be noted that the proportion of the population reporting that they have hopes in work and life has been continuously declining in Japan, according to a panel survey conducted by the Institute of Social Science, University of Tokyo.⁵ Genda (2015) clarified the fact that the East Japan Great Earthquake that occurred on March 11 in 2011 performed a crucial role in shifting the content of the most important reported hope from work to the family.⁶ It is suggested that Japanese people have changed their outlook to think a great deal more about their families when facing this serious incident, which took away more than 15,000 lives and left about 2,500 people missing, in addition to

⁵ The relevant press release can be accessed at <http://csrda.iss.u-tokyo.ac.jp/panel/pr/>.

⁶ Probably a similar kind of shift occurred in the US after September 11 in 2001 attacks; that is the increased concern with family relationships.

the damage caused by the earthquake, tsunami, and nuclear power plant accidents.

5. Determinants of feasible hope

5.1 Objective factors

This section examines empirically the determinants that have effects on probabilities of having hope in each country, using the probit model.

Among the several forms of hopes, we focus here on feasible hope. A dependent variable is set to 1 if respondents indicate having hopes as well as the belief that their most important hope will be absolutely or perhaps realized. It is set to 0 if respondents indicate either that they do not have any hopes, or that they do not believe their most important hope will be “perhaps” or “most certainly” realized. According to Table 1, the probability of having a feasible hope is 89.7 percent ($= (93.0/100) * (59.3 + 37.2) / 100$) in the US, while it is 81.4 percent in the UK; it is only 46.6 percent in Japan.

As independent variables, we first specify objective individual characteristics; these are designated by dummy variables representing sex, age, years of school education, marital status, having children, and having a job with income. Table 3 shows the composition of these variables in each country.

Table 4 represents the estimated marginal effects obtained by the probit model using the above independent variables on respondents expressing feasible hopes.

Several common trends can be observed among the three countries. First, the younger age categories such as 20 to 24 years old display a significantly positive impact on having feasible hopes. Youths possess an absolute advantage over senior and old people in respect of one important resource for realizing hopes: that is, “time.” Therefore, younger persons tend to have a greater measure of feasible hopes. This tendency has been already observed in the Social Sciences of Hope in Japan (Genda, 2016).

Second, as for the characteristic of marital status, the marginal effect of being married is significantly positive in Japan, the UK, and the US. Table 2 shows that the family is a central component of the contents of hope in each country. It is quite natural that married persons are more likely to have greater feasible hope about their family than unmarried single ones.

The third trend the three nations share is that having an income-bearing job has a significantly positive impact on probabilities of feasible hope. Almost 30 percent of respondents do not have jobs with income in each country in Table 3, implying a decline in hopes in those without employment. Possessing a job not only provides a certain level of income to realize hopes for family and health, but also promotes optimism that hopes may be realized through working.

Looking at Table 3 again, the proportion of respondents who report being married and having a job with income are a little higher in Japan than in the UK and the US. Nevertheless, Table 1 shows

that the level of feasible hope is less in Japan than in the UK and the US. These results suggest that there are other important factors having influences on hope.

5.2 Subjective factors

Using Japanese data, Genda (2016) finds that several subjective factors have substantial impacts on probabilities of having hope, in addition to the effects of objective characteristics. This paper investigates whether the impacts of such subjective factors can be observed in the UK and the US in common with Japan.

As a first example, we estimate the effect of the respondents' perceptions of their own health condition on their probabilities of feasible hope. The survey includes the question, "Which of the following best describes your health?" The respondents choose one from "very healthy," "somewhat healthy," "neither healthy nor unhealthy," "somewhat unhealthy," or "very unhealthy." Using the answers to this question, we add a dummy indicator for health condition as an independent variable in the probit model estimation, in addition to the objective factors shown in Table 4. The top of Table 5 displays the estimated impact of the respondents' self-assessed health condition on their feasible hopes. The respondents who feel very healthy have significantly a higher probability of feasible hope than those who feel neither healthy nor unhealthy in each country. This suggests that an individual's health condition plays a crucial positive role in promoting feasible hopes, because unhealthy situations prevent people from acting to realize their aims.

As another important subjective factor, we can focus on relationships with friends. The survey asks directly, "Do you think you have many friends?" The choices for an answer are as follows: "I have many friends," "I have neither many nor few friends," "I have few friends," and "I have no friends." The estimated impact of having friends, as shown in Table 5, is derived by adding a dummy indicator for the above question and its answers as an independent variable to those reported in Table 4. The results show that respondents who think that they have few or no friends have significantly lower probabilities of feasible hope in each country. By contrast, those in Japan and the UK who think they have many friends are more likely to have feasible hopes. The perceived number of friends will be positively related to hope, because in many cases people's hopes can be fulfilled and realized through cooperation and support from their circle of acquaintances.

According to previous studies conducted by the Social Sciences of Hope in Japan, the experience of ordeals and difficulties in the past promotes increased hopes in people after the event. It can be interpreted that the process of overcoming severe trials is closely related to a current assessment of realizing hopes that is directed towards the improved situation in the present when compared with the past. This phenomenon is called the positive "setback" effect on hope, in that hope is promoted if setbacks are overcome (Genda, 2009, 2016).⁷

⁷ According to Genda (2016), for those who were successful in landing the jobs they wanted, work has not

With respect to this setback effect, the comparative survey asks, “Within the last five years, have you experienced a major incident that injured you psychologically (for example, unemployment, a major illness, or the death of a loved one)?” The respondents then choose one from the following: “I have had no such experience,” “I have had one such experience,” or “I have had two or more such experiences.” Looking at the results of those reporting major injurious incidents over the previous five years, those who had one such experience tend to have significantly more feasible hope in the UK and the US. The experience of two or more injurious incidents has a significantly positive impact on feasible hope in Japan. These results suggest that the positive setback effect works to enhance hope in the UK and the US, in common with Japan.

The survey also asks, “Which of the following best describes the place you currently live in?” The respondents then choose a subjective description of their residence from the following: “city center,” “city suburb,” or “outside of city.” The findings show that the reported place of residence has no significant influence on feasible hopes in each of the three countries.

Genda (2014) undertook a preliminary comparative study of hope between France, Japan, South Korea, and the US. Two important common findings were observed: one is that religion or daily belief is closely related to having hopes, while the other is that adults generally tend to have more hope if they feel they were trusted by the adults around them when they were teenagers. The support obtained from religion, and the formation of feelings of self-respect derived from trust, will enable people to make efforts to realize their hopes in spite of facing difficulties.

In order to confirm these facts, the current survey asks, “Do you have religious beliefs that you practice on a daily basis?” and “When you were a teenager, do you think that you were trusted by the adults around you?” The choices are basically “yes” or “no,” while “I don’t want to answer” for religion and “I don’t know” for trust are also available. Looking at Table 5, the exercise of religious belief on a daily basis, and the memory of being trusted by adults as teenagers, have significantly positive effects on having feasible hopes in all three countries. Religious belief and trust seem to be universal resources for hope.

The estimations for subjective factors further examine the relationship between personal hopes and the patriotic spirit. The survey asks, “Do you like the country you currently live in?” The results

always been smooth sailing with hopes fulfilled as a matter of course. In fact, when asked whether they had gone through setbacks and/or experienced mistakes regarding their employment within five years of beginning work, 48.4% of the respondents answered that they had. Of those who had experienced past failures, 83.2% are currently confident of having overcome them.

This is significant because the experience of having overcome a setback in the past has a significant influence on whether an individual has attainable hopes toward work. In concrete terms, among those who experienced failures during the first five years of working and managed to overcome them, 57.5% express attainable hopes toward work. On the other hand, just under half, or 45.0%, of those who experienced setbacks, but felt they had been unable to overcome them, have attainable hopes regarding work. More surprising is the fact that just 47.2% of those who never experienced any setback have attainable hopes toward work, a percentage similar to that among those who did not succeed in overcoming setbacks. These results show that to “experience overcoming” a setback is closely linked to the possession of hope.

presented in Table 5 show that the patriotism is closely connected with feasible hopes; the more people like their country, the more they tend to have feasible hopes in all three countries. The general sense of people's satisfaction with their nationwide living circumstances that is represented by the patriotic spirit will be another important source promoting feasible hope in these countries.

5.3 Reasons for less hope in Japan

According to the results in Table 5, we can clarify the reason for a substantially lower proportion of expressed feasible hope in Japan relative to the UK and the US.

Table 6 shows the share in the population of each option of the subjective variables tracked in Table 5 for the three countries. The most striking factor in the table is the issue of having friends in Japan; the proportion of respondents who replied that they have many friends is more than 30 percent in the UK and the US, but it is only 8.0 percent in Japan. On the other hand, 54.8 percent of Japanese respondents feel that they have few friends, greatly exceeding those with many friends. As the number of friends that people have has a steady impact on hope, the perception of having few friends is a substantial reason why the Japanese are less likely to express feasible hopes.

The second important reason for lower levels of hope in Japan may be attributed to fewer experiences during people's teenage years of being trusted by adults. In the UK and the US, more than 70 percent of respondents aged between 20 and 59 feel that they were trusted by the adults around them when they were teenagers; in contrast, the proportion reporting that they felt trusted as teenagers is limited to 42.6 percent among the Japanese respondents. The relative lack of the experience of being trusted reduces feasible hopes in Japan to a large degree.

The third reason derives from differences in the daily practice of religious belief; 46.9 percent of the respondents of the US survey say they exercise their religious beliefs daily. The proportion with religious belief among the UK respondents is 18.4 percent and it falls further to 8.3 percent among the Japanese respondents. Religion plays a crucial role in promoting hope, so the lack of daily expression of belief is strongly connected to the lower levels of feasible hope in Japan.

In addition, the number of people describing themselves as "very healthy" and saying, "(I) like (the country) very much" is also relatively few in Japan, compared with the UK and the US. "No experience (of injuring major incidents)" is a little higher in Japan than in the UK and US. However, these differences are not particularly substantial. The perceived lack of friends, the poverty of experience in feeling trusted, and the low levels of practice of daily religious belief, manifest as the major reasons for diminished levels of hope in Japan.

6. Determinants of happiness

6.1 Objective factors

To provide a comparison with the results for hopes, the determinants of happiness are next

empirically examined using the probit model as shown in Tables 4 and 5. The dependent variable is 1 if respondents feel “very happy” or “somewhat happy,” while it is 0 if they are “very unhappy” or “somewhat unhappy.”

Table 7 shows the results of the probit model estimations for happiness, using the same independent variables in shown Table 4. In common with the results on feasible hope, married people and those having income-bearing jobs show a significant tendency to be happy in each country.⁸

However, this study does not find significant common results apart from those for marriage and jobs. Females are happier than males in each country, although the female dummy is not significant for the UK. The effect of age appears U-shaped in the UK and US, as is shown by Blanchflower and Oswald (2004), although the estimated results are mostly insignificant. In Japan, younger people are significantly happier than older ones; this is consistent with the results obtained by Ohtake, Shiraiishi, and Tsutsui (2009, chapter 2). Years of school education have no effect on happiness among UK and US respondents in our data, while education plays a significant role in being happy in Japan. Having children is closely related to happiness in the US, but is independent of such feelings in the UK and Japan.

6.2 Subjective factors

Table 8 represents the influences on happiness of the subjective factors that were examined in relationship with feasible hopes in Table 5.

In each of the three countries, more than a few subjective factors displayed similar impacts on happiness as they did on feasible hopes. First, the effect of people’s self-assessed health condition is mostly significant and positively correlated with being happy. Second, the more friends people have, the happier they feel, again at significant levels. It is thus common to Japan, the UK, and the US that healthy people with many friends tend to be happy and have hopes they wish to realize.

Those who like their own countries are also significantly happier. However, it should be clearly understood that happy people might like a country that contributes to providing favorable lives; that is, happiness and patriotism will be simultaneously codetermined in close relationship.

Memories of being trusted by adults when they were teenagers enable adult respondents to feel happy as well as to hope for attainable goals. The self-esteem created by trust is a universal resource for hope and happiness.

There are, however, subjective factors that have different impacts on happiness when compared with feasible hope. One is daily religious belief; in the UK, it appears as insignificant for happiness in Table 5, while it is positive for feasible hope at the 10 percent significance level in Table 8. In the US, the effect of belief is positive for happiness at the level of 10 percent significance at most, while it is

⁸ Clark and Oswald (1994) found that being jobless is negatively correlated with well-being at the statistical significant levels, using data from the UK.

positive for feasible hope at the level of 1 percent significance.

Furthermore, there exists one subjective factor that works in opposite directions on hope and happiness, this being the experience of major injurious incidents in the preceding five years. In Table 5, such serious incidents do indeed play a role in promoting hope, implying the positive setback effect. Looking at Table 8, however, such injurious incidents display rather a significant and negative impact on probabilities of happiness in each country. The marginal effect further suggests that if persons suffered two or more times from such negative events, they would be unhappier than those reporting just one such incident.

Figure 1 represents the possible relationship between injurious incidents, hope, and happiness. When faced with ordeals, people become psychologically injured, meaning that they are less likely to be happy than they were before the distress. A short time later, they will naturally attempt to move forward in order to overcome the difficulties they face. As it takes time to return to the situation before the shock, however, they continue to be more or less unhappy. The experience of serious misfortune thus necessarily reduces the degree of happiness for a while.

On the other hand, people can perceive at the same time that the action required to improve the situation will gradually become effective. Thus, they have current hopes for something to be realized in the future, resulting in the positive setback effect. Through this process, both feasible hope and feelings of unhappiness can coexist for a certain period after experiencing a severe setback. The estimated results obtained can be consistently explained by this interpretation.

7. Ordeals and several kinds of hopes

Finally, the effect of ordeals in the past on various forms of hopes is examined.

The international survey contains plural questions with respect to hopes. From these questions, four types of hopes are defined; their compositions in each country are shown in Table 1. Probit analysis is applied to examine the effect of injurious incidents in the past on these respective hopes. In addition to the experience of such incidents, dummy variables for sex, age, years of school education, marital status, having children, and having a job with income are controlled as independent variables.

The estimated results for having experienced injurious incidents are shown in Table 9. The results of having feasible hopes are same as those shown in Table 5; the results of being happy are the same as those shown in Table 8. Those who experienced major incidents in the previous five years are found to have significantly more hope in each country.

As to having active hopes in which the respondents are doing something to realize their most important hope, an injurious incident being experienced once has a significant positive impact in Japan, the UK, and the US. Those who experienced such incidents twice or more also tend significantly to have active hopes in Japan. These results confirm that ordeals may influence people to act against difficulties in order to realize their hopes.

The one-time experience of an injurious incident in the preceding five years also plays a significantly positive role in having accompanied hopes in each country. Such an ordeal may draw people to cooperate with and support someone who is attempting to realize his/her hopes in spite of adversity. The only exception is that two or more such experiences have a significantly negative effect on having accompanied hope in the US. Apart from this case, injurious major incidents in the past are positively related to all manifestations of hope in these three countries.

The most important findings of this paper are that the effects of ordeals on hope run counter to their impact on happiness in all three countries studied, while many factors display influences in the same direction on both hope and happiness.

8. Conclusions

This paper attempts to redress the lack of empirical studies on hope relative to the plentiful studies on happiness by undertaking an international comparison between Japan, the UK, and the US. From the original comparative survey made using the back translation method, we can report several new findings with respect to hope.

While most people express having hopes to achieve something in the UK and the US, almost half the population aged between 20 and 59 does not have any hopes in Japan. However, the contents of people's hopes are quite similar, with the most frequently expressed common hopes among the three countries being regarding family issues.

In addition, there are several common determinants that connect with people's perception that their most important hope can be realized in the future. In each country, youth, married people, and those having an income-bearing job are more likely to have feasible hopes. Subjective factors such as the self-assessment of health conditions, the extent of friendships, the memory of being trusted by adults in teenage years, the daily exercise of religious belief, and the patriotic spirit also have significantly positive effects on feasible hope across countries.

The low proportion of those expressing hope in Japan may be attributed to the lack of perceived friends, the paucity of experiences of being trusted, and a lower level of daily religious practice compared with the UK and the US. The experience of major injurious incidents in the past lowers feelings of happiness, but on the other hand, it generally encourages people to behave actively in order to realize their hopes.

As one of issues remaining for future studies to tackle in detail, it should be thoroughly clarified why it is only in Japan that so few people report that they have many friends or that they were trusted by adults as teenagers. Related research suggests that among the victims of the Great East Japan Earthquake that occurred on March 11 in 2011, those suffering damage to a certain degree could soon recover their hopes, in line with the positive setback effect demonstrated in this paper. However, it is quite difficult for those who have been very seriously damaged to overcome their difficulties and to

have hopes of improving their situations (Genda, 2015). Therefore, it is important to understand in much more detail how such ordeals may influence hope and happiness in developing future related studies.

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Appendix. International Surveys on Life and Hope

Q1 Are you male or female?

- 1 Male
- 2 Female

Q2 How old are you? (Please choose from the following age ranges.)

- 1 20 to 24 years
- 2 25 to 29 years
- 3 30 to 34 years
- 4 35 to 39 years
- 5 40 to 44 years
- 6 45 to 49 years
- 7 50 to 54 years
- 8 55 to 59 years

Q3 How many years did you attend school? (Not including temporary leaves from school and repeated years).

- 1 6 years or less
- 2 7 to 9 years
- 3 10 to 12 years
- 4 13 to 14 years
- 5 15 to 16 years
- 6 17 years or more

Q4 What is your marital status?

- 1 Unmarried
- 2 Married (including common-law marriage)
- 3 Divorced
- 4 Widowed

Q5 Do you have children?

- 1 Yes
- 2 No

Q6 Which of the following best describes your health?

- 1 Very healthy
- 2 Somewhat healthy
- 3 Neither healthy or unhealthy
- 4 Somewhat unhealthy
- 5 Very unhealthy

Q7 Do you currently have a job from which you obtain income?

- 1 Yes
- 2 No

Q8 Do you think you have many friends?

- 1 I have many friends
- 2 I have neither many nor few friends
- 3 I have few friends.
- 4 I have no friends

Q9 Within the last five years, have you experienced a major incident that injured you psychologically
(for example, unemployment, a major illness, or the death of a loved one)?

- 1 I have had no such experience.
- 2 I have had one such experience.
- 3 I have had two or more such experiences.

Q10 Which of the following best describes the place you currently live in?

- 1 City center
- 2 City suburb
- 3 Outside of city

Q11 Do you have religious beliefs that you practice on a daily basis?

- 1 Yes
- 2 No

Q12 When you were a teenager, do you think that you were trusted by the adults around you?

- 1 Yes
- 2 No
- 3 I don't know

Q13 Do you have “hopes” in the sense of things you will want to realize in the future?

- 1 Yes
- 2 No ⇒go to Q19

Q14 (If you selected “1” in Q13) What are these hopes about? Please select all that apply from the following choices.

- 1 Work
- 2 Family
- 3 Health
- 4 Appearance
- 5 Learning (study)
- 6 Play (entertainment)
- 7 Relations with friend
- 8 Marriage
- 9 Being in love
- 10 Social contribution
- 11 Other

Q15 Among your choices to Q14, which is the most important to you? (Please select one.)

- 1 Work
- 2 Family
- 3 Health
- 4 Appearance
- 5 Learning (study)
- 6 Play (entertainment)
- 7 Relations with friend
- 8 Marriage
- 9 Being in love
- 10 Social contribution
- 11 Other

Q16 Do you think if the hope that is the most important to you will realize?

- 1 Absolutely
- 2 Perhaps

3 Perhaps not ⇒go to Q19

4 Most certainly not ⇒go to Q19

Q17 (If you selected 1 or 2 in Q16) Are you doing things in order to realize the hope that is the most important to you?

1 Yes, lots of things

2 Yes, a few things

3 No, nothing

Q18 (If you selected 1 or 2 in Q16) In order to realize the hope that is the most important to you, are there any people around you who will cooperate with you and support you?

1 Yes, many people

2 Yes, a few people

3 No, nobody

Q19 Do you consider yourself to be happy?

1 Very happy

2 Somewhat happy

3 Somewhat unhappy

4 Very unhappy

Q20 Do you like the country you currently live in?

1 Yes, I like it very much.

2 I somewhat like it.

3 I neither like nor dislike it.

4 I somewhat dislike it

5 I dislike it very much.

Table 1. The Composition of Happiness and Hope in Japan, the UK, and the US (%)

	Japan	The UK	The US
Do you consider yourself to be happy?			
Very happy	18.5	23.8	33.2
Somewhat happy	57.0	60.9	54.7
Somewhat unhappy	19.7	12.1	9.5
Very unhappy	4.8	3.3	2.6
Do you have "hopes" in the sense of things you want to realize in the future?			
Yes	54.5	86.7	93.0
No	45.5	13.3	7.0
Do you think you will realize this hope that is most important to you? (Having feasible hope)			
Absolutely	26.2	46.5	59.3
Perhaps	59.3	47.4	37.2
Perhaps not	13.1	5.3	2.9
Most certainly not	1.4	0.8	0.6
Are you doing things in order to realize the hope that is most important to you? (Having active hope)			
Yes, lots of things	25.4	41.0	51.6
Yes, a few things	62.8	54.7	45.7
No, nothing	11.8	4.3	2.6
In order to realize the hope that is most important to you, are there people around you who will cooperate with you and support you? (Having accompanied hope)			
Yes, many people	22.1	30.5	41.8
Yes, a few people	66.8	65.1	54.5
No, nobody	11.1	4.3	3.7

Table 2. The Contents of Hope (%)

	Japan		The UK		The US	
	All hopes	Most important hope	All hopes	Most important hope	All hopes	Most important hope
Work	49.2	15.5	60.2	7.5	64.7	8.1
Family	62.6	44.2	77.4	54.1	79.0	54.9
Health	41.0	13.7	62.3	16.6	68.2	13.3
Appearance	12.1	0.6	31.7	1.1	40.6	1.0
Learning (study)	17.6	2.0	26.9	2.2	35.4	3.1
Play (entertainment)	25.3	4.3	24.1	1.8	34.6	1.4
Relation with friend	15.1	0.7	21.7	1.1	33.6	1.3
Marriage	18.7	5.5	33.7	3.9	44.2	6.2
Being in love	13.5	1.6	36.2	7.2	41.7	5.9
Social contribution	11.7	2.4	26.2	1.4	34.2	1.9
Other	15.0	9.5	9.2	3.2	9.8	3.1

Table 3. Composition of Objective Characteristics Among Observations

		Japan	The UK	The US
Sex	male	49.6	49.5	50.2
	female	50.4	50.5	49.8
Age	20 to 24 years	7.0	11.3	10.6
	25 to 29 years	17.6	13.3	14.2
	30 to 34 years	10.3	12.0	14.8
	35 to 39 years	14.9	13.1	10.4
	40 to 44 years	12.8	12.0	11.7
	45 to 49 years	12.1	13.1	13.2
	50 to 54 years	14.7	11.5	11.7
	55 to 59 years	10.6	13.6	13.2
Years of school	6 years or less	0.0	2.0	5.9
	7 to 9 years	2.6	5.5	2.8
	10 to 12 years	24.8	30.2	18.5
	13 to 14 years	20.1	21.4	23.8
	15 to 16 years	38.1	19.6	23.8
	17 years or more	14.5	21.3	25.3
Marriage	unmarried	41.4	39.1	35.8
	married	53.5	51.9	52.1
	divorced	4.5	8.1	10.9
	widowed	0.6	0.8	1.2
Having children (yes)		44.8	57.5	60.6
Having a job with income (yes)		73.7	71.8	70.9
Observations		1,276	1,316	1,321

Table 4. The Objective Deteminants of Feasible Hope Estimated by the Probit Model

		Japan			The UK			The US		
Sex (base: male)	female	0.0601	(0.0302)	**	0.0105	(0.0215)		0.0312	(0.0161)	*
Age (base: 40 to 44 years)	20 to 24 years	0.2224	(0.0648)	***	0.1251	(0.0262)	***	0.0563	(0.0207)	**
	25 to 29 years	0.0544	(0.0541)		0.0861	(0.0316)	**	0.0339	(0.0251)	
	30 to 34 years	0.0176	(0.0600)		0.0500	(0.0358)		0.0017	(0.0306)	
	35 to 39 years	-0.0168	(0.0541)		0.0911	(0.0308)	**	-0.0116	(0.0352)	
	45 to 49 years	0.0307	(0.0571)		-0.0146	(0.0414)		0.0238	(0.0276)	
	50 to 54 years	-0.0648	(0.0536)		-0.0340	(0.0446)		-0.0325	(0.0371)	
	55 to 59 years	-0.0353	(0.0591)		0.0608	(0.0344)		-0.0186	(0.0340)	
Years of school (base: 10 to 12 years)	6 years or less				0.1001	(0.0541)		0.0049	(0.0338)	
	7 to 9 years	0.0871	(0.0925)		0.0159	(0.0470)		0.0729	(0.0203)	*
	13 to 14 years	0.0570	(0.0431)		-0.0086	(0.0293)		0.0465	(0.0186)	**
	15 to 16 years	0.0659	(0.0373)	*	0.0557	(0.0270)	*	0.0314	(0.0199)	
	17 years or more	0.1335	(0.0476)	***	0.0022	(0.0297)		0.0358	(0.0200)	
Marriage (base: unmarried)	married	0.2190	(0.0439)	***	0.0753	(0.0277)	***	0.0446	(0.0206)	**
	divorced	0.1081	(0.0768)		0.0301	(0.0390)		-0.0150	(0.0301)	
	widowed	-0.0823	(0.1943)		-0.0808	(0.1278)		-0.0551	(0.0877)	
Having children		0.0081	(0.0424)		0.0396	(0.0258)		0.0702	(0.0215)	***
Having a job with income		0.1282	(0.0338)	***	0.1540	(0.0272)	***	0.0439	(0.0198)	**
Observations		1,276			1,316			1,321		
Pseudo R-square		0.0393			0.0683			0.0803		
Log likelihood		-846.8			-589.2			-402.7		

Notes: The numbers denote the marginal effect of the probit estimation. Numbers within parentheses denote standard errors.

Table 5. The Subjective Determinants of Feasible Hope Estimated by the Probit Model

		Japan			The UK			The US		
Health conditions (base: neither healthy nor unhealthy)	very healthy	0.1772	✓ (0.0517)	***	0.1608	✓ (0.0223)	***	0.0388	✓ (0.0218)	*
	somewhat healthy	0.1241	✓ (0.0460)	***	0.0962	✓ (0.0282)	***	0.0404	✓ (0.0230)	*
	somewhat unhealthy	0.0295	✓ (0.0616)		-0.0750	✓ (0.0463)	*	-0.0860	✓ (0.0462)	**
	very unhealthy	-0.0805	✓ (0.0960)		-0.1368	✓ (0.0846)	*	-0.1092	✓ (0.0912)	
Having friends (base: neither many nor few friends)	many friends	0.2150	✓ (0.0576)	***	0.1121	✓ (0.0233)	***	0.0081	✓ (0.0205)	
	few friends	-0.1810	✓ (0.0322)	***	-0.0738	✓ (0.0263)	***	-0.0632	✓ (0.0236)	***
	no friends	-0.3344	✓ (0.0411)	***	-0.3793	✓ (0.0921)	***	-0.1648	✓ (0.0709)	***
Experience with incidents involving major injuries in the last 5 years (base: no experience)	one	0.0495	✓ (0.0332)		0.0423	✓ (0.0228)	*	0.0354	✓ (0.0165)	**
	two or more	0.0749	✓ (0.0390)	*	-0.0292	✓ (0.0315)		-0.0330	✓ (0.0216)	
Place of residence (base: city suburb)	city center	0.0531	✓ (0.0378)		0.0386	✓ (0.0283)		0.0024	✓ (0.0194)	
	outside of city	-0.0418	✓ (0.0335)		-0.0187	✓ (0.0236)		-0.0176	✓ (0.0200)	
Having daily religious belief (base: no)	yes	0.2991	✓ (0.0458)	***	0.0490	✓ (0.0262)	*	0.0772	✓ (0.0156)	***
	don't want to answer	0.0558	✓ (0.0879)		0.0504	✓ (0.0425)		0.0468	✓ (0.0198)	*
Was trusted by adults in teenage (base: no)	yes	0.1614	✓ (0.0421)	***	0.1413	✓ (0.0349)	***	0.0598	✓ (0.0277)	**
	don't know	0.0219	✓ (0.0425)		0.0463	✓ (0.0318)		0.0123	✓ (0.0281)	
Like the country (base: neither like nor dislike)	like very much	0.2502	✓ (0.0426)	***	0.1792	✓ (0.0268)	***	0.1157	✓ (0.0292)	***
	somewhat like	0.1408	✓ (0.0435)	***	0.1029	✓ (0.0273)	***	0.0606	✓ (0.0183)	***
	somewhat dislike	-0.0798	✓ (0.0794)		-0.0201	✓ (0.0451)		0.0081	✓ (0.0374)	
	dislike very much	-0.1536	✓ (0.1307)		-0.0102	✓ (0.0634)		-0.4201	✓ (0.1914)	***

Notes: The numbers denote the marginal effect of the probit estimation. Numbers within parentheses denote standard errors. In each estimation of subjective determinants, the objective variables in Table 4 are also included as explanatory variables, namely, the dummy variables for sex, age, years of education, marital status, having children, and having a job.

Table 6. Composition of the Subjective Factors to Detemine Feasible Hope (%)

		Japan	The UK	The US
Health conditions	very healthy	21.0	25.0	31.6
	somewhat healthy	53.1	49.4	47.8
	neither healthy nor unhealthy	12.3	14.1	11.5
	somewhat unhealthy	10.4	8.9	7.5
	very unhealthy	3.1	2.7	1.5
Having friends	many friends	8.0	31.7	37.8
	neither many nor few friends	28.9	32.2	26.9
	few friends	54.8	33.4	31.8
	no friends	8.3	2.7	3.6
Experience with incidents involving major injuries in the last 5 years	no experience	51.8	48.1	43.6
	one	29.3	35.6	33.7
	two or more	18.9	16.3	22.7
Place of residence	city center	20.1	18.6	24.5
	city suburb	50.5	42.0	49.4
	outside of city	29.3	39.4	22.7
Having daily religious belief	yes	8.3	18.4	46.9
	no	88.9	77.1	48.1
	don't want to answer	2.7	4.5	5.0
Was trusted by adults in teenage	yes	42.6	73.4	79.8
	no	16.2	13.8	12.4
	don't know	41.2	12.8	5.0
Like the country	like very much	38.1	40.0	62.0
	somewhat like	40.4	37.9	26.0
	neither like nor dislike	15.6	12.6	8.5
	somewhat dislike	4.5	6.9	2.9
	dislike very much	1.4	2.6	0.7

Table 7. The Objective Deteminants of Happiness Estimated by the Probit Model

		Japan	The UK	The US
Sex (base: male)	female	0.1178 (0.0250) ***	0.0048 (0.0197)	0.0296 (0.0179) *
Age (base: 40 to 44 years)	20 to 24 years	0.1422 (0.0360) ***	0.0783 (0.0281) **	0.0046 (0.0368)
	25 to 29 years	-0.0182 (0.0477)	0.0385 (0.0334)	-0.0147 (0.0380)
	30 to 34 years	-0.0104 (0.0543)	0.0245 (0.0357)	0.0191 (0.0334)
	35 to 39 years	-0.0882 (0.0532) *	0.0046 (0.0375)	-0.0665 (0.0481)
	45 to 49 years	-0.0993 (0.0567) *	-0.0257 (0.0404)	-0.0265 (0.0400)
	50 to 54 years	-0.0816 (0.0544)	0.0309 (0.0352)	-0.0444 (0.0435)
	55 to 59 years	-0.1308 (0.0615) **	0.0444 (0.0330)	0.0004 (0.0363)
Years of school (base: 10 to 12 years)	6 years or less		0.0424 (0.0617)	-0.0082 (0.0413)
	7 to 9 years	-0.0126 (0.0759)	-0.0295 (0.0485)	0.0115 (0.0528)
	13 to 14 years	0.0666 (0.0317) **	-0.0230 (0.0283)	-0.0006 (0.0259)
	15 to 16 years	0.1094 (0.0286) ***	0.0105 (0.0272)	-0.0043 (0.0265)
	17 years or more	0.0949 (0.0318) ***	0.0074 (0.0274)	0.0254 (0.0251)
Marriage (base: unmarried)	married	0.2676 (0.0400) ***	0.1017 (0.0257) ***	0.0413 (0.0228) *
	divorced	0.0599 (0.0514)	0.0154 (0.0363)	-0.0337 (0.0357)
	widowed	0.0512 (0.1220)	-0.2001 (0.1457) *	
Having children		0.0198 (0.0386)	-0.0042 (0.0230)	0.0714 (0.0230) ***
Having a job with income		0.0929 (0.0318) ***	0.1424 (0.0256) ***	0.1138 (0.0238) ***
Observations		1,276	1,316	1,305
Pseudo R-square		0.1117	0.0656	0.0794
Log likelihood		-631.4	-527.1	-447.0

Notes: The numbers denote the marginal effect of the probit estimation. Numbers within parentheses denote standard errors. Dependent variable takes a value of 1 if respondents reply to "very happy" or "somewhat happy" and 0 if they choose "somewhat unhappy" or "very unhappy." For the US estimation, observations for widows were deleted because all the sampled widows choose "very happy" or "somewhat happy".

Table 8. The Subjective Determinants of Happiness Estimated by the Probit Model

		Japan	The UK	The US
Health conditions (base: neither healthy nor unhealthy)	very healthy	0.2074 (0.0250) ***	0.1381 (0.0189) ***	0.1515 (0.0168) ***
	somewhat healthy	0.1656 (0.0352) ***	0.0890 (0.0251) ***	0.1181 (0.0216) ***
	somewhat unhealthy	-0.1077 (0.0529) **	-0.1085 (0.0464) ***	-0.0600 (0.0378) *
	very unhealthy	-0.2430 (0.0971) ***	-0.1490 (0.0799) **	-0.0567 (0.0722)
Having friends (base: neither many nor few friends)	many friends	0.1150 (0.0434) **	0.0524 (0.0236) **	0.0652 (0.0199) ***
	few friends	-0.1713 (0.0272) ***	-0.1452 (0.0274) ***	-0.0864 (0.0243) ***
	no friends	-0.3333 (0.0610) ***	-0.3591 (0.0907) ***	-0.2515 (0.0782) ***
Experience with incidents involving major injuries in the last 5 years (base: no experience)	one	-0.0529 (0.0298) *	-0.0606 (0.0234) ***	-0.0416 (0.0218) **
	two or more	-0.2103 (0.0382) ***	-0.1882 (0.0379) ***	-0.1690 (0.0315) ***
Place of residence (base: city suburb)	city center	0.0364 (0.0304)	0.0472 (0.0239) *	0.0317 (0.0195)
	outside of city	-0.0243 (0.0288)	0.0064 (0.0211)	-0.0092 (0.0209)
Having daily religious belief (base: no)	yes	0.1359 (0.0313) ***	0.0373 (0.0242)	0.0336 (0.0177) *
	don't want to answer	-0.1013 (0.0827)	0.0028 (0.0452)	0.0175 (0.0337)
Was trusted by adults in teenage (base: no)	yes	0.1619 (0.0312) ***	0.0972 (0.0315) ***	0.0947 (0.0313) ***
	don't know	0.0609 (0.0315) *	-0.0010 (0.0335)	0.0194 (0.0292)
Like the country (base: neither like nor dislike)	like very much	0.2706 (0.0273) ***	0.1731 (0.0227) ***	0.2043 (0.0327) ***
	somewhat like	0.1769 (0.0291) ***	0.1236 (0.0221) ***	0.0582 (0.0186) ***
	somewhat dislike	-0.1652 (0.0749) **	-0.0687 (0.0451) *	-0.0671 (0.0582)
	dislike very much	-0.4560 (0.1603) ***	-0.1917 (0.0860) ***	-0.2330 (0.1732) *

Notes: The numbers denote the marginal effect of the probit estimation. Numbers within parentheses denote standard errors. In each estimation of subjective determinants, the objective variables in Table 7 are also included as explanatory variables, namely, the dummy variables for sex, age, years of education, marital status, having children, and having a job.

Table 9. The Effects of Experience with Incidents Involving Injuries on Hope and Happiness

	Japan	The UK	The US
Having hope	one 0.0634 (0.0326) *	0.0456 (0.0188) **	0.0445 (0.0117) ***
	twice or more 0.1251 (0.0371) ***	0.0102 (0.0243)	-0.0013 (0.0144)
Having feasible Hope	one 0.0495 (0.0332)	0.0423 (0.0228) *	0.0354 (0.0165) **
	twice or more 0.0749 (0.0390) *	-0.0292 (0.0315)	-0.0330 (0.0216)
Having active Hope	one 0.0641 (0.0329) *	0.0500 (0.0247) **	0.0621 (0.0176) ***
	twice or more 0.0972 (0.0391) **	-0.0303 (0.0337)	-0.0183 (0.0223)
Having accompanied Hope	one 0.0583 (0.0330) *	0.0497 (0.0247) **	0.0411 (0.0195) **
	twice or more 0.0608 (0.0392)	-0.0285 (0.0337)	-0.0518 (0.0256) **
Being happy	one -0.0529 (0.0298) *	-0.0606 (0.0234) ***	-0.0416 (0.0218) **
	twice or more -0.2103 (0.0382) ***	-0.1882 (0.0379) ***	-0.1690 (0.0315) ***

Notes: The numbers denote the marginal effect of the probit estimation. Numbers within parentheses denote standard errors. In each estimation, the objective variables in Table 4 and 7 are also included as explanatory variables, namely, the dummy variables for sex, age, years of education, marital status, having children, and having a job. The reference point for experience with incidents involving major injuries is "no experience."

Fig 1. Relationship between Incidents Involving Injuries, Happiness, and Hope

