# Worldviews and Intergenerational Altruism

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# What does this paper do?

- This paper presents empirical evidence concerning worldviews and intergenerational altruism.
- We use unique U.S. and Japanese survey data collected by the Osaka University.

# 1. Introduction

# Motivation

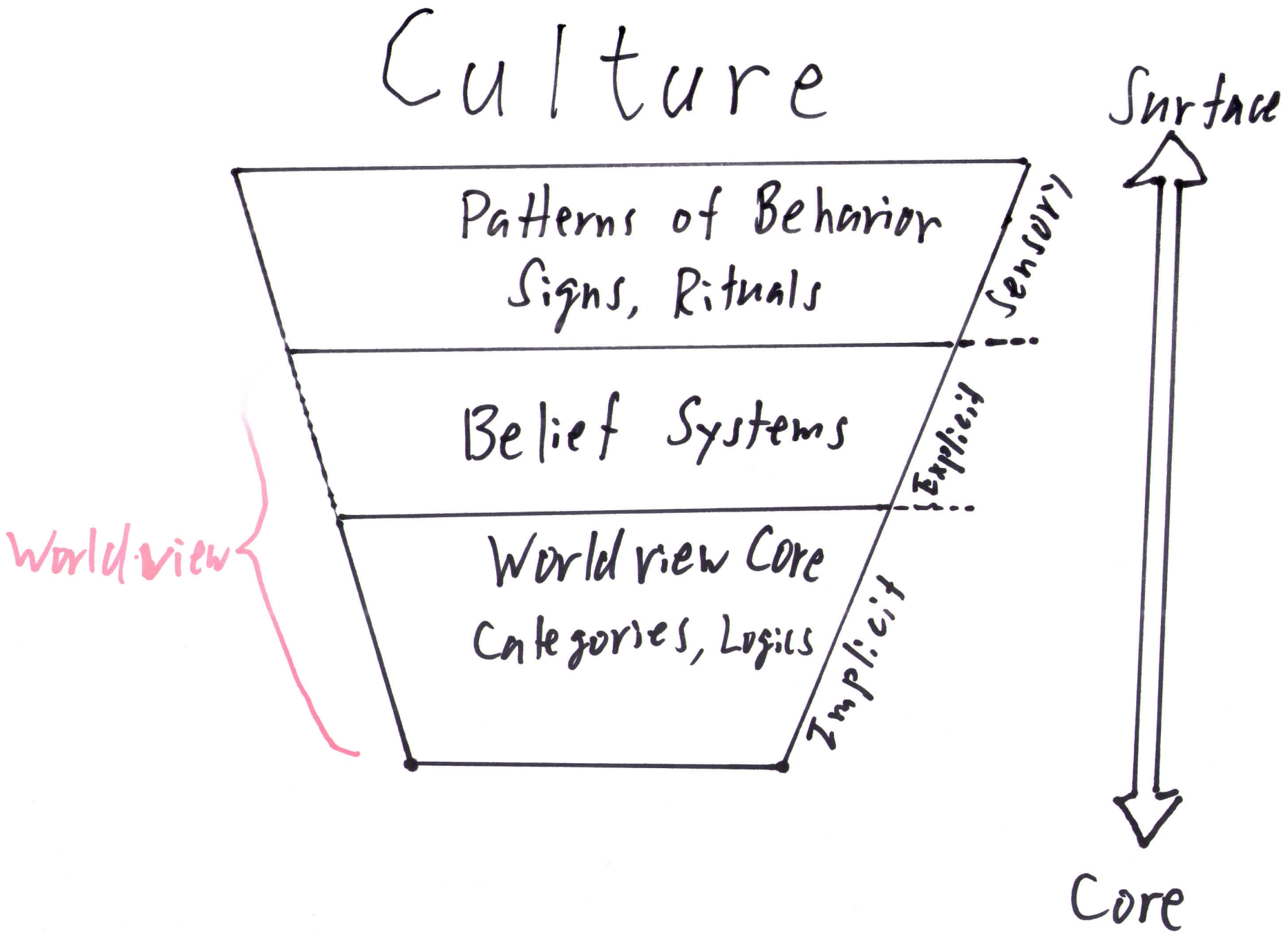
- How different generations are connected is an important economic issue.
  1. Individual economic behavior like saving, investment in human and physical capital, and bequest.
  2. Aggregate saving and growth
  3. Policy implications as in Barro(1974)
     - Recardian equivalence is valid in the standard intergenerational altruism model.

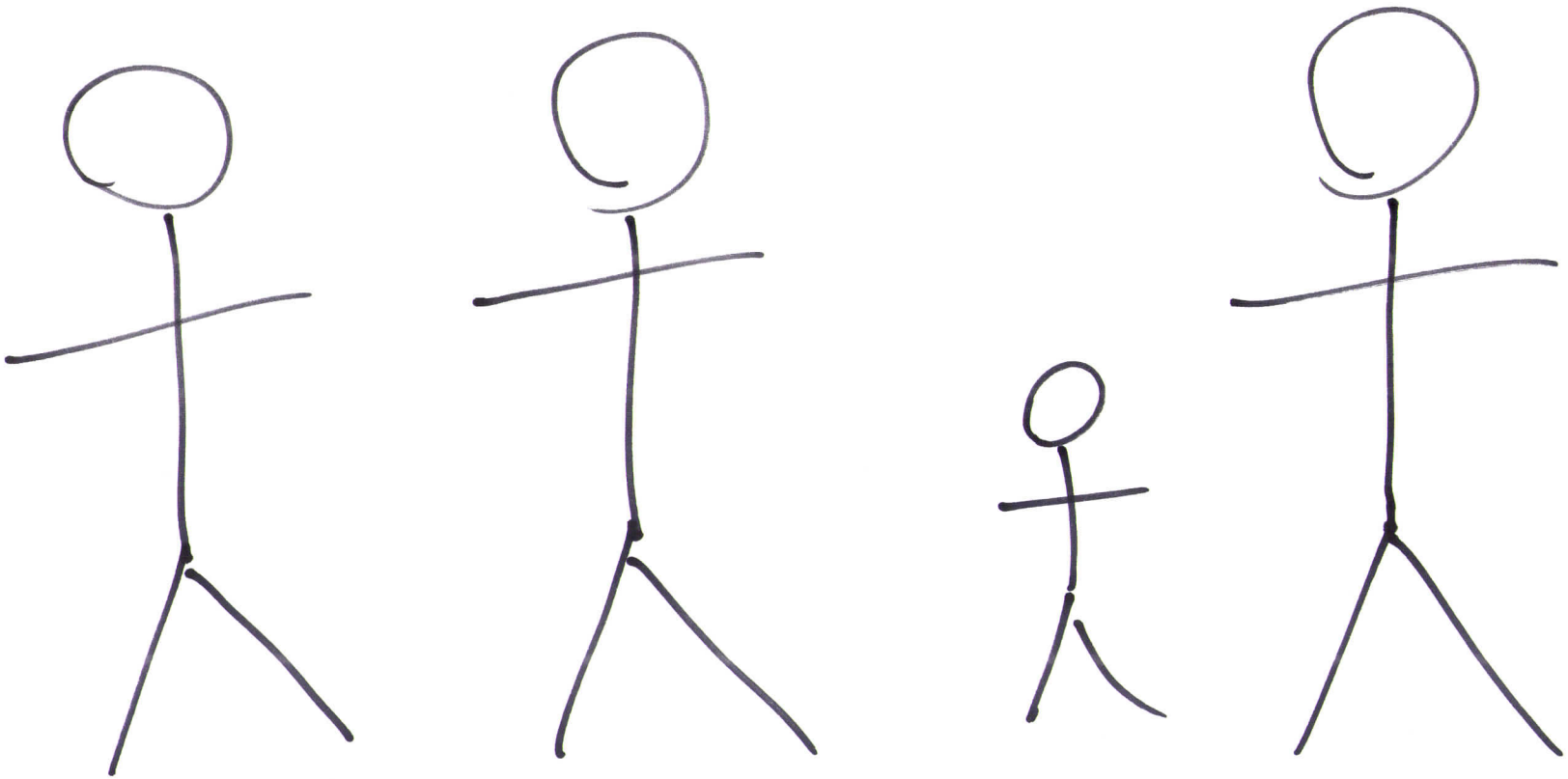
# Main Finding

- Our main finding is that parents' attitudes toward their children depend on parents' worldviews and how confident they are about the issues related to their worldviews.

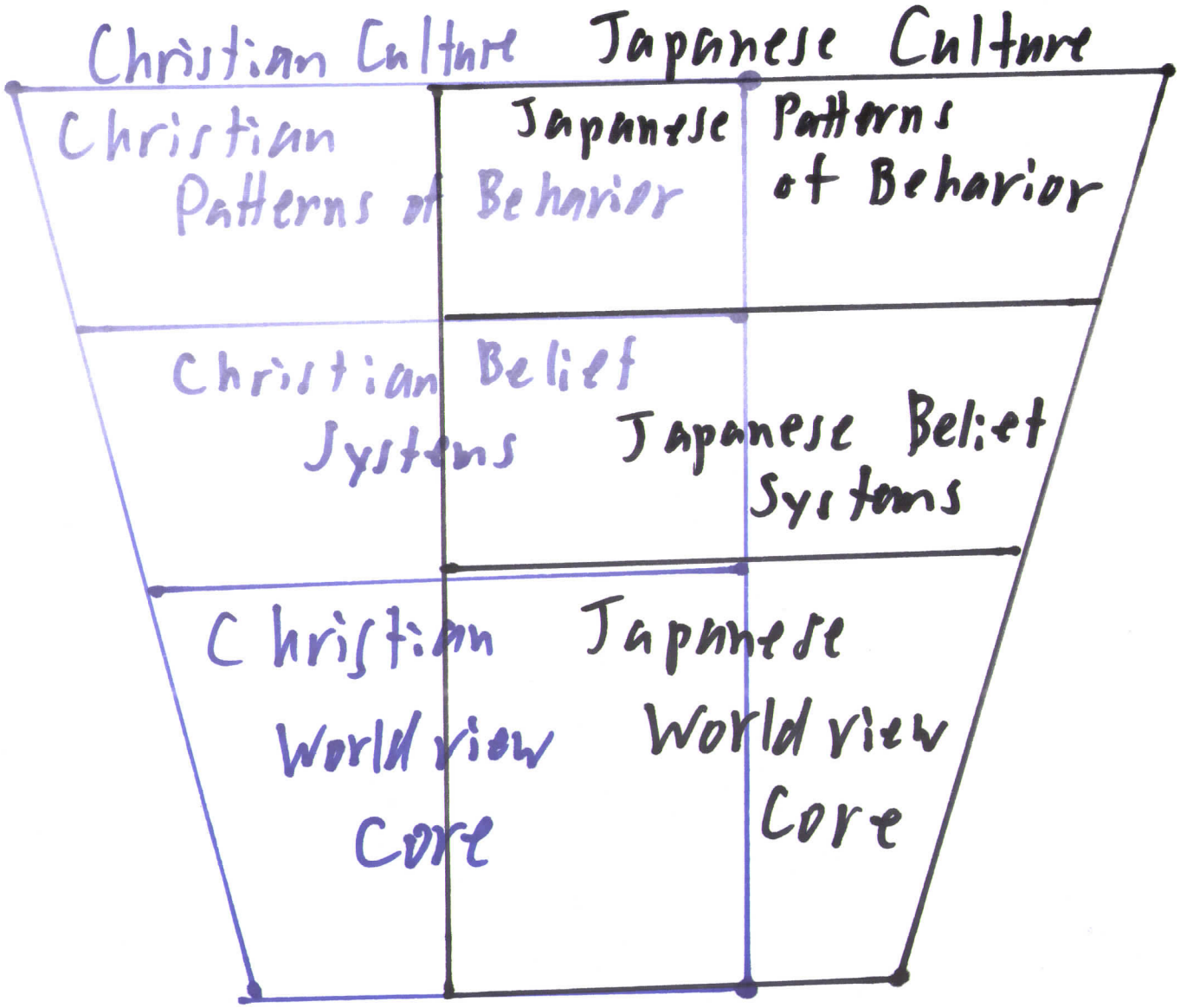
# Worldviews

- Kant first used the word “Weltauschuauung (worldview)” in his book published in 1790.
- Since then, the word has been used by many philosophers and also by anthropologists.
- Anthropologists see three layers of a culture
  1. Cultural behavior on the surface
  2. Belief systems (including religions and norms)
  3. Core worldviews (value, category, logic)


Culture
Surface
Patterns of Behavior
Signs, Rituals
Belief Systems
Worldview Core
Categories, Logics
Sensory
Explicit
Implicit
Worldview
Core



# Multiple Identities



# Worldviews
# -continued

- This paper focuses on the cognitive aspect of the worldview.
- This paper is part of a research project on how worldviews affect economic behavior, and how worldviews of different cultures and countries are affected by individuals.

# Worldviews
# -continued

- In our project, we seek to measure subjective probabilities that are attached to worldview beliefs.
  - E.g. a subjective probability attached to a belief that God and/or other spiritual beings exist.
  - A subjective probability attached to a belief that God or other spiritual beings reward good behavior.

# Tough love

- This paper focuses on how intergenerational altruism (especially parents' discipline behavior  toward children) is affected by parents' worldviews.
- We view that parents' discipline behavior typically is associated with tough love (Bhatt and Ogaki 2008).

# Tough love
# -continued

- Tough love means that a parent allows the child to suffer in the short-run if that helps the child's personal development in the long-run.
  - E.g. learning to be more patient.

# Worldviews and tough love

- A parent is tempted to remove child's suffering in the short-run even when he believes that it is better in the long-run to allow the child to suffer.
- What is good for the child depends on the parent's worldview.

# Confidence in the worldview

- If a parent is more confident about his worldview, then he is more confident about what is good for the child in the long-run.
- It is easier for a parent to resist temptations to remove child's suffering if he is more confident about his worldview.

# A worldview about suffering

- If a parent has a worldview that suffering has a meaning such as personal development, then it is easier for a parent to resist the temptation.
- If omnipotent God loves each person, then He must be allowing suffering of a person because it has a meaning. (The Book of Job, but theologians can have other ideas)

# The Buddhism worldview on suffering

- A Japanese philosopher who is an Buddhism expert wrote that “The ultimate goal of the Buddhism is to escape from suffering.”
- In Buddhism and other religions with the doctrine of reincarnation, every suffering is usually viewed as a consequence of past sinful behaviors.

# The Buddhism worldview and tough love

- It seems more difficult for a person with the Buddhism worldview to resist the temptation to remove suffering of a child.

# 2. Model

# Tough Love Model

- Bhatt and Ogaki (2008) model tough love by modifying the Barro-Becker standard altruism model in two ways.
  1. Child's discounting factors are endogenously determined, so that low consumption at young age leads to a higher discount factor later in her life.
  2. The parent evaluates the child's life time utility with a constant high discount factor.

# Tough Love Model -continued

- The tough love model predicts that transfers from parents will fall when their child's discount factor exogenously falls (say, because she joined a bad company in her high school.)
- This is in contrast with the predictions of the standard altruism model that transfers from parents are independent of exogenous changes in their child's discount factors.

# Model Assumptions

- Consumption good economy
- 3 periods model with two generations
  - Parent and child
- Altruism utility
  - Parent is an altruism derives utility from his own consumption as well as utility level attainable by child
- There is no uncertainty in the economy
- Child is borrowing constrained in period 1:

$$C_1 = y_1 + T \qquad (1)$$

# Notations

- u(c): child's utility function
- v(c): parent's utility function
- η: weight attached by parent on his own utility.
- $\beta_{t,p}$: discount factor used by parent in period t while evaluating child's lifetime utility
- $\beta_{t,k}$: child's discount factor
- $y_p$: parent's exogenous first period income
- $y_t$: child's exogenous period t income, t=1,2.
- $C_t$: child's consumption period t, t=1,2,3.
- T: transfer made in 1st period by parent
- R: gross nominal interest rate between period 2 and 3.

# Standard Altruism v.s. Tough Love Altruism

| A Comparison | |
|---|---|
| Standard Altruism Model | Tough Love Altruism Model |
| $\beta_{t,p} = \beta_{t,k} = \beta_t$ | $\beta_{t,p} = 1$<br>$\beta_{t,k} = \beta_{t,k}(C_1)$ with $\frac{\partial \beta_{t,k}(C_1)}{\partial C_1} < 0$ |

Two assumptions are going on in tough love model:

1. Parent uses a high constant discount factor while evaluating child's life time utility.
2. Child's discount factor is endogenously determined as a decreasing function of his 1st period consumption.

# Parent's Problem

## A.1. Standard Altruism Model

$$\max_{T}\left[\eta v(y_p - T) + (1-\eta)\left[u(y_1 + T) + \beta_2 u(C_2^*) + \beta_2\beta_3 u\left(R(y_2 - C_2^*)\right)\right]\right]$$

$$\text{subject to} \quad C_2^* \equiv \underset{C_2}{\operatorname{argmax}}\left[u(C_2) + \beta_3 u\left(R(y_2 - C_2)\right)\right]$$

## B.1. Tough Love Altruism Model

$$\max_{T}\left[\eta v(y_p - T) + (1-\eta)\left[u(y_1 + T) + \beta_{2,p} u(C_2^*) + \beta_{2,p}\beta_{3,p} u\left(R(y_2 - C_2^*)\right)\right]\right]$$

$$\text{subject to} \quad C_2^* \equiv \underset{C_2}{\operatorname{argmax}}\left[u(C_2) + \beta_{3,k}(y_1 + T) u\left(R(y_2 - C_2)\right)\right]$$

# Child's Utility Maximization

## A.2. Standard Altruism Model

$$[\mathrm{F.O.C.}]:\ u_{C_2} - \beta_3 R u_{C_2}\left(R(y_2 - C_2)\right) = 0$$

$$C_2^* = C_2(y_2, \beta_3, R)$$

## B.2. Tough Love Altruism Model

$$[\mathrm{F.O.C.}]:\ u_{C_2} - \beta_{3,k}(y_1 + T) R u_{C_2}\left(R(y_2 - C_2)\right) = 0$$

$$C_2^* = C_2\left(y_2, \beta_{3,k}(y_1 + T), R\right)$$

# Parent's Solution

## A.3. Standard Altruism Model: Parent's Problem & Solution

$$\max_{T}\left[\eta v(y_p - T) + (1-\eta)u(y_1 + T)\right]$$

$$[\text{F.O.C.}]:\ -\eta v_T(y_p - T) + (1-\eta)u_T(y_1 + T) = 0$$

$$T^* = T(y_p, y_1, \eta)$$

## B.3. Tough Love Altruism Model: Need to solve numerically

$$\text{Utility Function:}\quad u(C) = v(C) = C^{1-\sigma}/1-\sigma$$

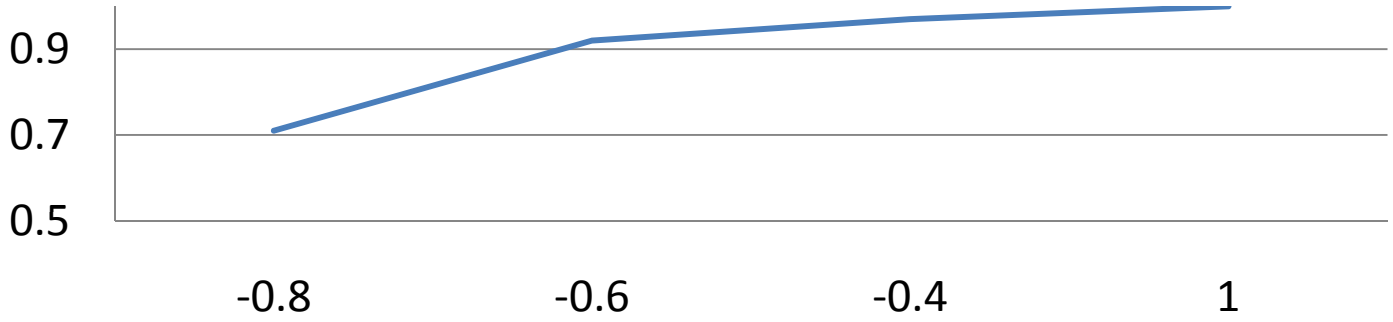
$$\text{Discount Factor Function:}\quad \beta(C_1) = \beta_0 + [1/a(C_1)]$$

$$\text{where}\quad a > 0\ \ \&\ \ \beta_0 \leq 0$$

# Simulation Results

| Global Parameters<br>$\eta=0.5;\ \sigma=1.5;\ R=1.2;\ \beta_p=1;\ y_1=y_2=3;\ y_p=5;\ a=0.01$ | | | | |
|---|---|---|---|---|
| Optimum | $\beta_0=0$ | $\beta_0=-0.4$ | $\beta_0=-0.6$ | $\beta_0=-0.8$ |
| $T^*$ | 1.00 | 0.97 | 0.92 | 0.71 |
| $C_1^*$ | 4.00 | 3.97 | 3.93 | 3.71 |
| $C_2^*$ | 1.57 | 1.83 | 2.03 | 2.34 |
| $C_3^*$ | 1.72 | 1.41 | 1.16 | 0.79 |
| $\beta(C_1^*)$ | 0.96 | 0.56 | 0.36 | 0.16 |

**$T^*$(Opt. transfer) and $\beta_0$(Child's discount factor)**



# Summary of Tough Love Model

- In the tough love model, the parent has the motive to make the growth rate of the child's consumption from period 2 to period 3 be more in line with the parent's high discount factor.
- A patient parent shows tough love to their impatient child when she is young.

# 3. Data

# Preference and Life Satisfaction Survey

- The analyses in this paper are based on data from two surveys conducted by Osaka University 21st Century Center of Excellence Program entitled “Preference and Life Satisfaction Survey” :
  1. U.S.(PLiSS-US)
  2. Japan(PLiSS-JPN)
- These surveys are collected to represent the national population.

# The Dependent Variable

- To evaluate the tough love attitudes of parents, we use the following hypothetical question.

# The “Fever” Question

- Imagine that you have a 2-year old child that has a high fever and is in pain. The doctor who you trust tells you that the fever and the pain are harmless. There is a medicine that you could give your child that would cure the sickness, but would slightly weaken your child’s immune system when he/she turns 50 years old. What would you do? **(X ONE Box)**

1 Y I would **give** the medicine to the child if the sickness is known to last for **one day**.
2 Y I would **give** the medicine to the child if the sickness is known to last for **two days**.
3 Y I would **give** the medicine to the child if the sickness is known to last for **one week**.
4 Y I would **give** the medicine to the child if the sickness is known to last for **one month**.
5 Y I would **not give** the medicine to the child.

# Independent Variables

- Worldview beliefs
- A measure of confidence in their worldview beliefs
- Religious affiliations x (I am deeply religious)
- Measures related to time discount factors (Impatience and the debt aversion)
- Other socio-economic variables (gender, race, education, income, etc.)

Do you agree with the following ideas? If "you totally agree to it", you would choose "1", and if "you totally disagree to it", you would choose "5". Of course, you may choose any number in between.

| | You Totally Disagree To It | ← | | → | You Totally Agree To It |
|---|---|---|---|---|---|
| Life after death exists | 1 | 2 | 3 | 4 | 5 |
| God or Gods exist | 1 | 2 | 3 | 4 | 5 |
| God knows about all the wrong we've done | 1 | 2 | 3 | 4 | 5 |
| Human beings evolved from other living things | 1 | 2 | 3 | 4 | 5 |
| I will never be robbed | 1 | 2 | 3 | 4 | 5 |
| Spirits and Ghost exist | 1 | 2 | 3 | 4 | 5 |
| What is written in science text books is ture | 1 | 2 | 3 | 4 | 5 |
| Heaven exists | 1 | 2 | 3 | 4 | 5 |
| A person's blood type indicates their character | 1 | 2 | 3 | 4 | 5 |

Do the following statements hold true for you? If “it is particularly true for you”, you would choose “5”, and if “it doesn't hold true at all for you”, you would choose “1”. Of course, you may choose any number in between.

| | It Doesn’t Hold True At All | ← | | → | It Is Particularly True For |
|---|---|---|---|---|---|
| I am deeply religious | 1 | 2 | 3 | 4 | 5 |
| I always keep my promise | 1 | 2 | 3 | 4 | 5 |
| I know a lot about politics | 1 | 2 | 3 | 4 | 5 |
| I have a good memory | 1 | 2 | 3 | 4 | 5 |

Please indicate if you are affiliated with any of the following religions.

Options in United States

| | | |
|---|---|---|
| 1. Baptist | 7. Other Protestant | 13. Islam |
| 2. Episcopalian | 8. Roman Catholic | 14. Judaism |
| 3. Evangelical | 9. Orthodox Christian | 15. Scientology |
| 4. Lutheran | 10. Other Christian | 16. Some other affiliation not listed above |
| 5. Presbyterian | 11. Buddhism | 17. None |
| 6. United Methodist | 12. Hinduism | 18. Prefer not to answer |

Options in Japan

| | | |
|---|---|---|
| 1. None | 4. Other Christian | 7. Hinduism |
| 2. Catholic | 5. Judaism | 8. Buddhism |
| 3. Protestant | 6. Islam | 9. Otherwise |

# The “Impatience(1)” Question

- Let's assume you have **two options** to receive some money. You may choose Option “A”, to receive $100 in **2 days**; or Option “B”, to receive a different amount in **9 days**. *Compare the **amounts** and **timing** in Option “A” with Option “B” and indicate which amount you would prefer to receive for all 8 choices.*

| Option “A” Receiving In 2 Days | *or* | Option “B” Receiving In 9 Days | *Includes An Annual Interest Rate Of:* | → | Which ONE do you prefer? (X ONE Box For EACH Row) Option “A” | Option “B” |
|---|---|---|---|---|---|---|
| $100.00 | | $99.81 | -10% | | 1 Y | 2 Y |
| $100.00 | | $100.00 | 0% | | 1 Y | 2 Y |
| $100.00 | | $100.19 | 10% | | 1 Y | 2 Y |
| $100.00 | | $100.38 | 20% | | 1 Y | 2 Y |
| $100.00 | | $100.96 | 50% | | 1 Y | 2 Y |
| $100.00 | | $101.91 | 100% | | 1 Y | 2 Y |
| $100.00 | | $103.83 | 200% | | 1 Y | 2 Y |
| $100.00 | | $105.74 | 300% | | 1 Y | 2 Y |

# The “Impatience(2)” Question

- Now let's assume that you have the option to receive $100 in **90 days** or receive a different amount in **97 days**. *Compare the **amounts** and **timing** in Option “A” with Option “B” and indicate which amount you would prefer to receive for all 8 choices.*

| Option “A” Receiving In 90 Days | | Option “B” Receiving In 97 Days | *Includes An Annual Interest Rate Of:* | → | Which ONE do you prefer? (X ONE Box For EACH Row) Option “A” | Option “B” |
|---|---|---|---|---|---|---|
| $100.00 | *or* | $99.81 | -10% | ..... | 1 Y | 2 Y |
| $100.00 | | $100.00 | 0% | ..... | 1 Y | 2 Y |
| $100.00 | | $100.19 | 10% | ..... | 1 Y | 2 Y |
| $100.00 | | $100.38 | 20% | ..... | 1 Y | 2 Y |
| $100.00 | | $100.96 | 50% | ..... | 1 Y | 2 Y |
| $100.00 | | $101.91 | 100% | ..... | 1 Y | 2 Y |
| $100.00 | | $103.83 | 200% | ..... | 1 Y | 2 Y |
| $100.00 | | $105.74 | 300% | ..... | 1 Y | 2 Y |

# The “Impatience(3)” Question

- Now let's assume that you have the option to receive $100 in **1 month** or receive a different amount in **13 months**. *Compare the **amounts** and **timing** in Option “A” with Option “B” and indicate which amount you would prefer to receive for all 8 choices.*

| Option “A” Receiving In 1 Month | | Option “B” Receiving In 13 Months | *Includes An Annual Interest Rate Of:* | → | Which ONE do you prefer? (X ONE Box For EACH Row) Option “A” | Option “B” |
|---|---|---|---|---|---|---|
| $100 | *or* | $95 | -5%..... | | 1 Y | 2 Y |
| $100 | | $100 | 0%..... | | 1 Y | 2 Y |
| $100 | | $102 | 2%..... | | 1 Y | 2 Y |
| $100 | | $104 | 4%..... | | 1 Y | 2 Y |
| $100 | | $106 | 6%..... | | 1 Y | 2 Y |
| $100 | | $110 | 10%..... | | 1 Y | 2 Y |
| $100 | | $120 | 20%..... | | 1 Y | 2 Y |
| $100 | | $140 | 40%..... | | 1 Y | 2 Y |

# The “Impatience(4)” Question

- Now let's assume that you have the option to **receive $10,000** in **1 month** or **receive** a different amount in **13 months**. *Compare the **amounts** and **timing** in Option “A” with Option “B” and indicate which amount you would prefer to **receive** for all 8 choices.*

| Option “A” Receiving In 1 Month | *or* | Option “B” Receiving In 13 Months | *Includes An Annual Interest Rate Of:* | → | Which ONE do you prefer? (X ONE Box For EACH Row) Option “A” | Option “B” |
|---|---|---|---|---|---|---|
| $10,000 | | $9,500 | -5% | | 1 Y | 2 Y |
| $10,000 | | $10,000 | 0% | | 1 Y | 2 Y |
| $10,000 | | $10,010 | 0.1% | | 1 Y | 2 Y |
| $10,000 | | $10,050 | 0.5% | | 1 Y | 2 Y |
| $10,000 | | $10,100 | 1% | | 1 Y | 2 Y |
| $10,000 | | $10,200 | 2% | | 1 Y | 2 Y |
| $10,000 | | $10,600 | 6% | | 1 Y | 2 Y |
| $10,000 | | $11,000 | 10% | | 1 Y | 2 Y |

# The “Impatience(5)” Question

- Now let's assume that you have the option to **pay $10,000** in **1 month** or **pay** a different amount in **13 months**. *Compare the **amounts** and **timing** in Option “A” with Option “B” and indicate which amount you would prefer to **pay** for all 8 choices.*

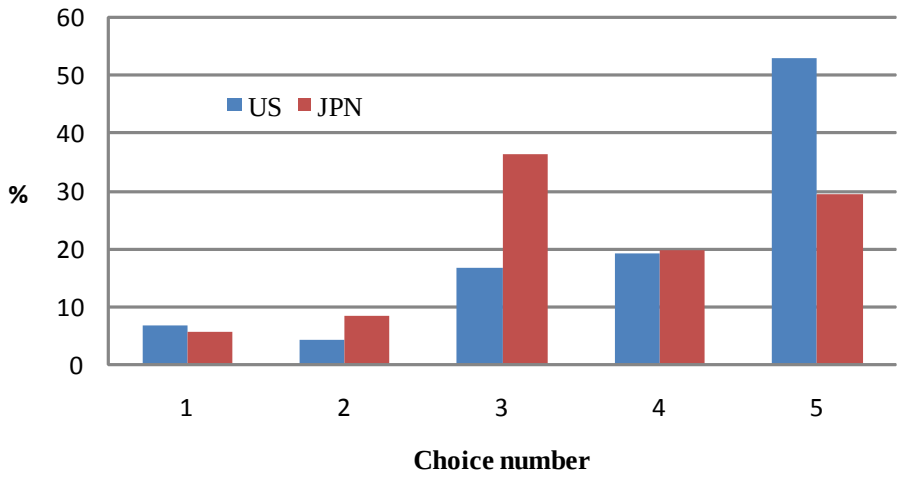
| Option “A” Paying In 1 Month | *or* | Option “B” Paying In 13 Months | *Includes An Annual Interest Rate Of:* | → | Which ONE do you prefer? (X ONE Box For EACH Row) Option “A” | Option “B” |
|---|---|---|---|---|---|---|
| $10,000 | | $9,500 | -5% | | 1 Y | 2 Y |
| $10,000 | | $10,000 | 0% | | 1 Y | 2 Y |
| $10,000 | | $10,010 | 0.1% | | 1 Y | 2 Y |
| $10,000 | | $10,050 | 0.5% | | 1 Y | 2 Y |
| $10,000 | | $10,100 | 1% | | 1 Y | 2 Y |
| $10,000 | | $10,200 | 2% | | 1 Y | 2 Y |
| $10,000 | | $10,600 | 6% | | 1 Y | 2 Y |
| $10,000 | | $11,000 | 10% | | 1 Y | 2 Y |

# Variables related to discount factors

1. Impatience
   - We use hypothetical questions about financial decisions.
   - To mitigate the measurement error problem, we normalized mean of “impatience(1)～(4)”.
2. Debt aversion
   - “Impatience(4)” – “Impatience(5)”
   - This variable indicates that how respondent dislikes debt.
   - We interpret that parent’s debt aversion leads not to procrastinate child’s problem in future.

# 4. Empirical Results

**Figure 1. Distribution of the "Fever" Variable**




Note:

The choice number indicates the following:

1. I would give the medicine to the child if the sickness is known to last for one day.
2. I would give the medicine to the child if the sickness is known to last for two days.
3. I would give the medicine to the child if the sickness is known to last for one week.
4. I would give the medicine to the child if the sickness is known to last for one month.
5. I would not give the medicine to the child.

**Figure 2. Distribution of the "Confidence" Varuable**

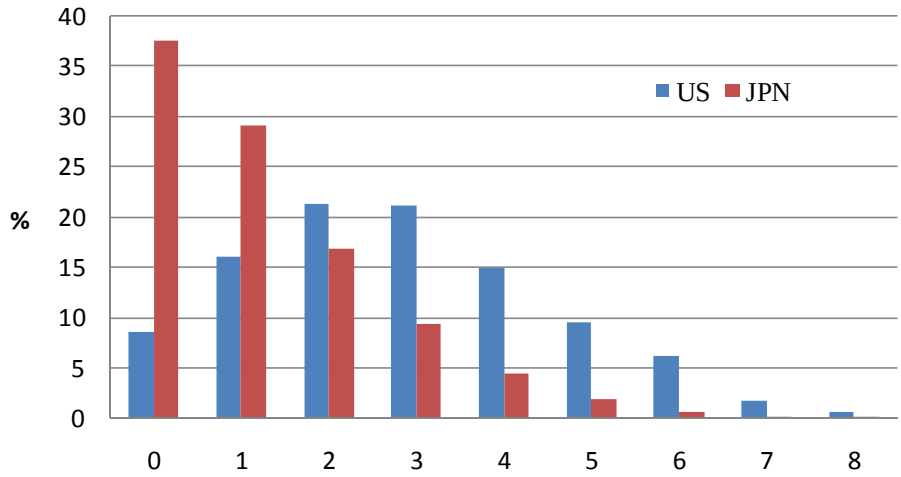


Table 1. Descriptive Statistics

| | Mean | S.D. | Min | Max | Mean | S.D. | Min | Max |
|---|---|---|---|---|---|---|---|---|
| | **Panel A. US(N=1474)** | | | | **Panel B. JPN(N=2457)** | | | |
| Fever | | | | | | | | |
| choice 1. dummy | 0.07 | 0.25 | 0.00 | 1.00 | 0.06 | 0.23 | 0.00 | 1.00 |
| choice 2. dummy | 0.04 | 0.21 | 0.00 | 1.00 | 0.09 | 0.28 | 0.00 | 1.00 |
| choice 3. dummy | 0.17 | 0.37 | 0.00 | 1.00 | 0.36 | 0.48 | 0.00 | 1.00 |
| choice 4. dummy | 0.19 | 0.39 | 0.00 | 1.00 | 0.20 | 0.40 | 0.00 | 1.00 |
| choice 5. dummy | 0.53 | 0.50 | 0.00 | 1.00 | 0.30 | 0.46 | 0.00 | 1.00 |
| Worldview | | | | | | | | |
| Life after death exists | | | | | | | | |
| Yes dummy | 0.62 | 0.49 | 0.00 | 1.00 | 0.30 | 0.46 | 0.00 | 1.00 |
| No dummy | 0.13 | 0.34 | 0.00 | 1.00 | 0.29 | 0.45 | 0.00 | 1.00 |
| God or Gods exists | | | | | | | | |
| Yes dummy | 0.79 | 0.41 | 0.00 | 1.00 | 0.40 | 0.49 | 0.00 | 1.00 |
| No dummy | 0.08 | 0.26 | 0.00 | 1.00 | 0.21 | 0.41 | 0.00 | 1.00 |
| God knows about all the worng we've done | | | | | | | | |
| Yes dummy | 0.71 | 0.45 | 0.00 | 1.00 | 0.38 | 0.48 | 0.00 | 1.00 |
| No dummy | 0.11 | 0.31 | 0.00 | 1.00 | 0.24 | 0.43 | 0.00 | 1.00 |
| Human beings evolved from other living things | | | | | | | | |
| Yes dummy | 0.39 | 0.49 | 0.00 | 1.00 | 0.57 | 0.49 | 0.00 | 1.00 |
| No dummy | 0.39 | 0.49 | 0.00 | 1.00 | 0.10 | 0.30 | 0.00 | 1.00 |
| I am deeply religious | | | | | | | | |
| Yes dummy | 0.36 | 0.48 | 0.00 | 1.00 | 0.08 | 0.26 | 0.00 | 1.00 |
| No dummy | 0.41 | 0.49 | 0.00 | 1.00 | 0.79 | 0.40 | 0.00 | 1.00 |
| Religions | | | | | | | | |
| Christan × Deeply religious dummy | 0.32 | 0.47 | 0.00 | 1.00 | 0.01 | 0.09 | 0.00 | 1.00 |
| Protestant × Deeply religious dummy | 0.15 | 0.36 | 0.00 | 1.00 | | | | |
| Catholic × Deeply religious dummy | 0.12 | 0.32 | 0.00 | 1.00 | | | | |
| Other Christan × Deeply religious dummy | 0.05 | 0.22 | 0.00 | 1.00 | | | | |
| Buddhism × Deeply religious dummy | | | | | 0.04 | 0.20 | 0.00 | 1.00 |
| Otherwise × Deeply religious dummy | 0.04 | 0.18 | 0.00 | 1.00 | 0.02 | 0.13 | 0.00 | 1.00 |
| Confidence | 2.83 | 1.76 | 0.00 | 8.00 | 1.23 | 1.34 | 0.00 | 8.00 |
| I will never be robbed | 2.59 | 1.07 | 1.00 | 5.00 | 3.04 | 0.90 | 1.00 | 5.00 |
| I always keep my promise | 2.56 | 1.15 | 1.00 | 5.00 | 4.03 | 0.69 | 1.00 | 5.00 |
| I know a lot about politics | 2.59 | 1.20 | 1.00 | 5.00 | 2.43 | 0.96 | 1.00 | 5.00 |
| I have a good memory | 2.57 | 1.16 | 1.00 | 5.00 | 2.99 | 0.97 | 1.00 | 5.00 |
| Spirits and Ghost exist | 3.08 | 1.35 | 1.00 | 5.00 | 2.92 | 1.14 | 1.00 | 5.00 |
| What is written in science text books is ture | 2.94 | 1.03 | 1.00 | 5.00 | 3.46 | 0.72 | 1.00 | 5.00 |
| Heaven exists | 4.15 | 1.13 | 1.00 | 5.00 | 3.02 | 1.02 | 1.00 | 5.00 |
| A person's blood type indicates their character | 1.54 | 0.82 | 1.00 | 5.00 | 2.78 | 0.99 | 1.00 | 5.00 |
| Impatience | 0.06 | 0.83 | -1.46 | 1.48 | 0.06 | 0.88 | -1.51 | 1.99 |
| Debt aversion | 0.04 | 0.08 | -0.20 | 0.20 | 0.03 | 0.05 | -0.17 | 0.17 |
| Respondent is male dummy | 0.50 | 0.50 | 0.00 | 1.00 | 0.49 | 0.50 | 0.00 | 1.00 |
| Respondent's age | 45.92 | 15.90 | 18.00 | 88.00 | 49.52 | 13.08 | 20.00 | 75.00 |
| Respondent's race | 0.90 | 0.30 | 0.00 | 1.00 | | | | |
| non-white dummy | 0.10 | 0.30 | 0.00 | 1.00 | | | | |
| Respondent's education years | 14.04 | 2.62 | 9.00 | 21.00 | 13.34 | 2.15 | 9.00 | 21.00 |
| Having children dummy | 0.67 | 0.47 | 0.00 | 1.00 | 0.80 | 0.40 | 0.00 | 1.00 |
| Log of household's income | 6.23 | 0.89 | 3.91 | 7.82 | 6.33 | 0.66 | 3.87 | 7.78 |

Table 2. Tough Love Attitude (Ansewer 5) in Uniteed States

| Dpendent variable: Choice 5. in fever | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Life after death exists | | | | | | | |
| Yes dummy | -0.006 | | | | | | |
| | (0.032) | | | | | | |
| No dummy | 0.051 | | | | | | |
| | (0.045) | | | | | | |
| God or Gods exists | | | | | | | |
| Yes dummy | | -0.055 | | | | | |
| | | (0.040) | | | | | |
| No dummy | | 0.040 | | | | | |
| | | (0.060) | | | | | |
| God knows about all the worng we've done | | | | | | | |
| Yes dummy | | | 0.026 | | | | |
| | | | (0.036) | | | | |
| No dummy | | | 0.080 | | | | |
| | | | (0.050) | | | | |
| Human beings evolved from other living things | | | | | | | |
| Yes dummy | | | | -0.004 | | | |
| | | | | (0.036) | | | |
| No dummy | | | | 0.026 | | | |
| | | | | (0.036) | | | |
| I am deeply religious | | | | | | | |
| Yes dummy | | | | | 0.016 | | |
| | | | | | (0.036) | | |
| No dummy | | | | | 0.032 | | |
| | | | | | (0.034) | | |
| Religions | | | | | | | |
| Christan × Deeply religious dummy | | | | | | -0.020 | |
| | | | | | | (0.029) | |
| Ohterwise × Deeply religious dummy | | | | | | 0.134 * | 0.133 * |
| | | | | | | (0.068) | (0.069) |
| Protestant × Deeply religious dummy | | | | | | | -0.038 |
| | | | | | | | (0.039) |
| Catholic × Deeply religious dummy | | | | | | | 0.014 |
| | | | | | | | (0.043) |
| Other Christan × Deeply religious dummy | | | | | | | -0.048 |
| | | | | | | | (0.061) |
| Confidence | 0.019 ** | 0.020 *** | 0.018 ** | 0.018 ** | 0.019 ** | 0.019 ** | 0.019 ** |
| | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) |
| Impatience | -0.048 ** | -0.049 ** | -0.048 ** | -0.047 ** | -0.048 ** | -0.050 ** | -0.049 ** |
| | (0.019) | (0.019) | (0.019) | (0.019) | (0.019) | (0.019) | (0.019) |
| Debt aversion | 0.417 ** | 0.421 ** | 0.420 ** | 0.411 ** | 0.413 ** | 0.454 ** | 0.453 ** |
| | (0.203) | (0.203) | (0.203) | (0.203) | (0.203) | (0.205) | (0.205) |
| Male dummy | 0.038 | 0.037 | 0.040 | 0.041 | 0.040 | 0.041 | 0.041 |
| | (0.027) | (0.027) | (0.027) | (0.027) | (0.027) | (0.027) | (0.027) |
| Age | 0.003 *** | 0.003 *** | 0.003 *** | 0.003 *** | 0.003 *** | 0.003 *** | 0.003 *** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Other white race dummy | 0.037 | 0.042 | 0.038 | 0.034 | 0.039 | 0.029 | 0.033 |
| | (0.044) | (0.044) | (0.045) | (0.045) | (0.045) | (0.045) | (0.045) |
| Education years | 0.007 | 0.006 | 0.006 | 0.007 | 0.006 | 0.006 | 0.006 |
| | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) |
| Having children dummy | -0.019 | -0.015 | -0.019 | -0.025 | -0.021 | -0.023 | -0.023 |
| | (0.031) | (0.031) | (0.031) | (0.031) | (0.031) | (0.031) | (0.031) |
| Log of household's income | 0.020 | 0.019 | 0.022 | 0.023 | 0.020 | 0.021 | 0.020 |
| | (0.016) | (0.016) | (0.016) | (0.016) | (0.016) | (0.016) | (0.016) |
| Observations | 1474 | 1474 | 1474 | 1474 | 1474 | 1474 | 1474 |
| Log likelihood | -1002 | -1000 | -1001 | -1002 | -1002 | -1000 | -999.8 |

Note:

1.This is estimated by probit model.

2. The esitimation retuls are marginal effect.

3. Robust Standard errors are shown in the parenthese.

4. *,** and *** indicate the varuabls are sugnificant at 10%, 5% and 1% signficance level, respectively.

Table 3. Tough Love Attitude (Ansewer 5) in Japan

| Dpendent variable: Choice 5. in fever | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Life after death exists | | | | | | |
| Yes dummy | 0.028 | | | | | |
| | (0.023) | | | | | |
| No dummy | 0.040 * | | | | | |
| | (0.024) | | | | | |
| God or Gods exists | | | | | | |
| Yes dummy | | 0.031 | | | | |
| | | (0.021) | | | | |
| No dummy | | 0.064 ** | | | | |
| | | (0.027) | | | | |
| God knows about all the worng we've done | | | | | | |
| Yes dummy | | | 0.013 | | | |
| | | | (0.022) | | | |
| No dummy | | | 0.037 | | | |
| | | | (0.026) | | | |
| Human beings evolved from other living things | | | | | | |
| Yes dummy | | | | 0.049 ** | | |
| | | | | (0.021) | | |
| No dummy | | | | 0.091 ** | | |
| | | | | (0.036) | | |
| I am deeply religious | | | | | | |
| Yes dummy | | | | | -0.020 | |
| | | | | | (0.041) | |
| No dummy | | | | | -0.004 | |
| | | | | | (0.028) | |
| Religions | | | | | | |
| Christan × Deeply religious dummy | | | | | | 0.085 |
| | | | | | | (0.112) |
| Buddhism × Deeply religious dummy | | | | | | -0.100 ** |
| | | | | | | (0.041) |
| Ohterwise × Deeply religious dummy | | | | | | 0.0889 |
| | | | | | | (0.073) |
| Confidence | 0.016 ** | 0.014 ** | 0.017 ** | 0.017 ** | 0.020 *** | 0.018 *** |
| | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Impatience | -0.037 ** | -0.037 *** | -0.037 *** | -0.036 ** | -0.036 ** | -0.036 ** |
| | (0.014) | (0.014) | (0.014) | (0.014) | (0.014) | (0.014) |
| Debt aversion | 0.666 ** | 0.663 ** | 0.669 ** | 0.678 ** | 0.660 ** | 0.646 ** |
| | (0.267) | (0.267) | (0.267) | (0.267) | (0.266) | (0.267) |
| Male dummy | 0.034 * | 0.033 * | 0.034 * | 0.036 * | 0.036 * | 0.037 * |
| | (0.019) | (0.020) | (0.020) | (0.019) | (0.019) | (0.019) |
| Age | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Education years | 0.002 | 0.002 | 0.002 | 0.001 | 0.003 | 0.003 |
| | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) |
| Having children dummy | -0.048 * | -0.047 * | -0.046 * | -0.048 * | -0.048 * | -0.047 * |
| | (0.027) | (0.027) | (0.027) | (0.027) | (0.027) | (0.027) |
| Log of household's income | 0.009 | 0.007 | 0.008 | 0.008 | 0.009 | 0.010 |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.015) | (0.015) |
| Observations | 2457 | 2457 | 2457 | 2457 | 2457 | 2457 |
| Log likelihood | -1478 | -1476 | -1478 | -1475 | -1479 | -1475 |

Note:

1.This is estimated by probit model.

2. The esitimation retuls are marginal effect.

3. Robust Standard errors are shown in the parenthese.

4. *,** and *** indicate the varuabls are sugnificant at 10%, 5% and 1% signficance level, respectively.

Table 4. Strongly Spoiling Attitude (Ansewer 1) in Uniteed States

| Dpendent variable: Choice 1. in fever | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Life after death exists | | | | | | | |
| Yes dummy | -0.001 | | | | | | |
| | (0.013) | | | | | | |
| No dummy | -0.025 | | | | | | |
| | (0.016) | | | | | | |
| God or Gods exists | | | | | | | |
| Yes dummy | | 0.007 | | | | | |
| | | (0.017) | | | | | |
| No dummy | | -0.030 | | | | | |
| | | (0.019) | | | | | |
| God knows about all the worng we've done | | | | | | | |
| Yes dummy | | | 0.006 | | | | |
| | | | (0.016) | | | | |
| No dummy | | | -0.013 | | | | |
| | | | (0.021) | | | | |
| Human beings evolved from other living things | | | | | | | |
| Yes dummy | | | | 0.015 | | | |
| | | | | (0.017) | | | |
| No dummy | | | | 0.007 | | | |
| | | | | (0.016) | | | |
| I am deeply religious | | | | | | | |
| Yes dummy | | | | | -0.029 ** | | |
| | | | | | (0.013) | | |
| No dummy | | | | | -0.022 * | | |
| | | | | | (0.013) | | |
| Religions | | | | | | | |
| Christan × Deeply religious dummy | | | | | | -0.015 | |
| | | | | | | (0.012) | |
| Ohterwise × Deeply religious dummy | | | | | | -0.031 * | -0.030 * |
| | | | | | | (0.017) | (0.017) |
| Protestant × Deeply religious dummy | | | | | | | -0.021 * |
| | | | | | | | (0.012) |
| Catholic × Deeply religious dummy | | | | | | | -0.026 * |
| | | | | | | | (0.014) |
| Other Christan × Deeply religious dummy | | | | | | | 0.031 |
| | | | | | | | (0.031) |
| Confidence | 0.003 | 0.002 | 0.002 | 0.002 | 0.003 | 0.003 | 0.003 |
| | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) |
| Impatience | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 |
| | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) | (0.007) |
| Debt aversion | -0.101 | -0.105 | -0.095 | -0.097 | -0.097 | -0.110 | -0.106 |
| | (0.084) | (0.083) | (0.084) | (0.085) | (0.082) | (0.084) | (0.082) |
| Male dummy | 0.010 | 0.010 | 0.010 | 0.009 | 0.009 | 0.008 | 0.009 |
| | (0.011) | (0.011) | (0.012) | (0.012) | (0.011) | (0.011) | (0.011) |
| Age | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 * |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Other white race dummy | 0.095 *** | 0.093 *** | 0.093 *** | 0.099 *** | 0.095 *** | 0.103 *** | 0.106 *** |
| | (0.030) | (0.030) | (0.030) | (0.031) | (0.030) | (0.032) | (0.032) |
| Education years | -0.010 *** | -0.010 *** | -0.010 *** | -0.011 *** | -0.010 *** | -0.010 *** | -0.010 *** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Having children dummy | 0.001 | 0.001 | 0.001 | 0.003 | 0.004 | 0.003 | 0.004 |
| | (0.014) | (0.014) | (0.014) | (0.014) | (0.013) | (0.014) | (0.013) |
| Log of household's income | -0.018 *** | -0.018 *** | -0.018 *** | -0.019 *** | -0.018 *** | -0.018 *** | -0.018 *** |
| | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) |
| Observations | 1474 | 1474 | 1474 | 1474 | 1474 | 1474 | 1474 |
| Log likelihood | -329.7 | -329.3 | -330.4 | -330.5 | -328.5 | -329.6 | -327.4 |

Note:

1.This is estimated by probit model.

2. The esitimation retuls are marginal effect.

3. Robust Standard errors are shown in the parenthese.

4. *,** and *** indicate the varuabls are sugnificant at 10%, 5% and 1% signficance level, respectively.

Table 5. Strongly Spoiling Attitude (Ansewer 1) in Japan

| Dpendent variable: Choice 1. in fever | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Life after death exists | | | | | | |
| Yes dummy | -0.007 | | | | | |
| | (0.010) | | | | | |
| No dummy | -0.008 | | | | | |
| | (0.010) | | | | | |
| God or Gods exists | | | | | | |
| Yes dummy | | -0.001 | | | | |
| | | (0.009) | | | | |
| No dummy | | -0.016 | | | | |
| | | (0.010) | | | | |
| God knows about all the worng we've done | | | | | | |
| Yes dummy | | | -0.004 | | | |
| | | | (0.009) | | | |
| No dummy | | | -0.011 | | | |
| | | | (0.010) | | | |
| Human beings evolved from other living things | | | | | | |
| Yes dummy | | | | -0.008 | | |
| | | | | (0.009) | | |
| No dummy | | | | 0.000 | | |
| | | | | (0.014) | | |
| I am deeply religious | | | | | | |
| Yes dummy | | | | | 0.009 | |
| | | | | | (0.018) | |
| No dummy | | | | | -0.018 | |
| | | | | | (0.013) | |
| Religions | | | | | | |
| Christan × Deeply religious dummy | | | | | | 0.055 |
| | | | | | | (0.068) |
| Buddhism × Deeply religious dummy | | | | | | 0.016 |
| | | | | | | (0.022) |
| Ohterwise × Deeply religious dummy | | | | | | 0.0464 |
| | | | | | | (0.041) |
| Confidence | 0.007 ** | 0.008 ** | 0.007 ** | 0.006 ** | 0.007 ** | 0.006 ** |
| | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) |
| Impatience | -0.003 | -0.003 | -0.003 | -0.003 | -0.004 | -0.003 |
| | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Debt aversion | 0.210 | 0.204 | 0.205 | 0.203 | 0.201 | 0.202 |
| | (0.129) | (0.128) | (0.130) | (0.130) | (0.128) | (0.130) |
| Male dummy | 0.024 *** | 0.026 *** | 0.024 *** | 0.024 *** | 0.025 *** | 0.025 *** |
| | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) |
| Age | 0.002 *** | 0.002 *** | 0.002 *** | 0.002 *** | 0.002 *** | 0.002 *** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Education years | -0.006 *** | -0.006 *** | -0.006 *** | -0.006 *** | -0.006 *** | -0.006 *** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Having children dummy | 0.002 | 0.001 | 0.001 | 0.002 | 0.002 | 0.002 |
| | (0.012) | (0.012) | (0.013) | (0.013) | (0.012) | (0.012) |
| Log of household's income | -0.011 * | -0.011 * | -0.011 * | -0.011 * | -0.011 * | -0.011 * |
| | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) |
| Observations | 2457 | 2457 | 2457 | 2457 | 2457 | 2457 |
| Log likelihood | -497.9 | -497 | -497.8 | -497.9 | -496.1 | -496.6 |

Note:

1.This is estimated by probit model.

2. The esitimation retuls are marginal effect.

3. Robust Standard errors are shown in the parenthese.

4. *,** and *** indicate the varuabls are sugnificant at 10%, 5% and 1% signficance level, respectively.

# 5. Conclusion

# Conclusion

1. Our empirical evidence indicates that people who are confident about issues related to worldviews tend to show tough love attitudes toward their children.
2. Our evidence also suggests that worldviews and religions affect tough love and spoiling love attitudes.