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How is Suicide Different in Japan?

by

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Aims of Our Study

A rash of suicides, starting from the late 1990's, has become a major issue in Japan. Aims of our research project, "*Studies on Suicide (SOS)*," are to:

- Summarize evidence on suicides in Japan through international comparisons
- Uncover determinants of high suicide rates in Japan
- Identify effective policy instruments

Outline of Presentation

1. Facts on Suicide in Japan
2. Sociological and Economic Theories on Suicides
3. Possible Determinants of Suicides: Empirical Investigations I using Cross-Country Data
4. Possible Determinants of Suicides: Empirical Investigations II using Micro Data from the joint *Lifelink* and University of Tokyo Survey
5. Policies

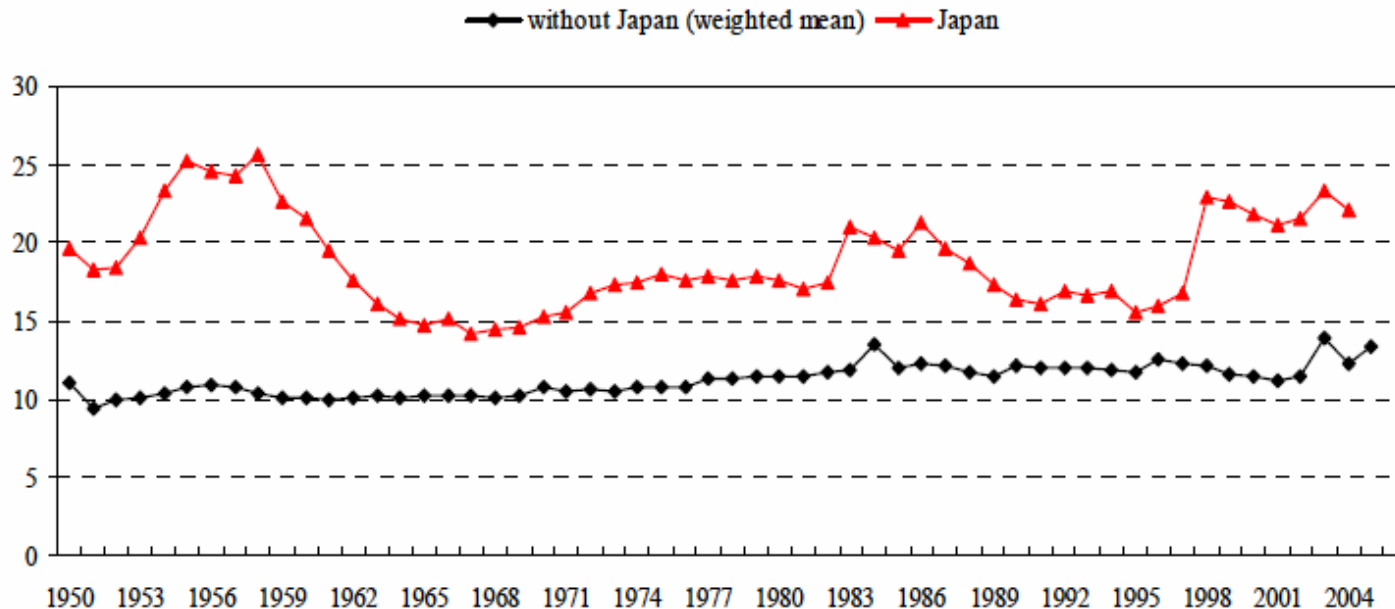
1. Facts on Suicide in Japan

- Suicide is a serious problem in current-day Japan.
 - *Jinshinjiko*, (train) accidents involving human bodies, is part of the daily life of Tokyo residents. In many Tokyo metro stations, barriers on the platforms have been constructed recently to stop suicide jumps into trains.
 - The growing use of the internet to learn about effective suicide methods or even to form a suicide group.
 - High-profile suicides are reported in the media: The 1968 Nobel Prize in Literature Laureate Yasunari Kawabata (1899-1972), Yukio Mishima (1925-1970), 62 years old Toshikatsu Matsuoka, the sitting Minister of Agriculture, Forestry and Fisheries of Japan and a successively 6 times elected member of the House of Representatives, hanged himself on 28 May 2007, hours before he was to face questioning in the Diet over a series of scandals in his political career.

1. Facts on Suicide in Japan

- Since 1998, more than 30,000 people commit suicide annually in Japan. Attempters are about ten times as large as them.
- Internationally, high rate of suicides
 - ◇ 24 per 100,000 people - the highest rate among developed nations.
 - ◇ 11 per 100,000 people in the US
 - ◇ High in transition economies and low in Latin American and Mediterranean countries: Lithuania currently has the world's highest with 38.6 per 100,000 people, according to WHO; high in Sri Lanka; high among Chinese females

Suicide Rate in Japan and other OECD countries



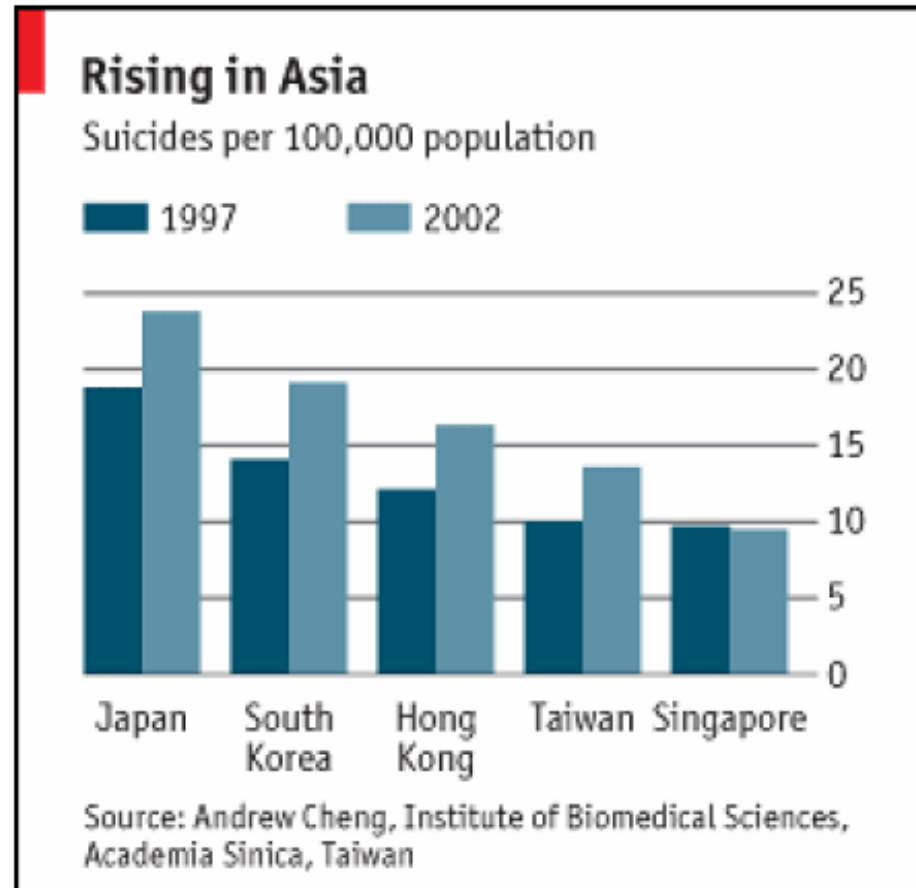
1. Facts on suicide in Japan

- Among the OECD countries, the male and female suicide rates of Japan ranked one of the highest.

	Male					
	1998	1999	2000	2001	2002	2003
Austria	4	4	4	4	4	8
Finland	2	2	2	2	3	4
France	6	6	7	7	7	6
Hungary*	1	1	1	1	1	1
Japan	3	3	3	3	2	2
Poland*	-	7	8	6	6	5
Republic of Korea	7	11	16	11	8	3
Switzerland	5	5	5	5	5	9

	Female					
	1998	1999	2000	2001	2002	2003
Austria	6	3	4	4	8	7
Finland	5	7	5	5	5	5
France	7	5	7	7	6	6
Hungary*	1	1	1	1	4	4
Japan	2	2	2	2	2	2
Republic of Korea	3	6	6	6	3	1
Switzerland	4	4	3	3	1	3

We can also find a rising trend in Asia, especially in Korea



1. Facts on Suicide in Japan

- In year 2006, suicide is ranked higher than the number of people died of aging. Number of suicides is five times as large as those of car accidents (6,300 in 2006).
- Suicides by middle-aged males are serious
 - In year 2003, suicide is the #1 cause of death for the group of males (females) aged from 20 to 44 (15 to 34); and #2 for the groups of males (females) aged from 15 to 19 and from 45 to 49 (35 to 49).
 - 32.8% (25.2%) of total death of males (females) aged 20 to 49 are due to suicides.
 - Many suicides are committed by middle-aged males on Mondays (at the beginning of the workweek) during early morning hours.
 - A key reason may be financial and unemployment problems arising from the recession. Also, increases in extremely overworked but low-paid temporal workers, *Haken Roudousha*, without proper protections by labor laws.

Figure 2. Time-series Plot of Suicide Rates: Japan vs. other OECD Countries, Male

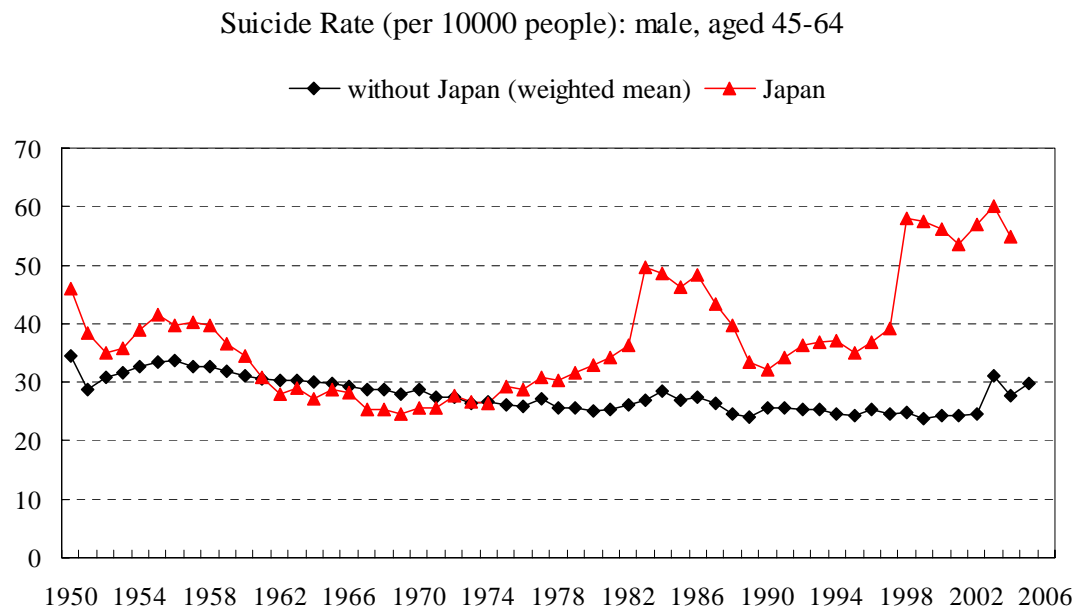
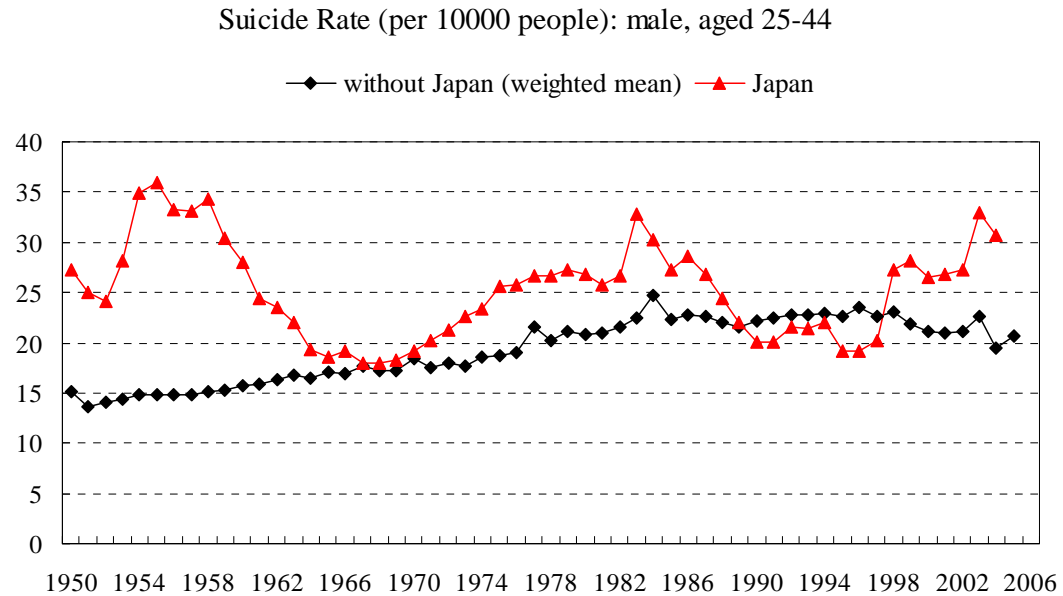
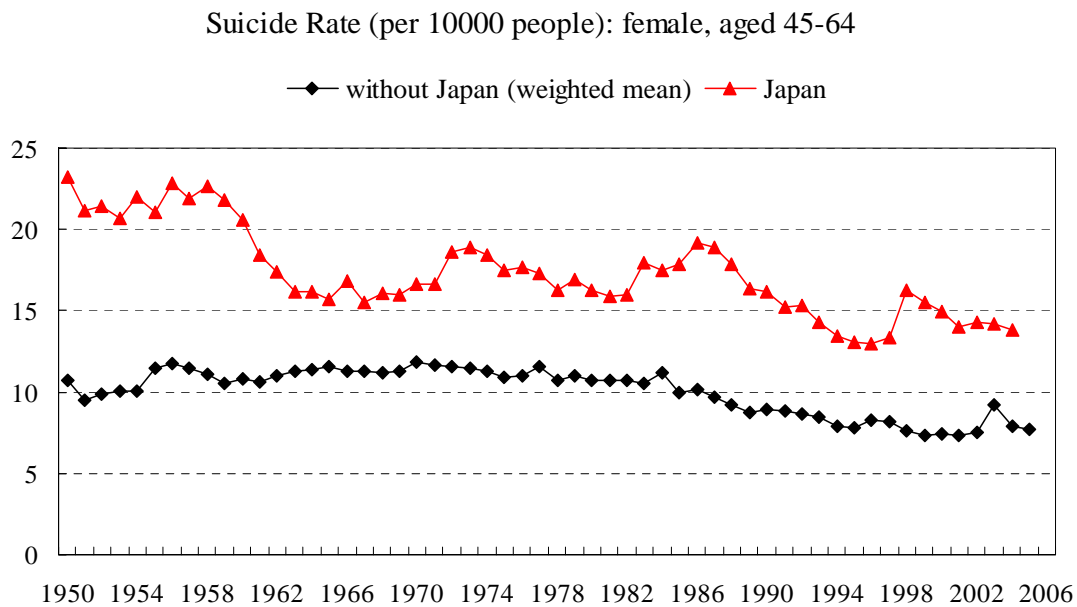
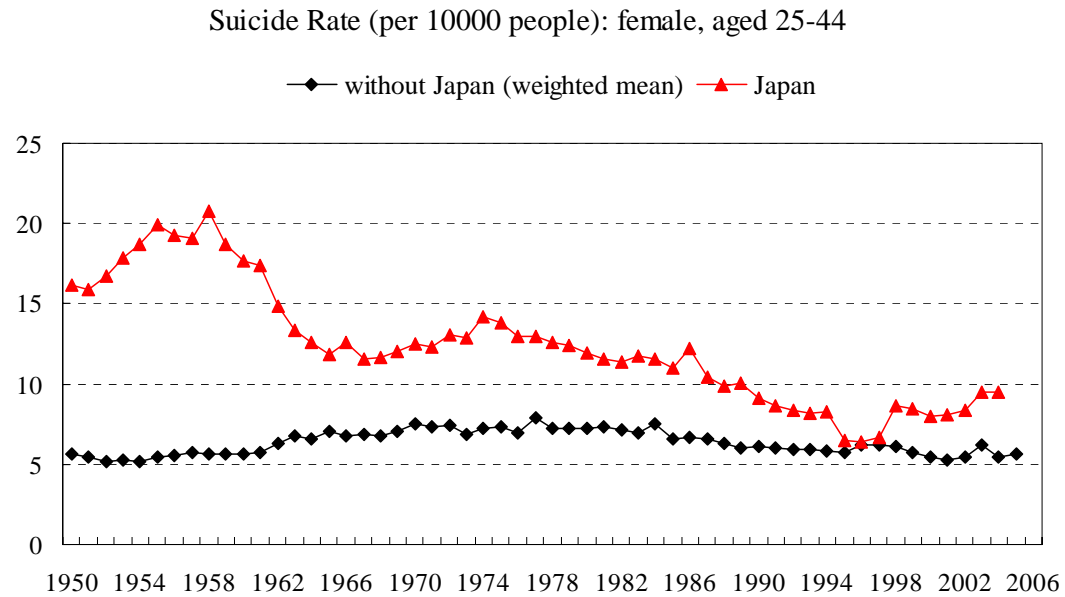


Figure 3. Time-series Plot of Suicide Rates: Japan vs. other OECD Countries, Female



2. Sociological Theories on Suicides

- Émile Durkheim, the father of modern sociology, wrote *Le Suicide* (1897).
 - Durkheim said that suicide rates were a key sign of the state of a community.
 - People have a certain level of attachment to their groups, which Durkheim calls social integration.
 - Abnormally high or low levels of social integration may result in increased suicide rates:
 - ✧ *low levels* have this effect because low social integration results in disorganized society, alienation, isolation, and loneliness in the individual;
 - ✧ *high levels* cause people to kill themselves to avoid becoming burdens of the society, or because the social pressure becomes too severe.
- In modern societies with low social integrations, Durkheim argues, the rapid change in society due to increasing division of labor produces a state of confusion with regard to norms and increasing impersonality in social life, leading eventually to relative normlessness.
- Durkheim christens this state “*anomie*.” From a state of “*anomie*” comes all forms of deviant behavior, most notably suicide.

2. Sociological Theories on Suicides

- Some sociologists argued that the unique “value orientations” of the Japanese culture such as monism, groupism, accommodationism, and authoritarian familism contribute to the unusually high suicide rates among industrialized countries.
 - Also, unlike Christianity, Buddhism makes people believe in reincarnation
- Indeed, traditionally in the Japanese culture, there is a positive view toward one taking their own life, meaning to take responsibility for their own actions.
 - Samurai's *seppuku* (*harakiri*; ritual suicide; self-disembowelment or, literally, belly-cutting)
 - *Kamikaze* (suicide pilots during the WW II) as the greatest honor among the young
 - White-collar middle-age unemployed salaried-man, bankrupted corporate executives, school principals and bureaucrats involved in some troubles, and other stigmatized people.
- High-profile suicides: Minamoto Yoshitsune (1159--1189), Kusunoki Masashige (1294--1336), Nogi Maresuke (1849--1912), Yasunari Kawabata (1899--1972), Yukio Mishima (1925--1970), Toshikatsu Matsuoka, etc.
- Internet seems to facilitate more suicides: more information about suicide methods; suicide group formations; and “*bullycide*,” i.e., suicide by being bullied.

2. Economic Theories on Suicides

- Economists have a late start. It was not until Hamermesh and Soss (1974), did economists come up with an economic theory of suicide.
- Despite many psychologists and doctors consider suicide as an irrational behavior, Hamermesh and Soss consider suicide as a rational behavior to maximize individual's discounted expected lifetime utility.
- An individual commits suicide when:

Expected lifetime utility < Utility from committing suicide

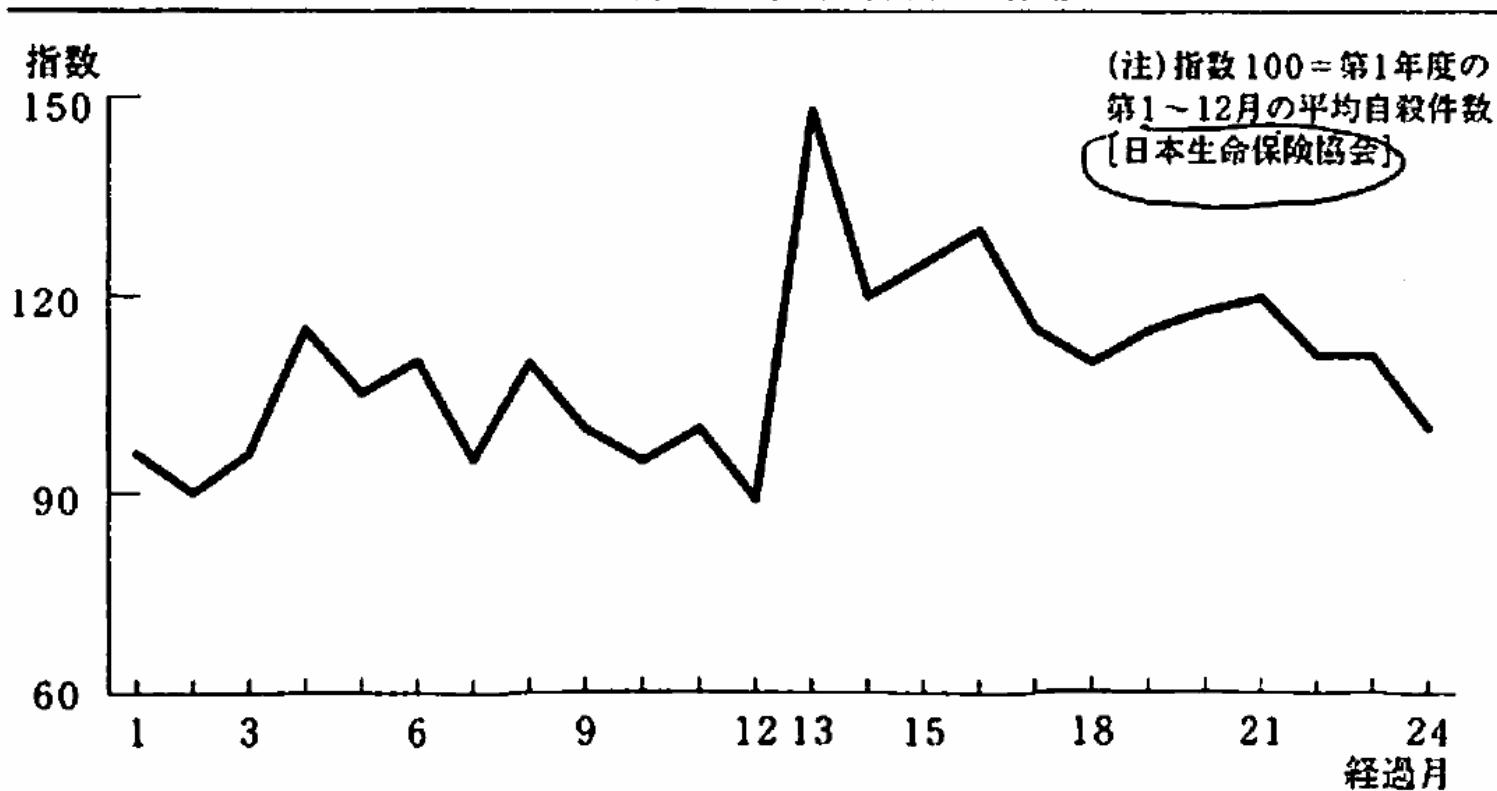
- The model predicts that suicide:
 - Decreases with income (b/c lifetime utility increases lifetime utility);
 - Increases with age (b/c lifetime utility decreases utility)
- The model can be extended to take into account a variety of socioeconomic variables such as: unemployment, the distribution of income/wealth, divorce, birth, and so on.

2. Economic Theories on Suicides

- Suicides may be induced by life insurance payments (Chen, Choi, and Sawada, 2008; *study in progress*)
 - “Some Indian states pay bereaved families compensation for the loss of a breadwinner who has killed himself; this seems to increase the suicide rate.” The Economist, 21 June 2007, *Elusive, but not unstoppable*.
 - In Japan, life insurance policies pay for suicides after the *suicide exemption period* expires. According to one media report, a major life insurance company’s payment due to suicide increased by 50% from 1995 to 2004, and 10% of its total insurance payment went to deaths related to suicides.
 - Accordingly, the length of the exemption period of major Japanese life insurance companies has been:
 - ✧ 1 year until 1999
 - ✧ 2 years since 2000
 - ✧ 3 years from 2005.
- The next figure seems to support the hypothesis of life-insurance-induced suicides.

Suicide Index (vertical) and Months after Insurance Contract (horizontal)
(100 for the average number of suicide for the first 12 months after contract)

図5-4 契約後経過月別自殺の推移



Shorin Amemiya (2002), Costs of Suicide (in Japanese, Jisatsu No Kosuto), Ohta Shuppan

3. Possible Determinants of Suicides: Empirical Investigations I

- We analyze determinants of suicide rates among OECD countries with a particular effort made to gain insight into how suicide in Japan is different from suicides in other OECD countries.
 - We employ a cross-country regression framework which allows Japan to have a different set of regression coefficients.
 - Estimations are carried out separately for both male and female groups. For each sex, additional estimations are carried out for three different age groups.
- In Japan, suicide rate is very sensitive to the economic factors such as real GDP per capita, growth rate of real GDP per capita, unemployment rate, and Gini index as well as to the social factors captured by divorce rate, birth rate, female labor participation rate, and alcohol consumption.
 - Japanese suicide rates may be attributed to economic factors, rather than unobserved value or cultural factors.

Determinants of Suicide Rates among OECD countries with Japan Specific Effects Regression Results

	Male	Female
Real GDP per capita	-0.31 **	-0.32
(Japan effect)	-1.50 ***	-1.20 ***
per capita GDP growth rate	0.09	-0.10
(Japan effect)	-5.33 ***	-5.14 **
Unemployment rate	-0.04	0.50
(Japan effect)	24.93 **	24.98
Female labor force participation rate	-0.01	-0.02
(Japan effect)	0.33 ***	0.49 ***
Birth rate	0.05	0.11
(Japan effect)	-1.60 ***	-2.57 **
Divorce rate	0.04	0.02
(Japan effect)	-0.01	-0.43
Alcohol consumption	0.02	0.01
(Japan effect)	0.10 *	0.01
Inequality (Gini) index	0.01 **	0.00
(Japan effect)	0.01 ***	0.02 ***
Number of observations	312	312
Number of countries	27	27
R-squared	0.824	0.792

3. Possible Determinants of Suicides: Empirical Investigations I

The Oxaca Composition of the Adjusted Difference in Suicide Rates for the Male and Female Groups.

Male	Endowment		Gap in Coefficient	
Adjusted difference (-9.86)	Proportion to the adjusted difference		Proportion to the adjusted difference	
	$\gamma^{Japan} \cdot \Delta \bar{X}$		$\Delta \gamma \cdot \bar{X}^{OECD}$	
Per capita GDP	-0.51	5.13	2.78	-28.18
Per capita GDP growth rate	0.05	-0.50	0.26	-2.63
Unemployment rate	1.20	-12.14	-1.87	18.94
Female labor participation	1.01	-10.24	-14.38	145.85
Birth rate	-0.01	0.10	2.59	-26.31
Divorce rate	0.03	-0.30	0.01	-0.11
Alcohol consumption	0.21	-2.17	-0.97	9.84
Gini coefficient	0.01	-0.09	-0.28	2.82
	1.99	-20.22	-11.85	120.21

4. Possible Determinants of Suicides: Empirical Investigations II

- Micro data is indispensable to identify evidence-based policy implications
- In the epidemiologic approach, there are existing survey on suicide
 - Small sample
 - Not much information on socio-economic aspects

	Micro approach	Macro approach
Link to policy	This type of research needed	
Not much link to policy	Psychiatry Epidemiology	Cross-country or regional data analysis in sociology and economics

● **Lifelink & Univ. Tokyo Survey**

- *Mission impossible*: getting individual-level data on suicides.
- An ongoing project surveying family members of suicide victims,
 - Conducted by the joint effort of a Tokyo-based non-for-profit suicide prevention organization, *Lifelink*, and our *SOS* project of Univ. of Tokyo.
 - An unprecedented opportunity in the field of suicide study.

4. Possible Determinants of Suicides: Empirical Investigations II

Lifeline & Univ. Tokyo Survey

- Respondents: family members of suicide victims,
- Size: 1,000 (planned, currently 100)
- Structured questionnaire was utilized together with follow-up interviews
 - First stage survey with 300 common questions
 - Second stage survey with specific questions (1,834 questions in total) depending on the reason(s) of the suicide
- Tentative results with 100 respondents:
 - There are multiple reasons for suicides, typically depression and economic problems.
 - There were not much pre-suicide consultations, especially amount the self-employed.
 - A larger fraction of self-employed people commits suicide, possibly due to the *joint liability contract (or co-guarantor contract)*:
 - 10 out of 22 self-employed committed suicide because of multiple debt and/or the *co-guarantor* problem.
 - A third of suicides of the self-employed was due to the *co-guarantor* problem (as opposed to the only 6% in the case of others)

4. Possible Determinants of Suicides: Empirical Investigations II

Joint Liability Borrowing and Suicide:

- In Japan, particularly for small and medium business without much collateral, *co-guarantor loan contract* is a standard practice. Under this contract, a borrower is required to find a co-guarantor, usually a close family member or a very close friend, who is jointly liable to the full extent of the amount of his debt.
 - This Japanese co-guarantor system or joint liability contract has similar features as the micro-credit program initiated by Dr. Muhammed Yunus of the Grameen Bank.
 - This joint liability arrangement facilitates credit market, mitigating problems in loan transactions without collateral such as adverse selection, moral hazard, and strategic defaults through informal enforcement mechanism or the *social collateral*.
 - However, our study mentioned above points out that, in cases when the borrower fails to repay his debt, this informal enforcement mechanism, using the high social integration (*a la* Durkheim), co-guarantor may put too much pressure on the borrower through the stigma or social penalty, leading to a vexing outcome---the suicide of the borrower. A social worker said that “*this is de facto unlimited liability contract.*”
 - The link between strong stigma and suicides has also been documented traditionally. The stigma through social sanction may result in suicides of those who failed in installments in rotation savings and credit associations (ROSCAs).
- Many people in Japan seem to believe that killing oneself creates less of a burden to the family members than having them live with a debtor or bankrupted debtor.

5. Policies

- While Japanese government traditionally treated suicide as a personal problem, due to the increasing number of suicides, the Japanese Diet passed suicide prevention legislation in November 2006, aiming at reducing number of suicides by more than 20 percent in ten years.
- The government created the Office for the Policy of Suicide Prevention inside the Cabinet Office and the first white paper on suicide prevention was issued on November 2007. There are several policy targets:
 - Training of MDs to better identify patients with medical problems
 - Training of legal consultants for those swamped by debt insolvencies
 - Measures to control suicide information websites, suicide chatrooms, and bulletin boards.
- Exclusive emphasis in medical treatments of depression may be misplaced. Many cases of depression are caused by debt and co-guarantor problems. If so, comprehensive and integrated policy measures will be needed.
- For further information, please look at our discussion papers:

Chen, Joe, Yun Jeong Choi and Yasuyuki Sawada, "How Is Suicide Different in Japan?", CIRJE Discussion Paper F-526, University of Tokyo, November 2007 <<http://www.e.u-tokyo.ac.jp/cirje/research/dp/2007/2007cf526.pdf>>

Chen, Joe, Yun Jeong Choi and Yasuyuki Sawada, "Joint Liability Borrowing and Suicide", CIRJE Discussion Paper F-534, University of Tokyo, December 2007 <<http://www.e.u-tokyo.ac.jp/cirje/research/dp/2007/2007cf534.pdf>>