

Comparison of the Social Environment for the Asian Youth Career Education

Analysis of Education, Employment and Declining Birth Rate
in Korea, Japan and Singapore

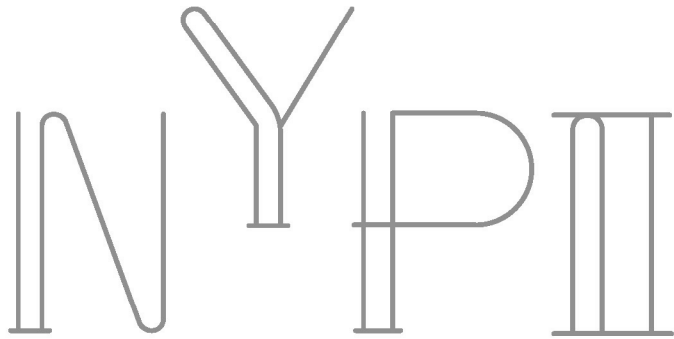
아시아 청소년진로교육 사회환경 국제비교

한국, 일본, 싱가포르의 교육, 고용, 저출산 분석을 중심으로

Date 25, August, 2016 (Thursday) 10:00–12:30

Place National Youth Policy Institute 7th floor

Host National Youth Policy Institute



Comparison of the Social Environment for the Asian Youth Career Education

Analysis of Education, Employment and Declining Birth Rate in Korea, Japan and Singapore

- Date : Thursday, August 25, 2016
- Place : National Youth Policy Institute, 7th floor
- Moderator : Kim, Hyuncheol (National Youth Policy Institute, Korea)

Opening Ceremony

- | | |
|-----------------|--|
| 10:00
~10:10 | <ul style="list-style-type: none">• Welcome Speech
Roh, Hyouk (President, National Youth Policy Institute, Korea) |
|-----------------|--|

Presentation

- | | |
|-----------------|---|
| 10:10
~11:40 | <ul style="list-style-type: none">• Comparative Study of Relationships between Youth Employment and Increase in Single People in Japan, South Korea, and Singapore
Matsuda, Shigeki (Chukyo University, Japan)• The Impact of Population and Education Policies on Fertility in Singapore
Sim, ChoonKiat (Showa Women's University, Japan)• Work, Family and Marital Fertility in Japan
Bae, Jihey (Obirin University, Japan)• Diversity of Working Conditions and Fertility in Korea
Lee, Samsik (Korea Institute for Health and Social Affairs, Korea) |
|-----------------|---|

Discussion

- | | |
|-----------------|--|
| 11:40
~12:30 | <p>Watanabe, Hideki (Teikyo University, Japan)</p> <p>Takenoshita, Hirohisa (Sophia University, Japan)</p> <p>Ozawa, Hiroyuki (Tokyo Gakugei University, Japan)</p> <p>Baek, Hyejeong (National Youth Policy Institute, Korea)</p> |
|-----------------|--|

아시아 청소년진로교육 사회환경 국제비교

한국, 일본, 싱가포르의 교육, 고용, 저출산 분석을 중심으로

- 일 시 : 2016년 8월 25일(목) 10:00 - 12:30
- 장 소 : 한국청소년정책연구원 7층 대회의실
- 사회자 : 김현철 (한국청소년정책연구원)

개회식

- | | |
|-----------------|--|
| 10:00
~10:10 | <ul style="list-style-type: none"> • 환영사 노 혁 (한국청소년정책연구원 원장) |
|-----------------|--|

발 표

- | | |
|-----------------|--|
| 10:10
~11:40 | <ul style="list-style-type: none"> • 청년층의 고용과 미혼증가와의 관련성에 대한 일본, 한국, 싱가포르 비교연구
마츠다 시게키 (松田茂樹, 中京大学) • 싱가포르의 인구와 교육정책이 출산율에 미치는 영향
심 춘키앗 (Sim, ChoonKiat, 昭和女子大学) • 일본의 일, 가족, 기혼여성출산율
배지혜 (桜美林大学) • 한국의 근로형태와 출산수준의 연관성
이삼식 (한국보건사회연구원 저출산고령화대책기획단 단장) |
|-----------------|--|

토 론

- | | |
|-----------------|---|
| 11:40
~12:30 | <p>와타나베 히데끼 (渡辺秀樹, 帝京大学)</p> <p>타케노시타 히로히사 (竹ノ下弘久, 上智大学)</p> <p>오자와 히로유키 (小澤昌之, 東京学芸大学)</p> <p>백혜정 (한국청소년정책연구원)</p> |
|-----------------|---|

PART 01 / 1

Comparative Study of Relationships between Youth Employment and Increase in Single People in Japan, South Korea, and Singapore

Matsuda, Shigeki (Chukyo University, Japan)

PART 02 / 11

The Impact of Population and Education Policies on Fertility in Singapore

Sim, ChoonKiat (Showa Women's University, Japan)

PART 03 / 37

Work, Family and Marital Fertility in Japan

Bae, Jihey (Obirin University, Japan)

PART 04 / 59

Diversity of Working Conditions and Fertility in Korea

Lee, Samsik (Korea Institute for Health and Social Affairs, Korea)

PART

01

Comparative Study of Relationships between Youth Employment and Increase in Single People in Japan, South Korea, and Singapore

Matsuda, Shigeki

(Chukyo University, Japan)

Open seminar
8/25/2016
at National Youth Policy Institute, South Korea

Relation between Youth Employment and Marriage Experience

: Comparing Japan and Asia with Europe

Chukyo University
Shigeki Matsuda Ph.D.

Acknowledgments: This research was supported by JSPS KAKENHI Grant Number 26285122. Survey data of the Cabinet Office was used with permission to use from the Director General for Policies on Cohesive Society, Cabinet Office.

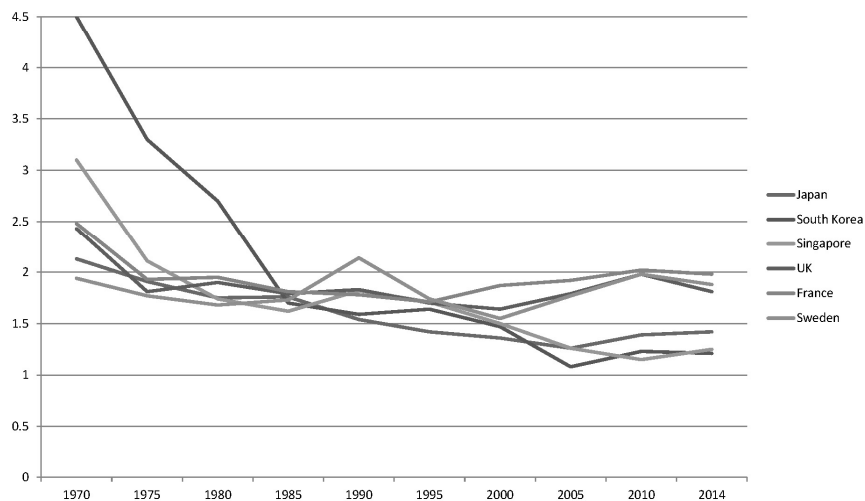
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Purpose of the research

- Low birth rate in Asian countries
 - Total Fertility Rate (TFR): Japan 1.42 (2014), South Korea & Singapore 1.19 (2013)
 - TFR decline in a shorter period of time than that in Europe
 - “Ultra low fertility” (Jones et al. 2009)
- Difference in “Second Demographic Transition” (SDT) in North-western Europe and Asia
 - SDT: TFR decline, cohabitation, birth out of wedlock, divorce, change of values to individualism (van de Kaa 1987)
 - Asia: Less cohabitation and children born out of wedlock (Kojima 2010), strong institution of marriage (Ochiai 2013)
- Factors underlying the decrease in marriage rate in Asia
 - Decrease in marriage rates corresponds to the falling birth rate in Asia
 - Countries analyzed : Japan, South Korea, Singapore, France, and Sweden

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TFR



Source: Declining birth rate, Cabinet Office, Japan, 2016; Declining Birthrate White Paper

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Unmarried individuals by age

(%)

	Japan	South Korea	Singapore	UK	France	Sweden
Male						
25~29	71.8	81.8	80.2	80.2	84.5	86.4
30~34	47.3	41.3	37.5	54.9	62.7	65.9
35~39	35.6	18.4	20.6	38.2	46.5	49.8
Female						
25~29	60.3	59.1	63.0	68.4	73.9	75.8
30~34	34.5	19.1	25.5	44.1	52.5	53.4
35~39	23.1	7.6	17.0	30.6	39.4	39.7

Source: National Institute of Population and Social Security Research, Population Statistics, 2016;
Singapore General Household Survey, 2015

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Unemployed & non-regular work individuals (%)

	Japan	South Korea	Singapore	UK	France	Sweden
Unemployment 15-24	6.3	10.0	2.5	16.3	23.2	22.9
Unemployment 25-54	3.6	3.3		4.8	8.7	6.0
Temporary 15-24	14.2	25.7	–	15.2	57.0	56.4
Temporary 25-54	5.5	16.4	–	4.7	12.3	12.6
Part time	22.7	10.5	–	24.1	14.2	14.2
Dispatched employee	2.0	0.4	–	3.9	2.0	1.5

Source: JILPT, Databook of international labor statistics, 2016;
Ministry of manpower, Singapore, 2016

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Previous surveys : Factors of declining birth rate in Asian countries

- **Gender equity hypothesis (GEH)**
 - A variety of factors play a role in the low birth rate in developed countries. (Atoh 1996; 2000; Suzuki 2013)
 - GEH has been thought to have a central position. (McDonald 2000; Ahn and Mira 2002; Suzuki 2013など)
 - Gender inequality in the family system, difficulty for women to work while raising children, rise of late marriage of women
 - The hypothesis explains certain aspects.
- **However, the current situation cannot be fully explained by GEH**
 - Although there is a rise in the social advancement and work life balance of women, the birth rate is still low in Asian countries.
 - No positive correlation between female labor force participation rate and the TFR is found in Asia.
- **Focus on youth employment**
 - Deterioration of employment conditions for young people is causing low birth rates in Japan (Matsuda 2013)
 - Employment problem behind “Lowest-low fertility” (Kohler, et al. 2002) in Europe
 - No direct empirical analysis of unemployment and non-regular work affecting birth rate through international comparison

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Hypothesis to be analyzed

- **This study proposes a ‘employment deterioration for young people’ hypothesis**
 - Employment of young people has deteriorated due to the sophistication of industry, globalization, and service industrialization, while education expenses and the cost of living have increased. Non-regular workers, low-income persons, and unemployed young individuals have a low probability of marriage and cohabitation.
 - This hypothesis is more strongly supported in Asia than in Europe and among men than among women because of the following reasons:
 - ① Degree of norm regarding family and gender
 - ② Flexibility of the labor market and different treatment for regular and non-regular employment
 - Difference among the countries analyzed
 - This hypothesis is supported more strongly in Japan and South Korea than in Singapore due to Singapore’s educational policy (Sim 2009) and economic growth rate.
 - It is least applicable in Sweden among the three European countries due to the two abovementioned reasons.

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Method

- **Data**
 - The International Opinion Survey on a Low Birthrate Society conducted by the Cabinet Office of Japan in 2010: Conducted in Japan, South Korea, France, and Sweden
 - Singapore: Opinion Survey on Marriage, Family, and Work in 2016 conducted by the research association on declining birth rate, education and employment in Asia (Principal Investigator: Shigeki Matsuda)
 - Sampling: random sampling (Japan) quota sampling (other countries)
 - males and females from 20 to 49 years of age were interviewed
 - Sample size: Japan = 1,248; South Korea = 1,005; Singapore = 803; France = 1,002; and Sweden = 1,001
- **Variables**
 - Dependent variable: the respondent’s marriage experience (“Marriage and cohabitation experience” in European countries)
 - Independent variables: the respondent’s present job type, income
 - Control variables: respondent’s age, educational background, and ethnicity (only Singapore)
- **Analysis**
 - Logistic regression

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Marriage experience

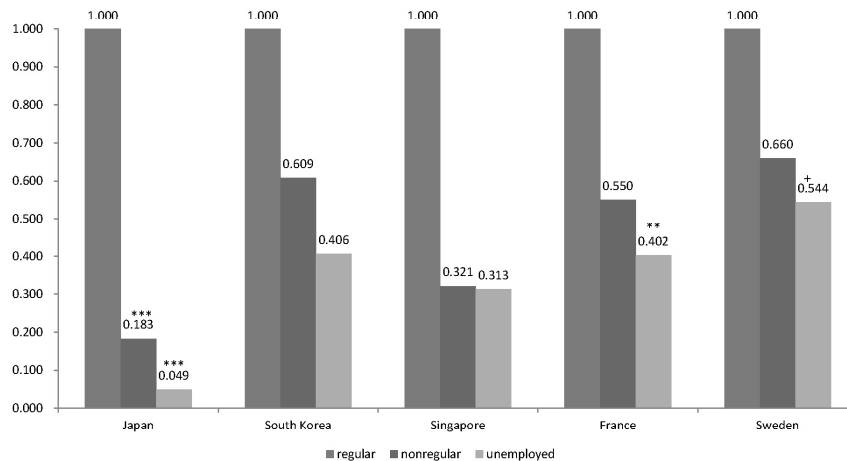
(%)

	Asia			Europe	
	Japan	South Korea	Singapore	France	Sweden
Male	60.5	54.1	51.4	82.8	80.6
Female	75.5	72.3	65.6	91.0	89.8

Note: Marriage and cohabitation experience in European countries

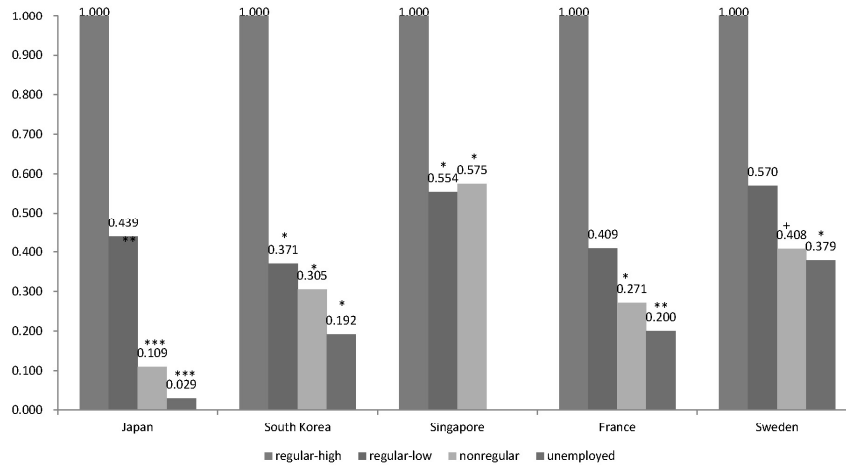
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Logit Analysis Results of the Marriage Experience : Effect of male's present job (odds ratio), model1



Note: Marriage rate in the case of regular employees as 1. Age, educational background, and ethnicity (Singapore only) were controlled. No variables of the first job in the South Korean data. Representation of the self-employed has been omitted. Marriage and cohabitation experience in European countries₁₀
 ***p < 0.001 **p < 0.01 *p < 0.05 +p < 0.1

Logit Analysis Results of the Marriage Experience : Effect of male's present job (odds ratio) , model2

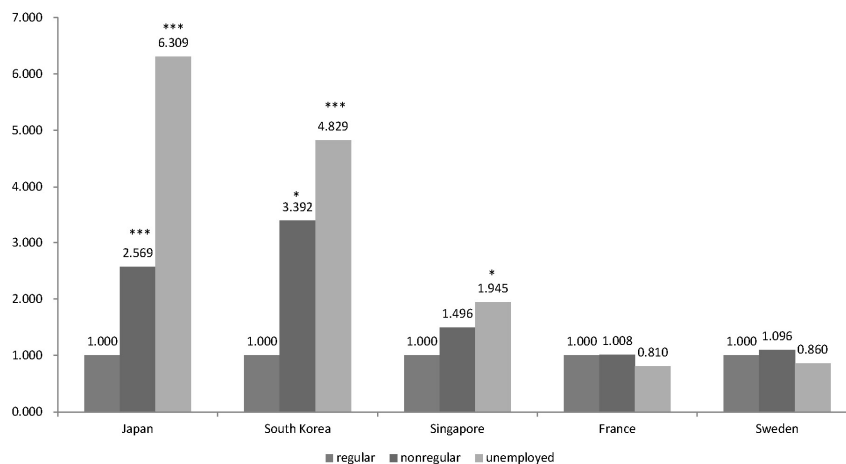


Note: Marriage rate in the case of regular employers of high income as 1. Age, educational background, and ethnicity (Singapore only) were controlled. Representation of the self-employed has been omitted. Marriage and cohabitation experience in European countries.

***p < 0.001 **p < 0.01 *p < 0.05 + p < 0.1

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Logit Analysis Results of the Marriage Experience : Effect of female's present job (odds ratio)



Note: Marriage rate in the case of regular employees as 1.

Marriage and cohabitation experience in European countries.

Age, educational background, and ethnicity (Singapore only) were controlled.

***p < 0.001 **p < 0.01 *p < 0.05 + p < 0.1

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Results

- **Male**
 - Present job non-regular → low marriage (cohabitation) experience in Japan
 - Present job low income → low marriage (cohabitation) experience in all countries
 - Unemployed → extremely low marriage (cohabitation) experience in many countries.
- **Female**
 - Difference by employment like for males was not found.
 - Tendency for non-regular employment after marriage in three Asian countries.
- **Features of each country**
 - Japan: Male's low income + non-regular employees
 - South Korea: income difference than employment
 - Singapore: Income difference (weak effect), fewer non-regular employees
 - European countries: Unemployment and non-regular reduces the marriage cohabitation experience rates for men.

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Verification of the hypothesis

- **Support in men**
 - Generally marriage (cohabitation) is difficult among low-income men.
 - Non-regular employed men find it most difficult to marry in Japan.
- **Support in Asia and Europe**
 - It noted a couple formation is easy because Europe is spreading cohabitation .
- **Goodness of fit of the hypothesis in the Asian countries**
 - Japan > South Korea > Singapore → as expected
 - Especially in Japan

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Implications

- **For academic research**
 - **Usefulness of the “employment deterioration of young people” hypothesis**
 - Clear cause of low birth rate in Japan and South Korea
 - Young people’s employment becomes a problem when economic growth is slow.
 - A detailed analysis of the effects of employment is desired in the future.
- **For policy**
 - **Deterioration of youth employment increases the decline of birth rate**
 - widespread unstable employment and low-wage jobs for the youth after economic recession
 - **The enhancement of employment measures and human capital investments in young people**
 - Japan: Wage improvement of non-regular employees, the softening of the labor market
 - South Korea and Singapore: Improvement in the treatment of non-regular employees is required before further economic recession
 - **Linking education and employment policies**

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PART

02

The Impact of Population and Education Policies on Fertility in Singapore

Sim, ChoonKiat

(Showa Women's University, Japan)

More Marriages and Babies Wanted - The Impact of Population and Education Policies on Fertility in Singapore -

Assoc. Prof. SIM ChoonKiat
Faculty of Humanities & Social Sciences
Showa Women's University

This research was supported by JSPS KAKENHI Grant Number JP26285122

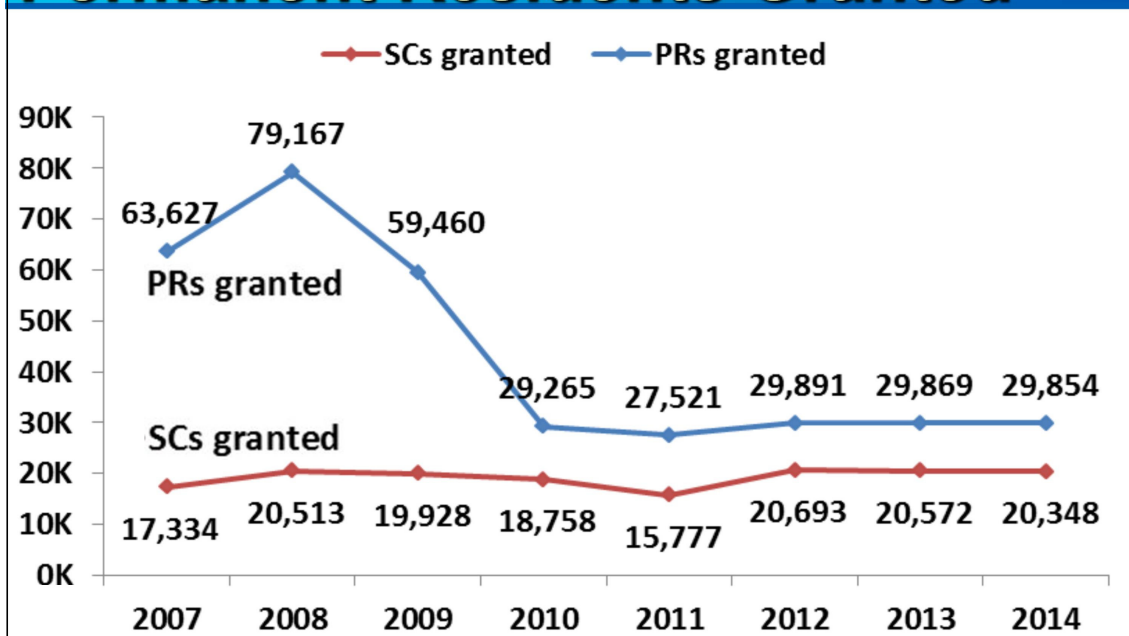
Key Indicators of Singapore

- Population: **5.54m**
(Residents: **3.90m**, Citizens: **3.38m**)
- Resident Ethnic Makeup:
Chinese **74.3%**, Malays **13.3%**,
Indians **9.1%**, Others **3.3%**
- Breakdown of Non-Resident Population:
Employment Pass Holders: **11%**
S Pass Holders: **11%**
Work Permit Holders: **45%**
Foreign Domestic Workers: **13%**
Dependants: **16%**, Students: **4%**

Key Indicators of Singapore

- **Employment Pass Holders** for foreign professionals, managers and executives (earn > \$3,300/month + acceptable qualifications)
- **S Pass Holders** for mid-skilled foreign employees (e.g. technicians, allied healthcare workers etc (earn > \$2,200/month + acceptable qualifications)
- *Only Pass Holders who earn >\$5000/month can bring along their family members to Singapore*
- **Work Permit Holders** for semi-skilled workers in occupations which face difficulties hiring Singaporeans (e.g. construction workers)
- *Duration only up to 2 years*

Number of Singapore Citizens & Permanent Residents Granted



Population in Brief 2015, Singapore

New Residents Granted in 2014

	New PRs	New Citizens
<i>By age group</i>		
> 40 years	7.0%	19.6%
31-40 years	24.9%	27.9%
21-30 years	40.6%	15.0%
< 20 years	27.5%	37.5%
<i>By highest qualification attained among those aged > 20</i>		
Post-secondary	80.9%	74.9%
Secondary and below	19.1%	25.1%
<i>By region of origin</i>		
Southeast Asian countries	55.7%	55.5%
Other Asian countries	34.6%	38.5%
Others	9.6%	6.0%
Population in Brief 2015, Singapore		

Type of Dwelling

- Land Area: 718.3 km²
- Residential Dwellings:
 - Landed Properties: 5.7%
 - Condominiums/Other Apartments: 18.3%
 - **Government Flats: 75.1%**
 - Others: 0.9%
(shop-houses, attap/zinc-roofed houses etc)
- % of Citizens/Permanent Residents Living in **Government Flats: 82%** (Home Ownership: 95%)

Education Profile by Age Group

Highest Qualification Attained of Resident Population (%)

Highest Qualification	25-34 years		35-44 years		45-54 years	
	2004	2014	2004	2014	2004	2014
< Secondary	13.9	4.7	31.5	10.3	50.4	26.7
Secondary	21.5	9.7	28.0	14.5	26.7	25.0
Post-secondary	7.8	9.2	7.5	9.0	6.8	10.6
Diploma	21.8	24.7	11.0	21.3	6.2	13.7
University	35.1	51.7	22.0	44.9	9.8	23.9

Education Performance

- Government expenditure on education: **> 20%**
(cf. OECD average as measured by PISA: 13%)
- Program for International Students Assessment (PISA) results 2012:
Math 2nd, Science 3rd, Reading 3rd
- Trends in International Mathematics & Science Study (TIMSS) results 2011:
Grade 4 Math 1st, Science 2nd
Grade 8 Math 2nd, Science 1st

Key Indicators of Singapore

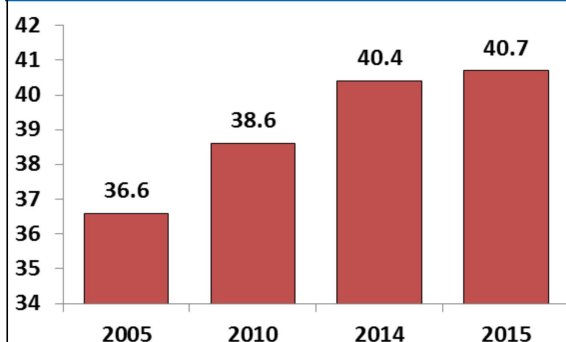
	Japan	Korea	Taiwan	H. K.	Spore
Population	126.7m	50.6m	23.5m	7.3m	5.5m
Unemployment	3.7%	3.6%	4.0%	3.2%	2.0%
GDP per capita	\$33,223	\$28,338	\$22,464	\$42,437	\$53,604
Government Net Debt (% of GDP)	129.6%	36.3%	0%	0%	0%
International Monetary Fund 2015					

Key Indicators of Singapore

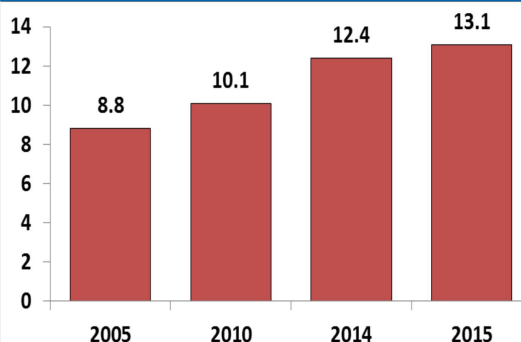
	Japan	Korea	Taiwan	H. K.	Spore
Life Expectancy at Birth (Female)	88.3	83.3	83.3	85.8	87.5
Life Expectancy at Birth (Male)	81.4	77.0	76.9	80.2	82.1
Median Age	46.5	40.8	34.0	43.6	39.7
TFR	1.40	1.25	1.12	1.18	0.81
Births per 1000 Pop ⁿ	7.93	8.19	8.47	9.23	8.27
Population Growth Rate (%)	- 0.16	0.14	0.23	0.38	1.89
Central Intelligence Agency 2015					

Median Age and Proportion of Citizens Aged > 65 yrs

Median Age of Citizens (yrs)



% of Citizens Aged > 65 yrs



Population in Brief 2015, Singapore

Proportion of Singles among Citizens by Age Group

	2004	2009	2013	2014
<i>Proportion of singles among citizen males by age group (%)</i>				
20-24 years	97.7	97.8	98.4	98.7
25-29 years	73.9	79.3	84.2	84.4
30-34 years	37.2	41.9	45.4	44.9
35-39 years	22.0	23.0	25.0	26.6
40-44 years	17.3	16.8	16.7	18.0
45-49 years	13.4	13.6	13.6	14.0
<i>Proportion of singles among citizen females by age group (%)</i>				
20-24 years	90.5	93.2	95.5	96.2
25-29 years	53.1	62.1	69.2	71.6
30-34 years	25.8	29.8	33.3	33.1
35-39 years	18.3	18.7	21.4	22.8
40-44 years	14.4	14.3	15.4	17.3
45-49 years	13.0	12.8	14.4	15.2

Proportion of Singles among Citizens by Qualification Attained

Highest Qualification	2004		2009		2014	
	Males	Females	Males	Females	Males	Females
<i>Age 30-39</i>						
< Secondary	34.1	15.1	38.7	16.1	41.9	18.3
Secondary	26.9	18.1	30.6	17.6	34.1	19.6
Post-secondary	26.9	22.7	30.6	22.0	35.9	26.9
Diploma	28.4	26.4	32.2	25.1	37.0	26.8
University	28.0	30.5	30.4	30.4	34.4	32.0
<i>Age 40-49</i>						
< Secondary	20.5	9.6	20.7	9.2	22.8	11.9
Secondary	12.8	14.1	13.2	13.0	16.1	13.0
Post-secondary	12.5	18.0	15.6	14.8	15.0	16.5
Diploma	9.3	21.6	11.2	16.6	13.7	19.0
University	8.6	24.7	10.8	21.9	13.3	20.9

Median Age at First Marriage (yrs)

		2004	2009	2013	2014
Residents	Males	29.4	29.8	30.2	30.2
	Females	26.6	27.5	28.1	28.1
Citizens	Males	29.4	29.9	30.1	30.1
	Females	26.3	27.4	27.8	27.9
PRs	Males	29.4	29.7	30.9	31.1
	Females	27.6	28.2	29.4	29.5

Median Age of Mothers at First Birth (yrs)

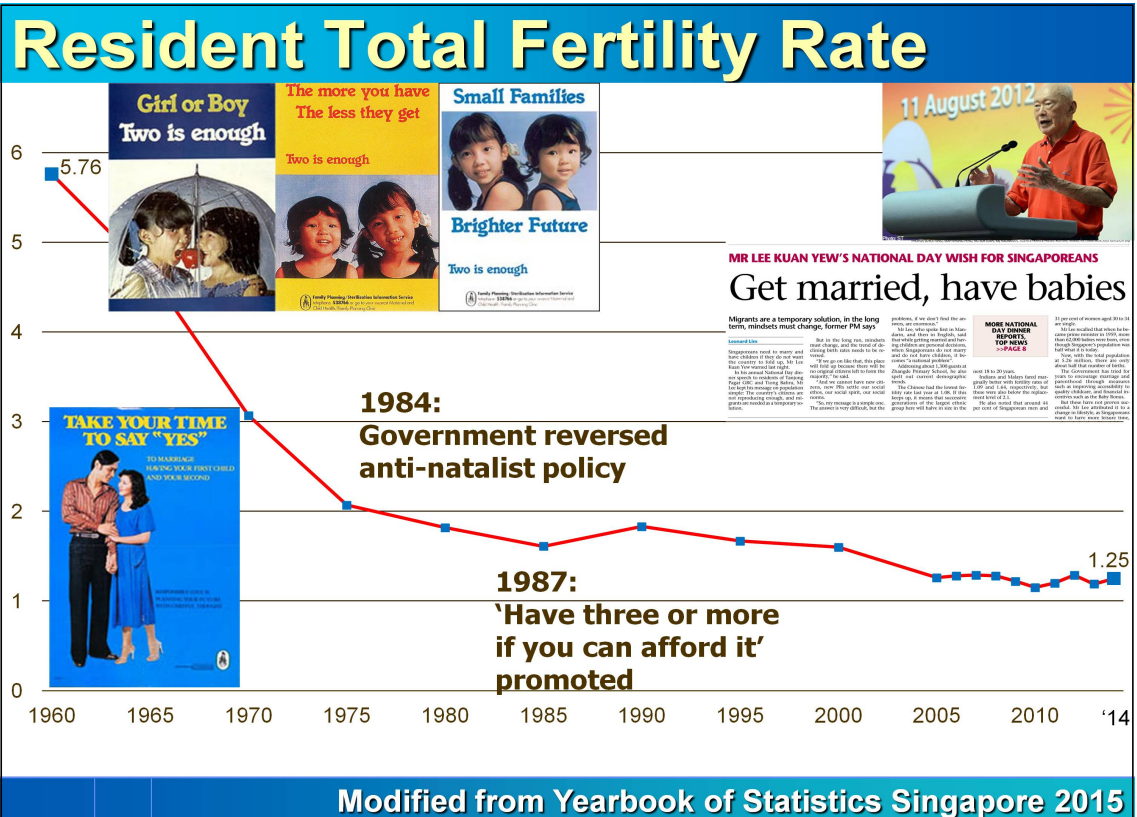
	2004	2009	2013	2014
Residents	29.4	29.8	30.5	30.7
Citizens	29.2	29.6	30.2	30.3
PRs	29.7	30.4	31.3	31.5

Population in Brief 2015, Singapore

Proportion of Ever-Married Females who are Childless (%)

	2004		2009		2013		2014	
	30s	40s	30s	40s	30s	40s	30s	40s
Residents	17.8	7.1	20.2	9.1	19.9	10.0	21.4	11.2
Citizens	16.4	6.7	20.6	8.9	21.4	9.6	22.8	10.7

Population in Brief 2015, Singapore



More Marriages & Babies Wanted

- East Asia, as compared to the West, much more conservative in social norms
- Marriage first before having babies
- So to have more babies, it is important to...
 1. Hasten romance and marriage
 2. Ensure a roof over every head
 3. Lower anxiety to conceive and give birth
 4. Provide child-rearing assistance
 5. Support education expenses

Romancing and Saying 'I Do'

- **Social Development Unit (SDU)** formed in 1984 to promote marriages among **graduate singles**, while **Social Development Services (SDS)** set up in 1985 to promote marriages among non-graduate singles
- Both were merged and renamed **Social Development Network (SDN)** in 2009 to reap economies of scale, enlarge the outreach, and provide more opportunities for singles to meet
- Vision of SDN:
to promote marriages and nurture a culture where singles view marriage as one of their top life goals

Romancing and Saying 'I Do'

- The new SDN now forges an extensive network of singles, resources and partners in the private, people and public sectors **to create an overall environment conducive for singles to meet and form meaningful relationships** by:
 - Organising **dating events** (*parties, dinners, seminars, dance classes, games, excursions...*) and providing singles with the necessary information
 - Funding **social interaction activities** in tertiary institutions
 - Developing **private dating industry** through accreditation and funding

Getting A Roof Over Head

- When applying to buy a new government flat, priorities and grants given to:
 - First-timer married couples with children or those expecting a child
 - Courting couples (fiancé/fiancée) before their official marriage to help them plan their housing needs
 - Parents with 3 or more children
 - Married children and their parents who wish to live closer together either in the same flat, same estate, or in a neighbouring estate
- *Singles/Divorcees must be > 35 years old to be eligible to purchase government flats*

Conceiving and Giving Birth

- Each month, individuals and employers contribute to three accounts:
 - an ordinary account (savings to buy a home, insurance investment and education)
 - a special account (savings for retirement)
 - a **Medisave account** (money used to pay for personal medical expenses or the hospital bills for immediate family members)
- Parents can use their Medisave to help pay for delivery, pre-delivery medical expenses, assisted conception procedures or treatment with assisted reproduction technology

Raising Children

Baby Bonus to help families defray the costs of raising a child:

- **Cash Gift:**

- 1st & 2nd Child: \$6000
- 3rd & 4th Child: \$8000

- **Child Development Account** for children aged 0-12 years, where savings deposited by parents into a special savings account are matched dollar-to-dollar by the government, up to a specified ceiling:

- 1st & 2nd Child: \$6000
- 3rd & 4th Child: \$12000
- 5th Child & beyond: \$18000

Raising Children

- All newborns receive \$3000 in their **Medisave**
- Parents enjoy \$205 off the monthly **foreign domestic worker** levy if they have a child aged below 16
- Parents enjoy **infant and child care subsidies**
- Parents pay **less or no taxes**
- Working mothers pay even **less or no taxes**
- Working mothers eligible for **16 weeks of paid maternity leave**
- Working fathers eligible for **1 week of government-paid paternity leave**
- Parents also given **extra leave for infant/child care**

Schooling and Educating

- The **Ministry of Education (MOE)** will ensure that no child is deprived of an education because of financial reasons
- The **National University of Singapore (NUS)** is committed to ensuring that no deserving student is denied admissions because of financial difficulty

School Fees (S\$1=US\$0.75 as at Aug 2016)

Stage	School Type	Sch. Fees (S\$)	Misc. Fees (S\$)
Primary	—	0	6.5~13
Secondary	Regular	5	10~20
	Autonomous	5	23~38
	Independent	200~300	
Junior College	Regular	6	13.5~27
	Independent	300~400	
Stage		Annual Fees (S\$)	
Inst. of Tech. Education		330 or 580 (PRs: x13, Foreigners: x35)	
Polytechnic		2600 (PRs: x2, Foreigners: x3.5)	
University		8050 ~ 12500 (Law) ~ 26400 (Medicine)	

Financial Assistance Scheme

- Monthly Gross Household Income (GHI) < \$2500 or Per Capita Income (PCI) < \$625:
 - Free Sch./Misc. Fees, Free Textbooks, Free Attire
 - Subsidy for transport to school, bursary available
- For Expensive Independent Schools:
 - Monthly GHI < \$2500: Same as above
 - Monthly GHI < \$4000: 90% Subsidy of all fees
 - Monthly GHI < \$5000: 70% Subsidy of all fees
 - Monthly GHI < \$6000: 50% Subsidy of all fees
 - Monthly GHI < \$7200: 33% Subsidy of all fees

Financial Assistance Scheme

- Since 1993, all Singaporean children are given an **Edusave account** and receive an annual contribution of > \$200
- Students also receive extra grants/awards if they:
 - Perform well academically
 - Make significant improvement in their results
 - Show good leadership
 - Demonstrate exemplary character

Financial Assistance Scheme

- Self-Help Groups to promote education and welfare among each ethnic group:
 - Chinese Development Assistance Council, Singapore
 - Indian Development Association, Yayasan MENDAKI (for Malay/Muslim Community)
 - The Eurasian Association

\$ won't solve low birth rate problem?

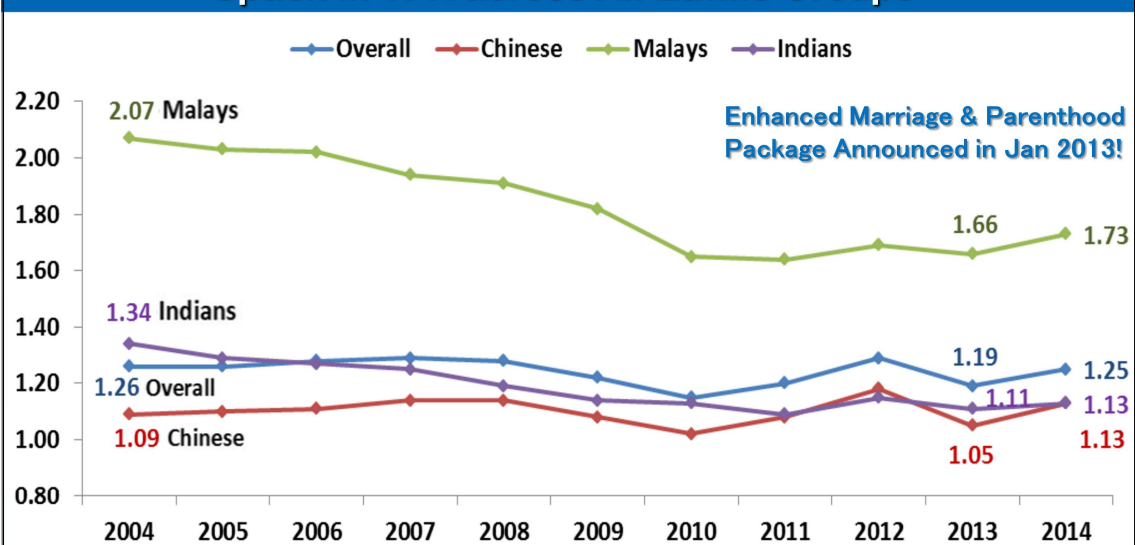
- In his book 'One Man's View Of The World', Mr Lee Kuan Yew argued that:
 - Even super-sized monetary incentives would only have a marginal effect on fertility rates and that *low birth rates have nothing to do with economic or financial factors*, such as high cost of living or lack of government help for parents
 - *Falling fertility is a global phenomenon due to transformed lifestyles and mindsets plus women's emancipation and participation in the workplace* and that the "Stop at Two" campaign of the 1970s did not play a part

\$ won't solve low birth rate problem?

- Main reasons for Japan's continued decline from being 'peerless' to 'mediocrity' are its low fertility, its intransigence to accept foreigners and its deeply ingrained idea that the Japanese race must be kept 'pure'
- He would choose to emigrate if he were a young Japanese and could speak English

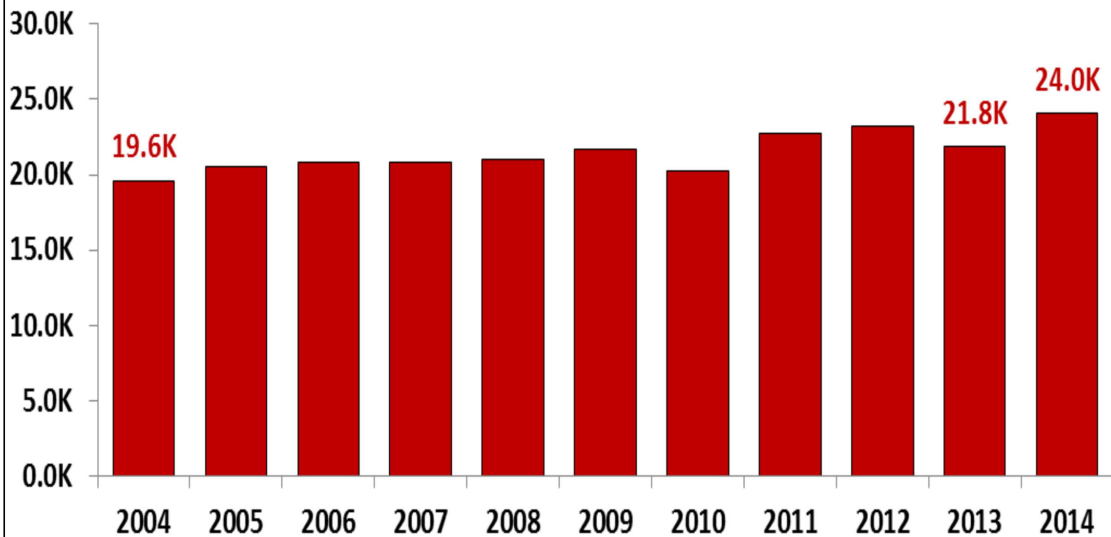
Resident TFR by Ethnic Group

Uptick in TFR across All Ethnic Groups



Population in Brief 2015, Singapore

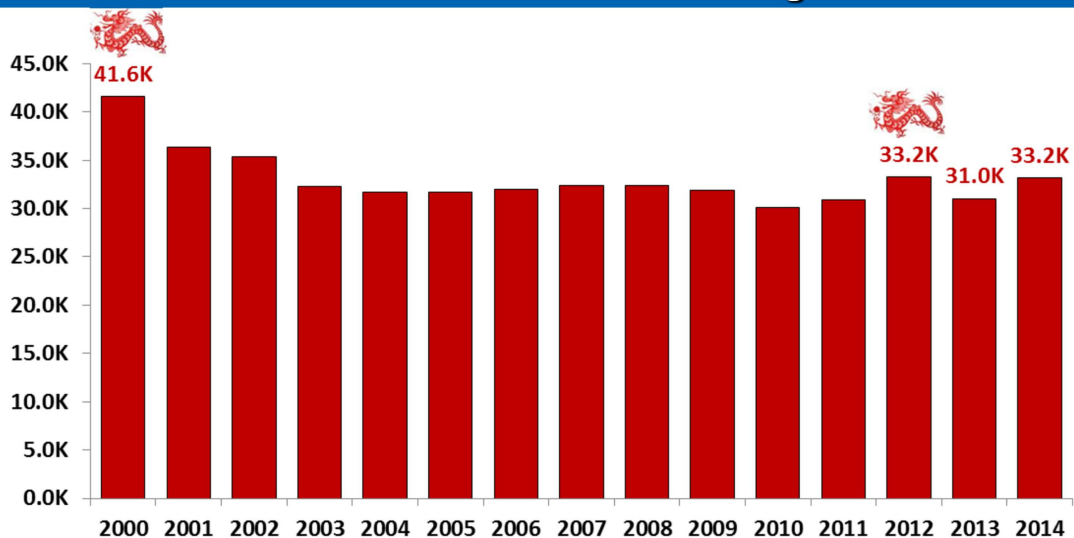
More Citizen Marriages in 2014!



Population in Brief 2015, Singapore

More Babies in 2014!

2014 Citizen Births Similar to 2012 Dragon Year Peak



Population in Brief 2015, Singapore

Findings from Opinion Survey

- Opinion Survey on Marriage, Family and Work conducted in Singapore from Feb to Mar 2016 among **803** males and females **aged 20 ~ 49**
- Sample Composition:

%	Population			Sample		
	All	Male	Female	All	Male	Female
20s	30.6	15.2	15.4	32.8	15.4	17.3
30s	33.9	16.1	17.7	31.4	11.3	20.0
40s	35.5	17.4	18.1	35.9	13.1	22.8
Total	100	48.8	51.2	100	39.9	60.1

- Data weighted

Important Policies Supporting Child-Rearing

- Almost all (96.6%) agree that the government should implement policies to support children

%	Male			Female		
	①	②	③	①	②	③
20s	Education costs	Housing	Flexi work	Education costs	Flexi work	Pro-family work
30s	Education costs	Tax rebates	Childcare benefits	Flexi work	Education costs	Tax rebates
40s	Education costs	Job security	Housing	Flexi work	Education costs	Tax rebates
<=Post Sec	Education costs	Job security	Housing	Education costs	Flexi work	Housing
Diploma	Education costs	Flexi work	Job security	Flexi work	Education costs	Housing
University	Education costs	Flexi work	Pro-family work	Flexi work	Education costs	Pro-family work

Helpful Marriage & Childcare Support

%	Male			Female		
	①	②	③	①	②	③
20s	Baby bonus CDA	Maternal leave	Housing	Baby bonus CDA	Maternal leave	Housing
30s	Baby bonus CDA	Paternal leave	Housing	Baby bonus CDA	Maternal leave	Tax rebates
40s	Baby bonus CDA	Tax rebates	Maternal leave	Baby bonus CDA	Maternal leave	Tax rebates
<=Post Sec	Baby bonus CDA	Maternal leave	Paternal leave	Baby bonus CDA	Maternal leave	Paternal leave
Diploma	Baby bonus CDA	Maternal leave	Tax rebates	Baby bonus CDA	Maternal leave	Housing
University	Baby bonus CDA	Tax rebates	Housing	Baby bonus CDA	Maternal leave	Tax rebates

Roles of Husband & Wife

Agree (%)	Male			Female		
	Husband works, wife keeps house	Childcare roles should be shared equally	Man should provide family financially	Husband works, wife keeps house	Childcare roles should be shared equally	Man should provide family financially
20s	41.6	83.4	74.7	30.7	86.1	54.5
30s	42.8	80.7	72.0	37.5	78.8	57.6
40s	43.6	74.5	72.3	50.1	73.1	71.4
<=Post Sec	50.4	79.2	75.9	53.2	77.3	69.8
Diploma	43.9	84.2	73.0	40.1	79.7	61.8
University	35.2	77.3	69.4	29.1	79.3	54.7

Education Costs & Expectations

Agree (%)	Male			Female		
	Expect children to attend university	Support children beyond university	Children in tuitions/ classes outside school	Expect children to attend university	Support children beyond university	Children in tuitions/ classes outside school
20s	81.7	80.4	50.1	86.6	80.2	32.1
30s	90.7	85.1	52.4	89.6	90.0	56.7
40s	84.2	88.8	73.8	86.9	92.2	67.7
<=Post Sec	79.3	85.8	59.1	86.3	94.5	56.0
Diploma	84.2	76.2	68.4	84.9	79.1	56.3
University	91.1	90.3	70.0	91.0	88.6	68.9
Only those with children, N=428						

Financial Burdens in Raising Children

%	Male			Female		
	①	②	③	①	②	③
20s	Childcare	Medical care	School/ university	Medical care	School/ university	Private tutoring
30s	Childcare	Medical care	School/ university	Medical care	Childcare	School/ university
40s	School/ university	Medical care	Private tutoring	School/ university	Private tutoring	Medical care
<=Post Sec	School/ university	Medical care	Childcare	Medical care	School/ university	Private tutoring
Diploma	Medical care	Childcare	School/ university	Medical care	School/ university	Childcare
University	Childcare	School/ university	Medical care	Childcare	Medical care	School/ university
49 ~ 64%			42 ~ 60%			

Getting Married & Having Children

Agree (%)	Male			Female		
	Necessary or better to get married	Ought to have a child after marriage	Okay for unmarried couples to have children	Necessary or better to get married	Ought to have a child after marriage	Okay for unmarried couples to have children
20s	66.9	89.6	74.3	61.8	86.2	73.1
30s	79.0	90.3	72.9	70.4	90.3	60.6
40s	75.7	90.9	64.5	70.0	93.0	46.7
<=Post Sec	73.4	89.8	75.7	72.5	90.8	58.1
Diploma	75.1	91.2	69.1	68.0	87.8	60.7
University	72.4	89.6	67.3	63.4	90.7	60.0

Why are you not married?

%	Male			Female		
	①	②	③	①	②	③
20s	Work/ education	No \$	No right person	Work/ education	No right person	Freedom
30s	No \$	Work/ education	No housing	No \$	Work/ education	No right person
40s	Work/ education	No necessity	No right person	No right person	Freedom	No social skills
<=Post Sec	Work/ education	No \$	No right person	No right person	No necessity	Work/ education
Diploma	No \$	No right person	Work/ education	No \$	Work/ education	No right person
University	Work/ education	No right person	No \$	Work/ education	Freedom	No right person

Only those who are not married, N=349

Quality of Work & Life

Agree (%)	Male			Female		
	Workplace easy for work-life balance	Singapore easy for raising children	Satisfied with life in general	Workplace easy for work-life balance	Singapore easy for raising children	Satisfied with life in general
20s	40.0	29.5	93.3	45.7	35.7	95.2
30s	64.0	30.3	86.8	58.8	42.4	92.8
40s	70.8	42.2	90.5	52.2	46.5	96.0
<=Post Sec	61.1	32.6	84.6	43.3	48.4	92.7
Diploma	41.9	24.7	88.9	53.9	40.1	94.7
University	69.0	40.7	94.8	58.9	37.7	96.0

Satisfaction with Life

Agree (%)	Male		Female	
	Satisfied with life in general	Life in future will get worse	Satisfied with life in general	Life in future will get worse
Not Married	90.4	4.8	93.8	3.9
Married	90.9	7.3	95.4	4.1
With No Kid	89.8	5.9	94.9	4.1
With 1 Kid	80.0	14.7	89.0	5.8
With 2 Kids	95.1	7.1	95.5	1.4
With 3 Kids	98.2	0	100	5.6

Life in future will get better, lowest: 67.9% (Male with 2 kids)
Life in future no change, highest: 24.5% (Male with 3 kids)

~ FIN ~

~ Thank You ! ~

- ◆ SIM Choon Kiat
- ◆ Showa Women's University



PART

03

Work, Family and Marital Fertility in Japan

Bae, Jihey

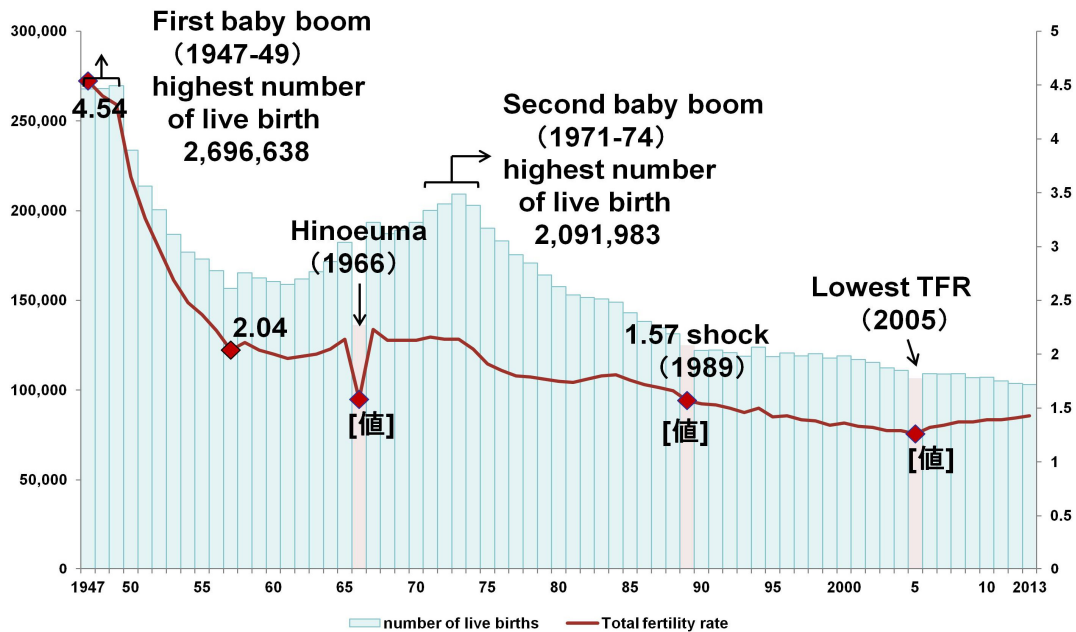
(Obirin University, Japan)

Work, Family and Marital Fertility in Japan

Jihey Bae
Obirin University, Japan
(jiheybae@obirin.ac.jp)

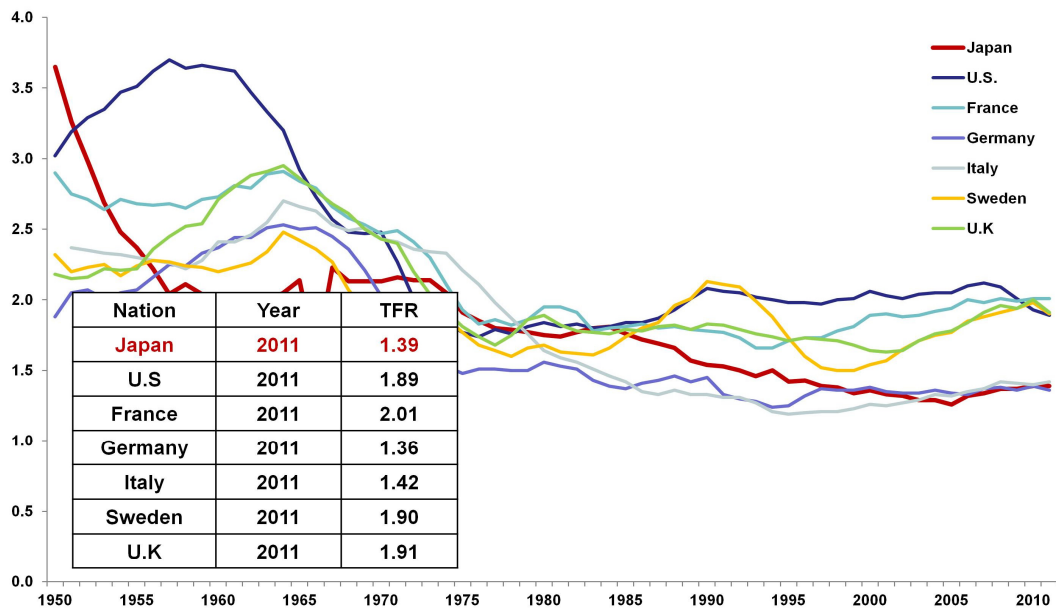
1. Trends in Low Fertility in Japan

TFR and Number of Live Births



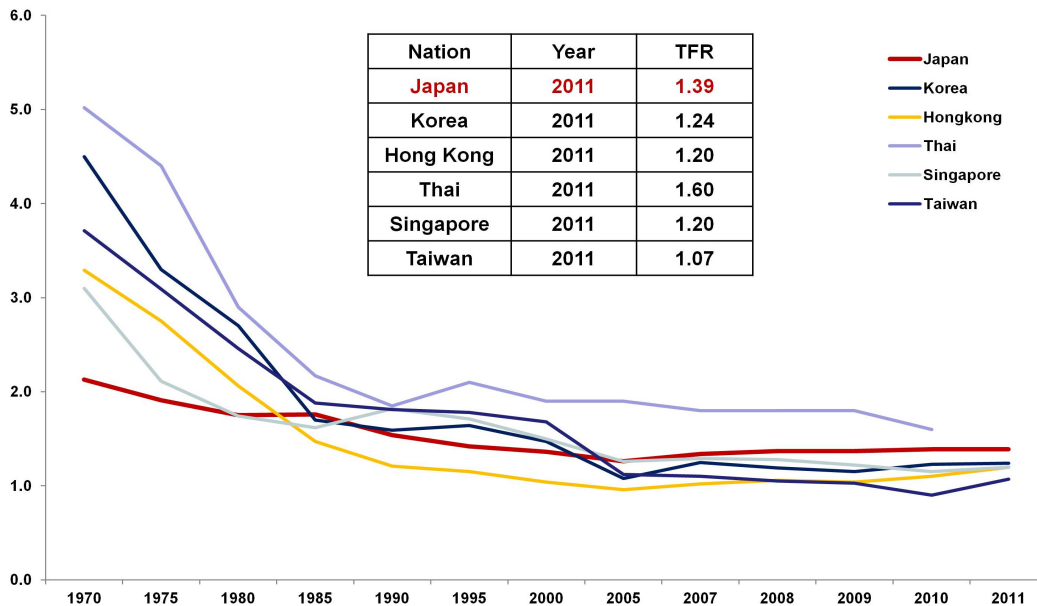
(Cabinet Office, Government of Japan, *Declining Birthrate White Paper*)

TFR in Developed Countries



(Cabinet Office, Government of Japan, *Declining Birthrate White Paper*)

TFR in Asian Countries

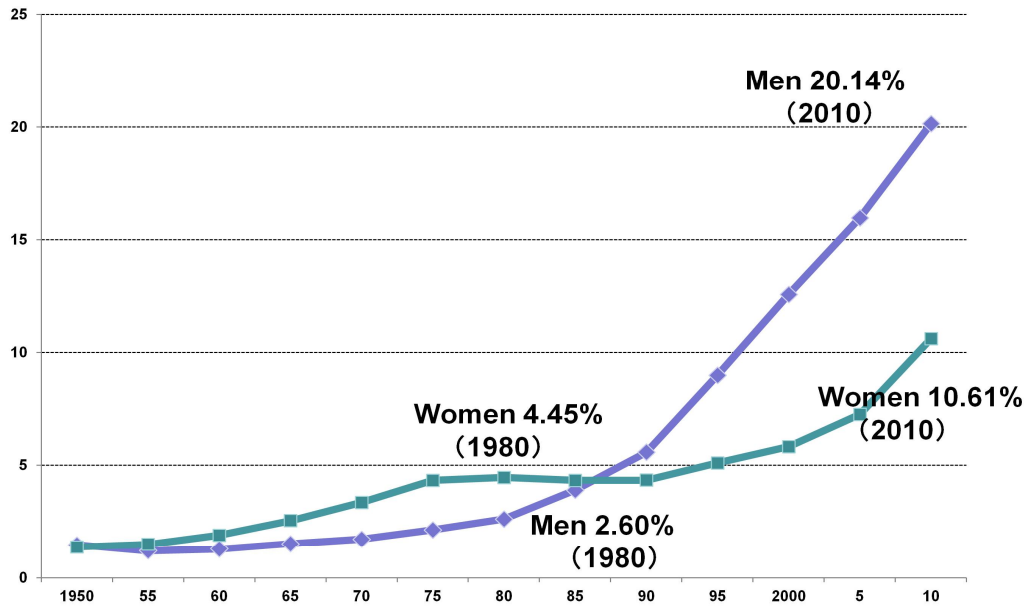


Cause of Low Fertility in Japan

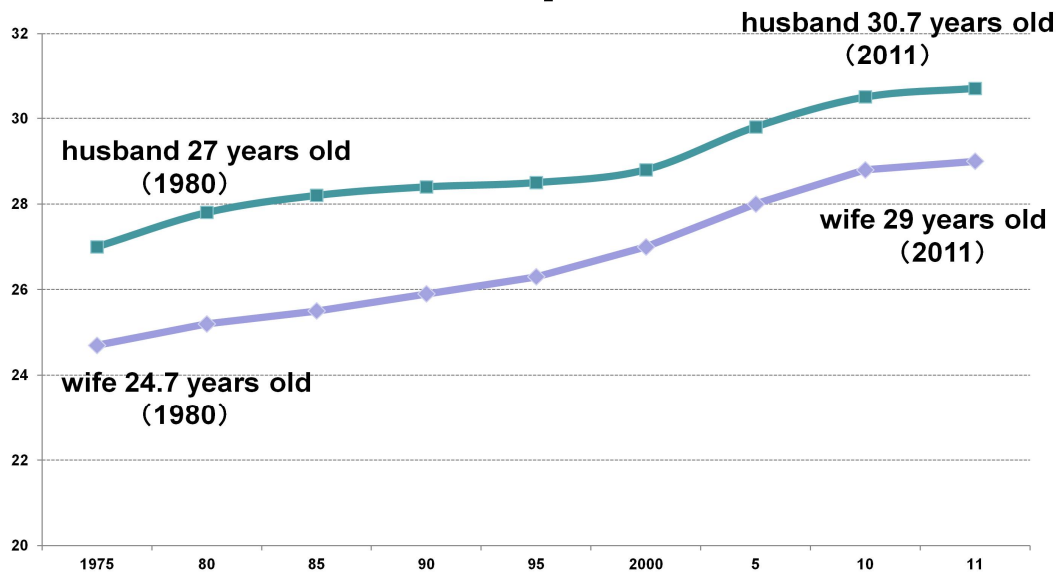
Result of

- ① postponement of marriage
(or late marriage)
- ② the lowering of marital fertility

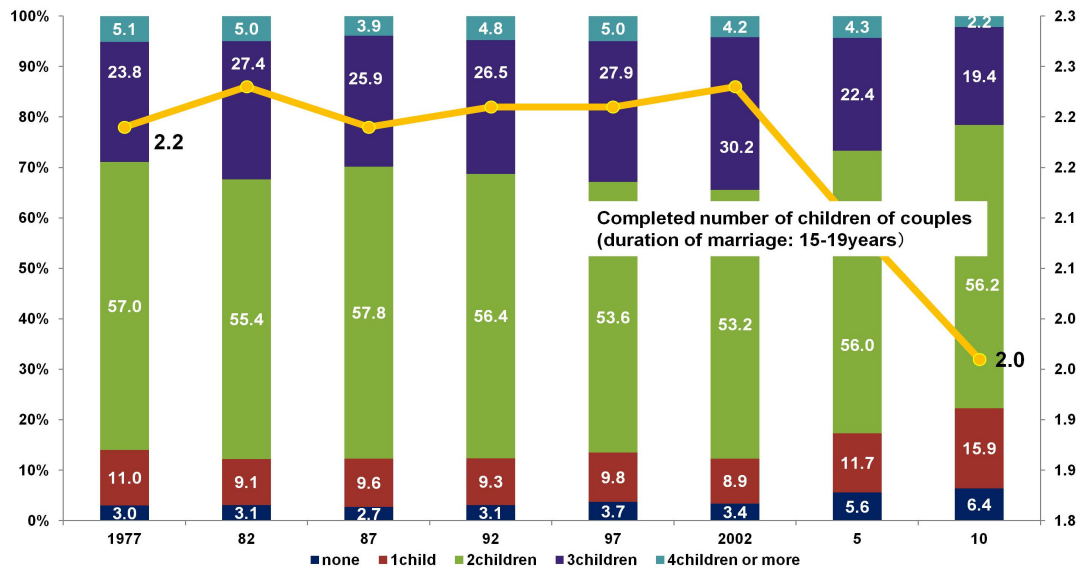
Trends in Percent of Unmarried People until 50 Years-old



Trends of First Marriage in Japan



Changing of Marital Fertility



National Institute of Population and Social Security Research, 2011
 the 14th Japanese National Fertility Survey in 2010
 (http://www.ipss.go.jp/site-ad/index_english/nfs14/Nfs14_Couples_Eng.pdf)

- since the 1990s, low fertility in Japan has been greatly affected by the lowering of marital fertility (Sasai 2003).
- Age at marriage has a very limited influence on the level of fertility in Japan.
 - The fall in the Japanese birth rate cannot be completely attributed to a delay in the timing of marriage (Fukuda 2011).

Cause of Low Fertility in Japan

Result of

- ① postponement of marriage
(or late marriage)
- ② the lowering of marital
fertility

Hypothesis Explaining the Lowering of Marital Fertility

- ① Socio-economic Causation
Hypothesis
- ② Value and Attitude Causation
Hypothesis
- ③ Gender Causation Hypothesis

Why ?

the strong kinship network in Japan

**→ offset gender inequality in
the family.**

**⇒ the lowering of marital fertility
is induced by the pursuit of
children's well-being.**

(Inaba 2005)

2. Purpose of the study

**To examine the relationship
between workplace environment
including supports from companies
aiming for work-family balance
and
marital fertility**

3. Method

Analysis 1

1) Data

The National Family Research of Japan 2008 (NFRJ2008) by The National Family Research committee of the Japan Society of Family Sociology.

The subsample:

Married women under the age of 50 who have one more child, also have a job.

* Women who have experienced a divorce or separation by the death of a spouse are not included in the analysis.

2) Variables

• Independent variables

employment conditions at the 1st childbirth

work or not, take childcare leave or not, quit the job or not, any change of job or not

workplace environment

working hours, size of company, occupational status.

relationship between work and family

work-family conflict, family-work conflict

2) Variables

- **Dependent variables**

Birth intentions

“Do you desire (one) more child?”

⇒ “absolutely desire”, “desire”,
“neither”, “not very desire”,
“absolutely do not desire”

- **Control variables**

age, years of education, household income,
number of children, live with parents or not

3) Analysis

χ^2 test

Logistic regression

Descriptive statistics

	range	M	SD
age	28–49	41	5.65
years of education	9–18	13.2	1.49
household income (Yen)	50–1650	736.5	328.34
number of children	1–6	2.2	0.82
live w/parents dummy	0–1	0.4	0.48
not working at the 1st childbirth	0–1	0.2	0.42
quit the job at the 1st childbirth	0–1	0.4	0.49
take a childcare leave at the 1st childbirth	0–1	0.1	0.34
any change of work at the 1st childbirth	0–1	0.1	0.22
working hours (hrs/month)	4.67–560	141.8	61.99
size of company (pers)	5–1050	238.9	363.73
full-time dummy	0–1	0.3	0.46
part-time dummy	0–1	0.6	0.49
self-employment dummy	0–1	0.1	0.30
Work–Family Conflict	2–8	0.1	0.30
Family–Work Conflict	2–8	3.9	1.58

Analysis 2

1) Data

The Comparative Research Study on Provisions for Declining Birthrate in Regions of Asia (Japan, Korea and Singapore) by Cabinet Office, Government of Japan.

The subsample:

Married women under the age of 50 who have one more child.

2) Variables

- **Independent variables**

services used in raising children

maternity leave, childcare leave, paternity leave, shorter working hours, nursing leave for children, childcare centers established by companies for employees, occupational status.

family environment

responsible for raising children

2) Variables

• Dependent variables

Birth intentions

“Which of the following statements best describes your desire to have more children?”

⇒ **“I do definitely want to have more children”,
“I want to have more children, but I am
unable to have”, “I do not want to have more
children”, “Others”, “I Don’t know”**

• Control variables

**age, years of education, household income,
live with parents or not**

3) Analysis

χ^2 test

Logistic regression

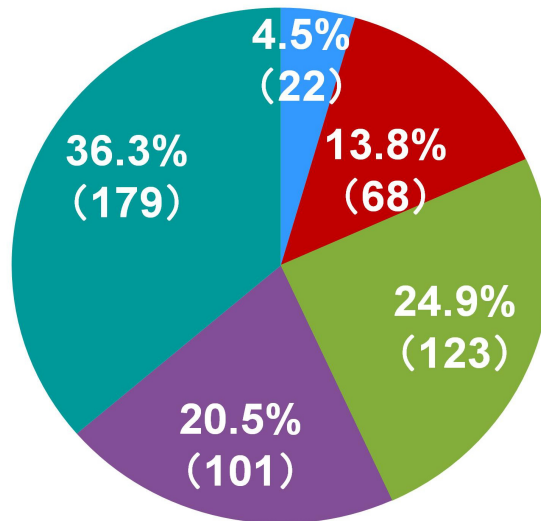
Descriptive statistics

	range	M	SD
age	22-49	36.99	6.49
years of education	6-16	14.21	2.17
household income (yen/year)	100-950	519.65	226.89
Services used in raising children	0-6	0.49	0.94
Responsible for Raising Children	1-5	1.74	0.60
live w/ parents	0-1	0.29	0.46
occupational status	0-2	0.82	0.89

4. Results

Analysis 1

Do you desire (one) more child?



■ absolutely desire ■ desire ■ neither ■ not very desire ■ absolutely do not desire

Relation between employment conditions at the 1st childbirth and birth intention

	not desire/neither		desire		sig.
	n	%	n	%	
not work	112	87.5	16	12.5	
work	370	83.5	73	16.5	
quit the job	206	88.0	28	12.0	**
continue the job	164	78.5	45	21.5	
take a childcare leave	53	67.9	25	32.1	***
not take a childcare leave	317	86.8	48	13.2	
any change of job	22	78.6	6	21.4	
no change	348	83.9	67	16.1	

** p<.01 *** p<.001

Relation between workplace environment and birth intention

		not desire/neither		desire		sig.
		n	%	n	%	
working hours	low	160	86.0	26	14.0	
	middle	154	82.4	33	17.6	
	high	164	85.9	27	14.1	
size of company	small	301	86.2	48	13.8	
	middle	84	84.0	16	16.0	
	big	80	79.2	21	20.8	
occupational status	regular	141	80.1	35	19.9	
	irregular	298	86.6	46	13.4	
	free	48	84.2	9	15.8	
WFC	low	122	87.1	18	12.9	
	high	360	83.5	71	16.5	
FWC	low	198	90.0	22	10.0	**
	high	285	81.0	67	19.0	

** p<.01

Logistic regression w/ birth intention as a dependent variables

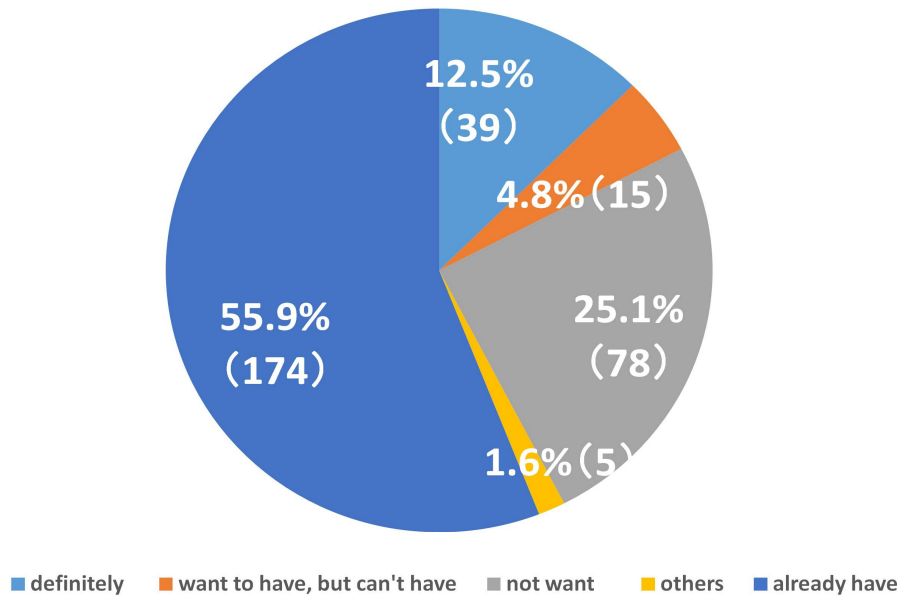
	Exp(B)	sig
age	.850	***
educational years	1.175	
household income (Yen)	1.000	
live w/parents dummy	1.175	
number of children	.354	***
did not work at the 1st childbirth	1.170	
quit the job at the 1st childbirth	.830	
take a childcare leave at 1st childbirth	2.503	*
changed work at the 1st childbirth	.955	
working hours (hrs/month)	.997	
size of company (per)	1.058	
full-time dummy	1.246	
self-employment dummy	2.570	
Wrok-Family Conflict	.955	
Family-Work Conflict	1.037	
n	577	
-2LL	301.485	
Cox-Snell R2	0.183	
Nagelkerke R2	0.323	

* p<.05 *** p<.001

- 1. Only childcare leave was found to have an effect on women's birth intention.**
- 2. Workplace environment is not important?**
← the power of the kinship network?
But, the power of the kinship network is getting weaker due to urbanization and aging population.
- 3. How about the effect of other support?**
NFRJ08 lacks the necessary associated variables (ex. shorter working hours, and flextime · ·).

Analysis 2

Do you desire more children?



Relation between occupational status and birth intention

	definitely do /already have		do not /I want but I can not		sig.
	n	%	n	%	
do not work	99	67.3	48	32.7	
full-time	40	76.9	12	23.1	
part-time	65	69.9	28	30.1	

Relation between services used in raising children and birth intention

		definitely do /already have		do not /I want but I can not		sig.
		n	%	n	%	
Maternity leave	yes	51	70.8	21	29.2	
	no	162	69.2	72	30.8	
Childcare leave	yes	30	66.7	15	33.3	
	no	183	70.1	78	29.9	
Paternity leave	yes	2	40.0	3	60.0	
	no	211	70.1	90	29.9	
Shorter working hours	yes	7	63.6	4	36.4	
	no	206	69.8	89	30.2	
Nursing leave for children	yes	2	40.0	3	60.0	
	no	211	70.1	90	29.9	
Childcare centers established by companies for employees	yes	2	33.3	4	66.7	+
	no	211	70.3	89	29.7	

+ p < .10

Relation between family environment and birth intention

		definitely do /already have		do not /I want but I can not		sig.
		n	%	n	%	
live w/parents	yes	66	71.7	26	28.3	
	no	147	68.7	67	31.3	
responsible for raising Children	only/mainly by the wife	198	69.2	88	30.8	
	equally	11	73.3	4	26.7	
	only/mainly by the husband	2	100.0	0	0.0	

Logistic regression w/ birth intention as a dependent variables

	Exp (B)	sig.
age	1.015	
education years	0.925	
household income	0.999	
live w/parents(yes=1)	0.753	
responsible for raising children (only/mainly by the wife=1)	2.503	
occupational status(do not work=1)	1.427	
services used in raising children	1.166	
N	234	
-2LL	282.901	
Cox-Snell R ²	0.025	
Nagelkerke R ²	0.036	

1. Neither occupational status nor services used in raising children was found to have an effect on women's birth intention.
2. Services from workplace is not important?
→ implication for the policy?
 ※ low utilization of the services
3. Family environment has also no effect on birth intention.

Then, what is the factor?

Acknowledgements

- This research was supported by JSPS KAKENHI Grant Number 26285122.
- The data for this secondary analysis, NFRJ2008 by The National Family Research committee of the Japan Society of Family Sociology was provided by the Social Science Japan Data Archive, Center for Social Research and Data Archives, Institute of Social Science, The University of Tokyo.
- Survey data of the Cabinet Office was used with permission to use from the Director General for Policies on Cohesive Society, Cabinet Office.

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PART

04

Diversity of Working Conditions and Fertility in Korea

Lee, Samsik

(Korea Institute for Health and Social Affairs, Korea)

Diversity of Working Conditions and Fertility in Korea

Samsik Lee



Background and Purpose

- Rapid demographic transition
 - Second demographic transition since 1983
 - Lowest low fertility phenomenon since 2001 (the longest in the world)
 - the lowest of 1.08 in 2005
 - fluctuating between 1.1~1.2 since 2001
- Change in occupational structure and working conditions through increase in educational attainment : one of main effects on fertility behaviors
(Becker, 1980; Demiter, REPRO Model, Lee & Choi, 2014; Lee et. al., 2015)
- This study aims at looking into fertility differential due to diverse working conditions

Methodology and Data

■ Methodology

- Demographic indicators : MCEB, age-standardization
- Logistics analysis

■ Data

- 2015 National Fertility and Family Health and Welfare Survey (raw data)

Methodology and Data

• Data description

conditions	classifications	Mceb	Logistics
Occupations	Legislators, senior officials and managers	PROF	PROF
	Professionals		
	Technicians and associate professionals		
	Clerks	CLER	CLER
	Service workers	SERV	SERV
	Sales workers	SALE	
	Skilled agricultural, forestry and fishery workers	AGRI	OTHE
	Craft and related trades workers	CRAF	
	Plant and machine operators and assemblers	ELEM	
Elementary occupations			
Status of Worker	employers	EMPL	NON-SAI
	Self-employed	SELF	
	Unpaid family workers	UNPA	
	Wage & Salary workers		
	Regular employees	REGU	REGU
	Temporary employees	TEMP	TEMP
	Daily workers	DAIL	
Type of job	Central and local Gov't servants	GOVT	PUBL
	Gov't funded	PUBL	
	private companies, etc	PRIV	PRIV
Labor income	under 1 million won	100-	
	1~2 mil.	100-200	
	2~3 mil.	200-300	
	300 mil. and over	300+	

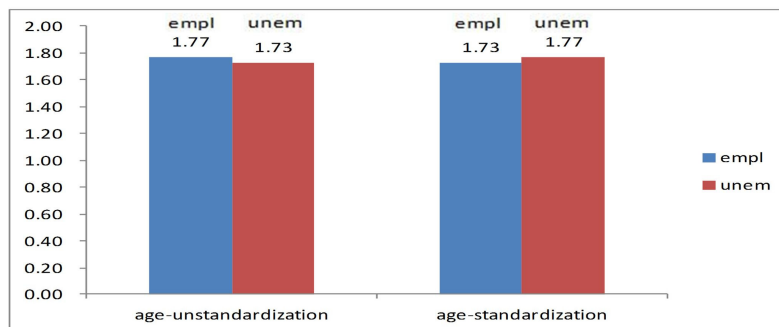
Findings

1. Mean Children-ever born (MCEB)

■ MCEB by current employment status

● MCEB for currently married women(15-49) :

- the employed > the unemployed before age standardization(ASTD)
- the unemployed > the employed after ASTD

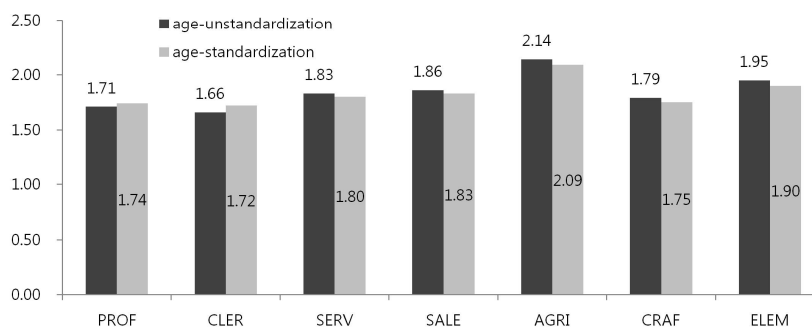


Findings

■ MCEB by current occupation

● AGRI, ELEM, SALE, SERV, CRAF, PROF, CLER in that order

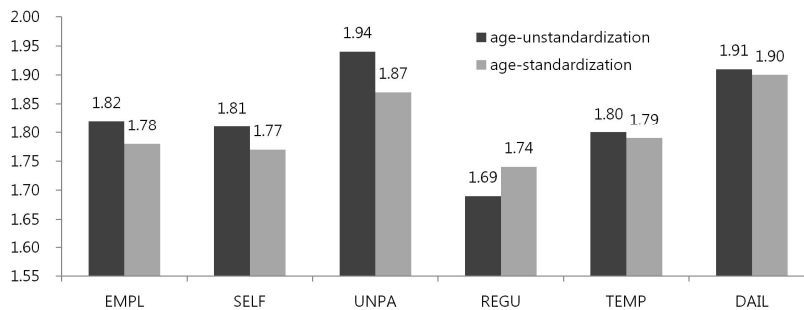
* both before & after ASTD



Findings

■ MCEB by current status of worker

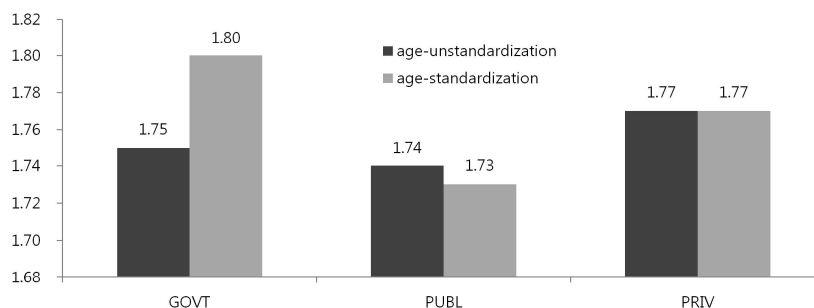
- UNPA, DAIL, EMPL, SELF, TEMP, REGU in that order before ASTD
- DAIL, UNPA, TEMP, EMPL, SELF, REGU in that order after ASTD



Findings

■ MCEB by current type of job

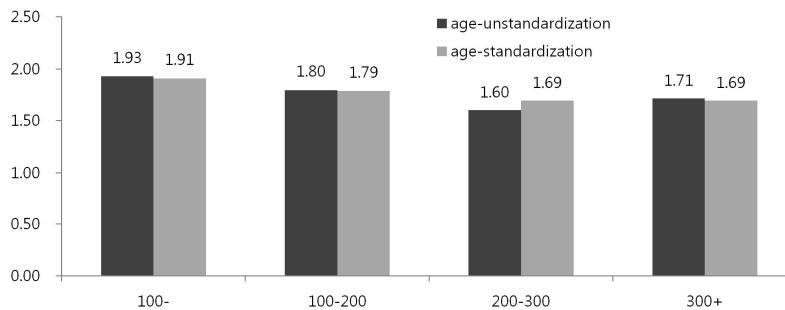
- PRIV, GOVT, PUBL in that order before ASTD
- GOVT, PUBL, PRIV in that order after ASTD



Findings

■ MCEB by current labor income

- the lower the level of labor income, the higher the MCEB for both before & after ASTD, except for the middle income class(lowest)



Findings

2. Logistics analysis : Intent by Parity

■ intent for parity 0 → 1 (n=446)

- current occupations : **PROF, OTHE > CLER**
- current status of worker : **TEMP > REGU** (* weak significance)
- current type of job and current labor income : no statistical significance

	Exp(B)	Exp(B)	Exp(B)	Exp(B)
residence(large cities)				
small & medium cities	1.432	1.580	1.400	1.441
rural areas	1.495	1.400	1.239	1.299
age(under 30)				
30-34 years	.404	.401	.440	.434
35-39 years	.096	.101	.110	.110
40 years or over	.026	.028	.027	.028
educational attainment(college or over)				
high school or lower	.429	.435	.392	.411
marriage duration(less than 1 year)				
1-2 year or less	.340	.318	.307	.306
2 years or longer	.151	.182	.203	.204
current occupation(cler)				
prof	.341	*		
serv	.423	†		
others	.248	*		
current status of worker(regu)				
non-sal		.829		
temp		.537	†	
current type of job(publ)				
priv			1.230	
current labor income				1.000
df	11	10	9	9
-2LL	283.6	290.4	293.1	293.2
Model X2	164.9	158.1	155.4	155.3

Findings

■ intent for parity 1 → 2 (n=1,083)

- current occupations : **PROF > CLER** (*with weak significance)
- current type of job : **PRIV > PUBL** (*with weak significance)
- current status of worker & labor income : no statistical significance

	Exp(B)	Exp(B)	Exp(B)	Exp(B)
residence(large cities)				
small & medium cities	1.898 **	1.955 ***	1.978 ***	1.966 ***
rural areas	1.553	1.643 †	1.666 †	1.622 †
age(under 30)				
30~34 years	.931	.910	.874	.923
35~39 years	.624	.617	.589 †	.638
40 years or over	.160 ***	.163 ***	.152 ***	.166 ***
educational attainment(college or over)				
high school or lower	1.217	1.196	1.291	1.149
marriage duration(less than 1 year)				
1~2 year or less	1.107	1.110	1.128	1.119
2 years or longer	1.187	1.104	1.108	1.150
age of 1 st child	.798 ***	.802 ***	.805 ***	.797 ***
current occupation(cler)				
prof	1.428 †			
serv	1.167			
others	1.552			
current status of worker(regu)				
non-sal		.882		
temp		1.112		
current type of job(publ)				
priv			.616 †	
current labor income				.999
df	12	11	10	10
-2LL	793.4	796.2	793.0	794.8
Model X2	368.5 ***	365.7 ***	368.9 ***	367.1 ***

Findings

■ intent for parity 2 → 3 (n=3,149)

- current occupations : **PROF, SERV > CLER**
- current status of worker, type of job & labor income : no significance

	Exp(B)	Exp(B)	Exp(B)	Exp(B)
residence(large cities)				
small & medium cities	.616	.624	.654	.698
rural areas	1.478	1.440	1.508	1.604
age(under 30)				
30~34 years	.720	.740	.690	.710
35~39 years	.278 *	.306 *	.301 *	.318 *
40 years or over	.248 †	.283 †	.270 †	.289 †
educational attainment(college or over)				
high school or lower	1.439	1.237	1.349	1.167
marriage duration(less than 1 year)				
1~2 year or less	.508 †	.474 *	.490 *	.494 †
2 years or longer	.350	.344	.342	.198 †
age of 2 nd child	.850 **	.847 **	.853 **	.845 **
current occupation(cler)				
prof	3.125 *			
serv	4.103 **			
others	1.186			
current status of worker(regu)				
non-sal		1.567		
temp		1.582		
current type of job(publ)				
priv			.997	
current labor income				.999
df	12	11	10	10
-2LL	410.0	422.0	424.2	400.5
Model X2	135.5 ***	123.5 ***	121.3 ***	129.7 ***

Findings

2. Logistics analysis : progression by parity

■ progression for parity 1 → 2 by work conditions before/after 1st childbirth (n=3,601)

- occupation : SERV > CLER
- status of worker : NON-SAL > REGU (*with weak significance)
- type of job : PRIV > PUBL

	Exp(B)	Exp(B)	Exp(B)
residence(large cities)			
small & medium cities	1.177 †	1.189 *	1.174 †
rural areas	1.132	1.143	1.129
age(under 30)			
30~34 years	1.186	1.208	1.207
35~39 years	1.484 *	1.542 *	1.523 *
40 years or over	.659 †	.691 †	.668 †
educational attainment(college or over)			
high school or lower	.953	.905	.917
cohort of 1 st child(before 2000)			
2000~2004	15.738 ***	15.564 ***	15.641 ***
2005~2010	9.155 ***	9.143 ***	9.250 ***
2010~2015	5.391 ***	5.330 ***	5.372 ***
occupation before/after 1 st childbirth (cler)			
prof	.979		
serv	.785 *		
others	.619		
status of worker before/after 1 st childbirth(regu)			
non-sal		.709 **	
temp		.832	
type of job before/after 1 st childbirth(publ)			.777 *
priv			
df	12	11	10
-2LL	3862.9	3859.5	3863.1
Model X2	635.9 ***	639.3 ***	635.7 ***

Findings

■ progression for parity 2 → 3 (by work conditions before/after 2nd childbirth , n=1,746)

- occupation : OTHE > CLER (* weak significance)
- status of worker : NON-SAL > REGU
- type of job : no statistical significance

	Exp(B)	Exp(B)	Exp(B)
residence(large cities)			
small & medium cities	.910	.902	.930
rural areas	1.701 **	1.687 **	1.781 **
age(under 30)			
30~34 years	1.810	1.822	1.822
35~39 years	1.297	1.232	1.287
40 years or over	.615	.584	.608
educational attainment(college or over)			
high school or lower	1.438 *	1.377 *	1.432 *
cohort of 2nd child(before 2000)			
2000~2004	7.287 ***	6.919 ***	7.606 ***
2005~2010	4.784 ***	4.658 ***	4.791 ***
2010~2015	2.854 ***	2.795 ***	2.874 ***
occupation before/after 2nd childbirth (cler)			
prof	1.292		
serv	1.207		
others	1.639 †		
status of worker before/after 2nd childbirth(regu)			
non-sal		1.635 **	
temp		1.076	
type of job before/after 2nd childbirth(publ)			1.201
priv			
df	12	11	10
-2LL	1396.3	1391.9	1400.1
Model X2	95.6 ***	100.0 ***	91.8 ***

Discussions

■ Occupation

- MCEB after age standardization: AGRI, ELEM, SALE, SERV, CRAF, PROF, CLER
 - true for 0→1 : intent in PROF & OTHE
 - * due maybe to higher probability of infertility for this group
 - true for 1→2 : intent in PROF, progression in SERV
 - * maybe due to higher compatibility between work and life
 - true for 2→3 : intent in PROF & SERV, progression in OTHE
 - * maybe due to higher compatibility between work and life

Discussions

■ Status of Worker

- MCEB after age standardization: DAIL, UNPA, TEMP, EMPL, SELF, REGU
 - true for 0→1 : intent in TEMP
 - * due maybe to higher probability of infertility for this group
 - true for 1→2 & 2 → 3 : progression in NON-SAL
 - * maybe due to higher compatibility between work and life

Discussions

■ Type of Job

- MCEB after age standardization: GOVT, **PUBL**, PRIV
 - reverse for 1→2 : intent in PRIV, progression in PRIV

* less probability of transit 1→2 for the public sector due to values toward small family size and time inflexibility

■ Labor Income

- MCEB after age standardization: 'U-shape'

* no significant effect due to the lowest in the middle class with dual earners' high opportunities

Discussions

parity		intent	transit(before/after previous childbirth)
0→1	occupation	PROF & OTHE/CLER	no analysis
	status of worker	TEMP/REGU	
	type of job	-	
	labor income	-	
1→2	occupation	PROF/CLER	SERV/CLER
	status of worker	-	NON-SAL/REGU
	type of job	PRIV/PUBL	PRIV/PUBL
	labor income	-	-
2→3	occupation	PROF and SERV/CLER	OTHE/CLER
	status of worker	-	NON-SAL/REGU
	type of job	-	-
	labor income	-	-

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