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New Patterns of Educational Differentials and  
Assortative Mating after 2005 in Japan:  
A shift in the Foundations of Marriage?

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# A global trend: the reversal of educational gradients in female marriage

- ◆ Some evidence from high income nations
  - US (Goldstein and Kenny 2001)
  - Australia and NZL (Heard 2011)
  - Some of European countries (Kalmijin 2013)
  - Taiwan (Cheng 2014)

# Theories of the “Shift”

1. From Becker (1981) to Oppenheimer (1988) model of marriage

B: Advantages of gender role division within marriage

O: Benefits of economic and domestic role sharing btw spouses

2. From male-breadwinner to dual-earner couples in US & Europe

(Blossfeld and Dobrin 2003, Esping-Andersen and Billari 2015)

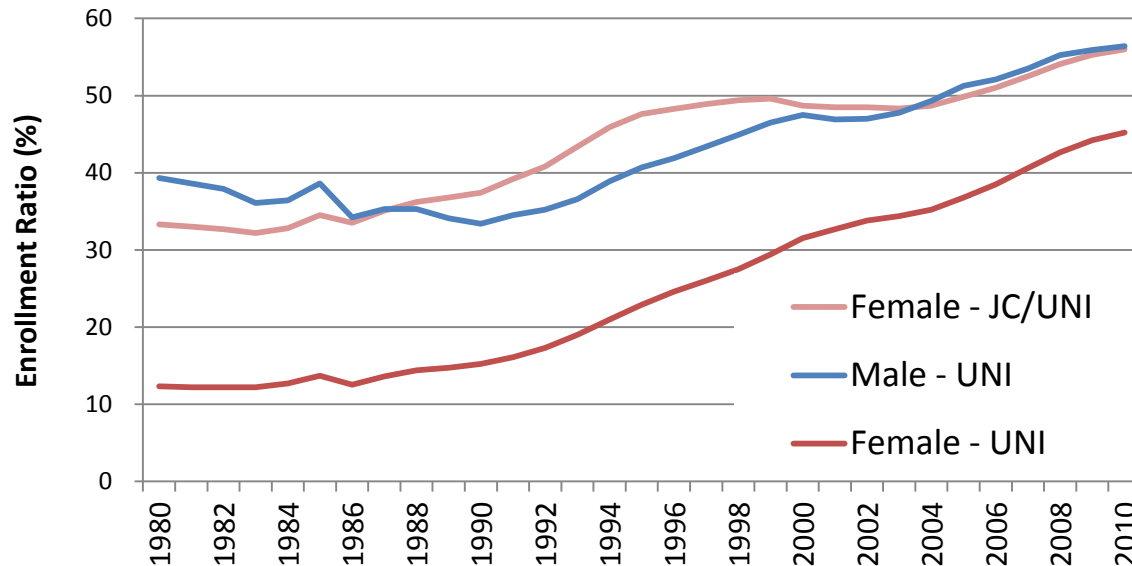
3. Gender evolution theory (Goldin 2006)

Social development towards women’s increasing economic and social emancipation in the history of the U.S.

# Trends in Education in Japan

- ◆ Strong catch up of female participation in university education

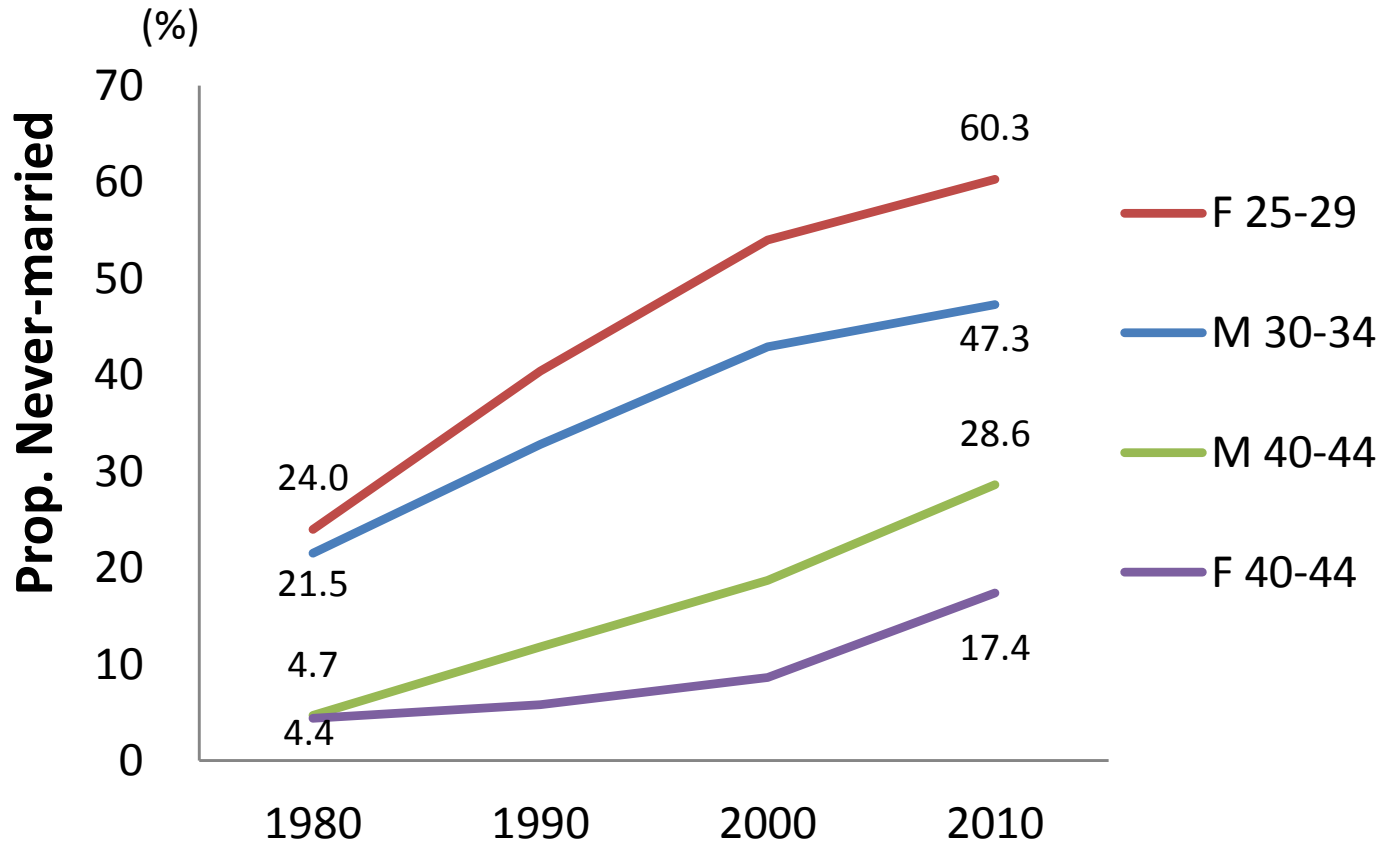
Enrollment ratio to tertiary education in 1980-2010, by sex



Sources: Report on Schools Basic Survey (various years)

# Marriage Trends in Japan

- ◆ Rapid increase in the proportions of “never-married”



=> The trends toward later AND no-marriage!

# Shift in Economic Foundation of Marriage in Japan?

1. Negative gradients in marriage and women's economic well-being in the past

Ex1. Prop. of never-married at age 49 is the highest among women with the highest education.

- Retherford et. al. (2001), Raymo (2003), Raymo & Iwasawa (2005)

Ex2. Women's income has negative effects on marriage hazards.

- Higuchi and Abe (1999), Ono (2003), Sakai (2009)

# Shift in Economic Foundation of Marriage in Japan?

## 2. Positive gradients in the recent period?

Ex. Women's income has positive effects on marriage hazard

- in the 1970s birth cohort (Fukuda 2013)
  - in the period 2002-2012 (Ministry of Health, Labour and Welfare 2013)
- Some weak points in these studies
    - 1) Narrow cohorts, short observation and possibility of selective attrition
    - 2) Income as a poor proxy of the long-term earnings potential

=> Here, I use retrospective data and education for further testing.

# Effects of (female) education

## 1. Quality side

- Enclosing the gender gap in market productivity
- A positive function of gender-egalitarian attitudes
- Social force to change the norms and welfare system

→ Trends toward higher female education changes spouse preferences (Esping-Andersen and Billari 2015).

## 2. Quantitative side

- Mating squeeze among highly educated women (van Bavel 2012)

1. increase in educational homogamy

2. Increase in female hypogamy

3. weakening age homogamy

4. more exogamy in geographic and ethnic terms

5. increase in singlehood among educated women

→ Education components in the marriage market also determine the chance of marriage.



# Focus of This Study

1. The most recent educational differentials in Japanese marriage
  - If the reversal of educational gradients in female marriage observed?
2. The structural and behavioral changes in patterns of educational assortative mating in Japan
  - How did women's educational expansion affect educational assortative mating?

# Data

Pooled data of the 11th-14th Japanese National Fertility Survey (JNFS): 1997, 2002, 2005, 2010

For each wave,

- Sample: married women, single men & women age 18-49
- Response rate: around 80%

Transforming to person-age data of men & women age 15-39,  
Birth cohort of 1948-1992, Period 1988-2010.

-> Total sample size: 33,447 women & 34,231 men

- 1995 (1993-1998): 9,936 women, 10,077 men
- 2008 (2006-2010): 4,814 women, 5,286 men

# Method

## 1) Educational differentials in women's first marriage

- Tempo Adjusted TFMR (Total First Marriage Rate) by women's education
- > Based on the sum of age-specific hazards of FM at age15-39 ( $h_a$ ).

$$TFMR^s = \left\{ 1 - \exp \left[ - \sum_{a=15}^{39} h_a \right] \right\}$$

(Yamaguchi & Beppu 2004, Bongaarts & Feeney 2006)

## 2) Educational assortative mating

- Schoen's (1988) harmonic mean model

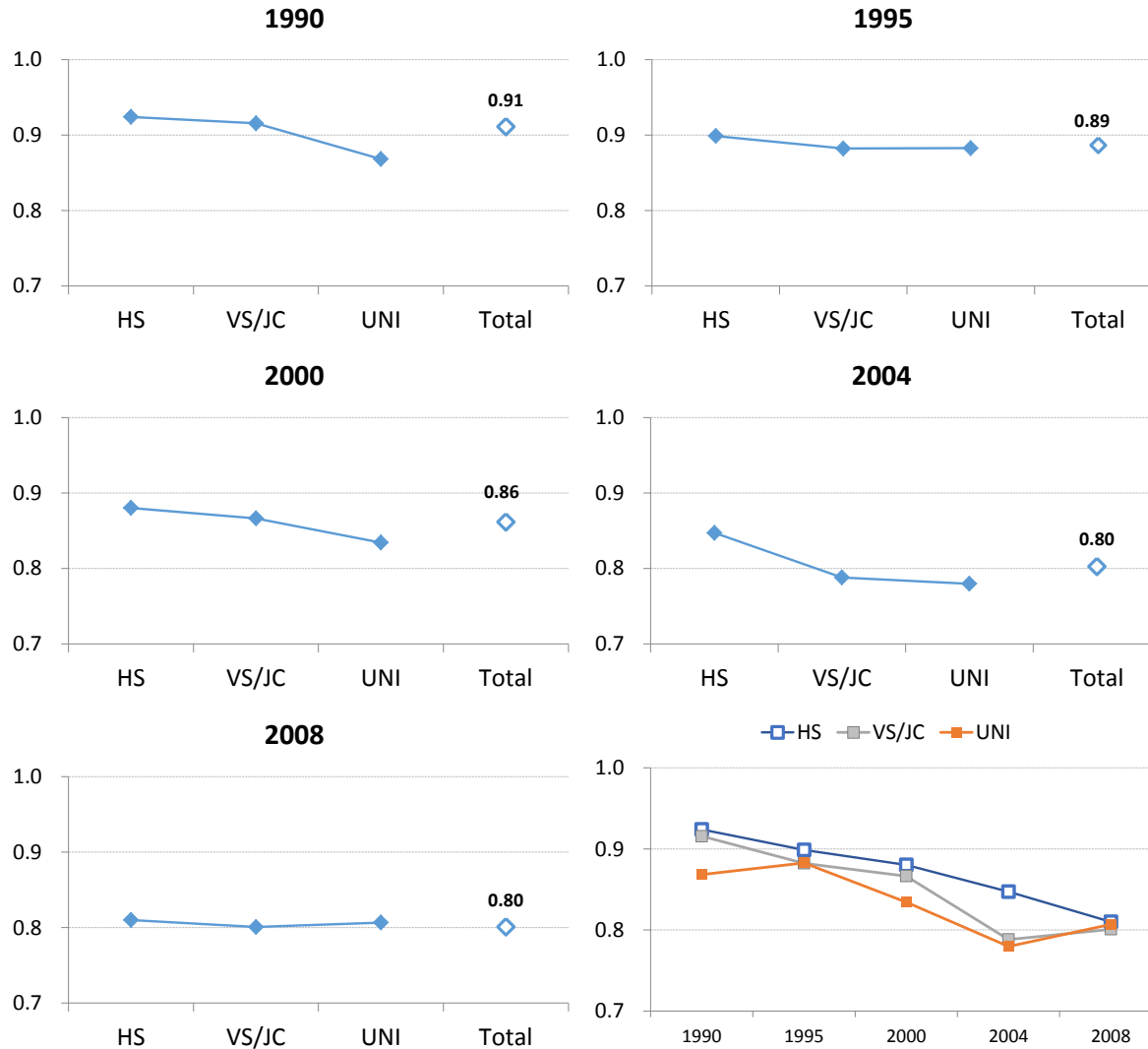
$$\rightarrow MR_{ijkl} = FA_{ijkl} * AR_{ijkl}$$

MR: marriage rates of W with age  $i$  and edu  $k$  and M with age  $j$  and edu  $l$

FA: force of attraction (marriage hazard), AR: availability ratios

# Result (1)-1

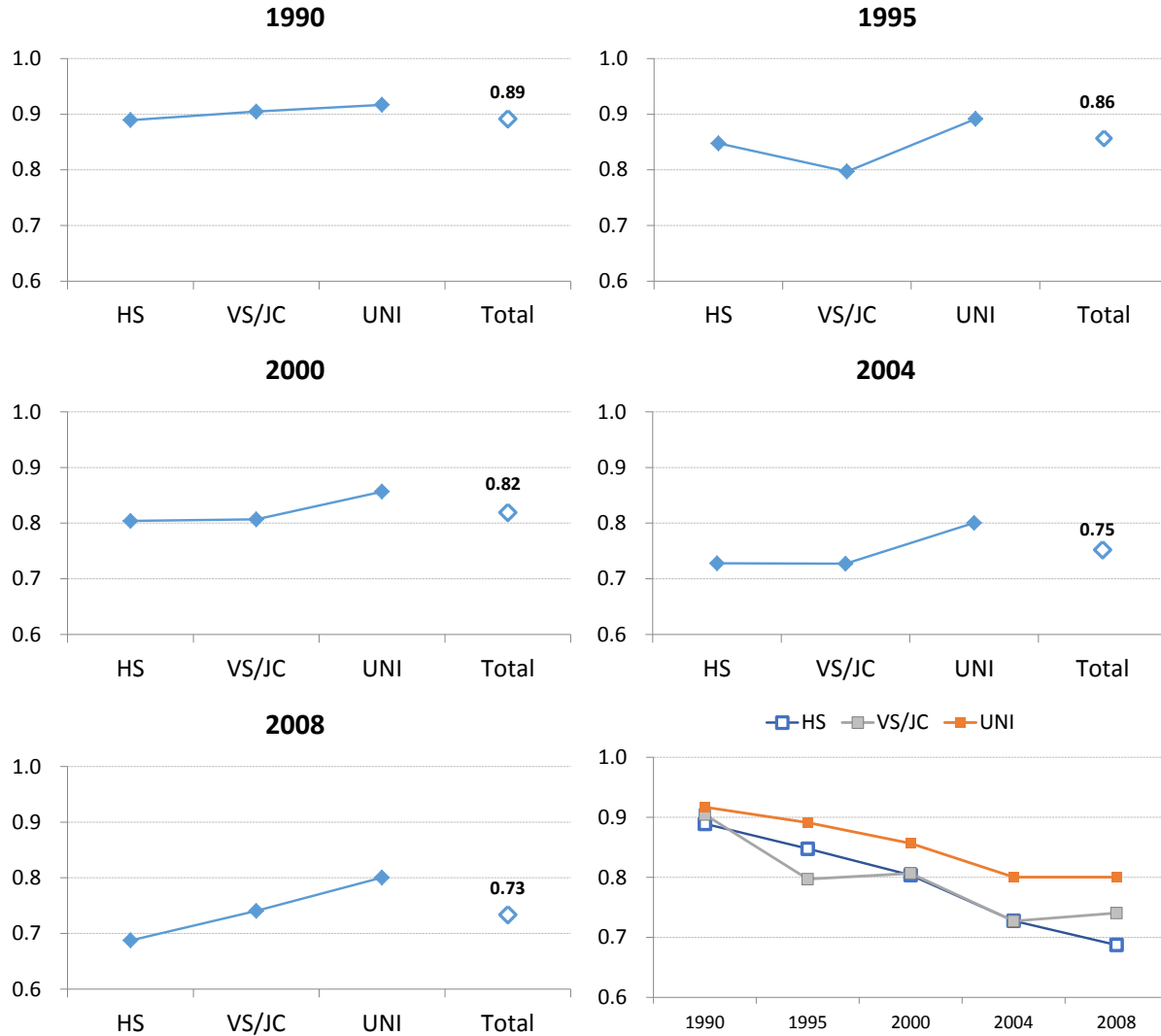
## Period Trends in TFMR\* by Education: Women



TFMR: Tempo adjusted Total First Marriage Rate of age15-39.

# Result (1)-2

## Period Trends in TFMR\* by Education: Men

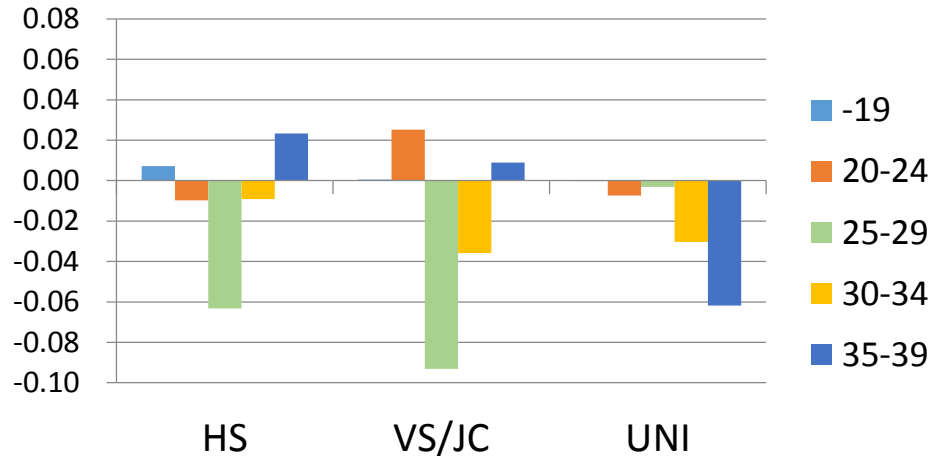


TFMR: Tempo adjusted Total First Marriage Rate of age15-39.

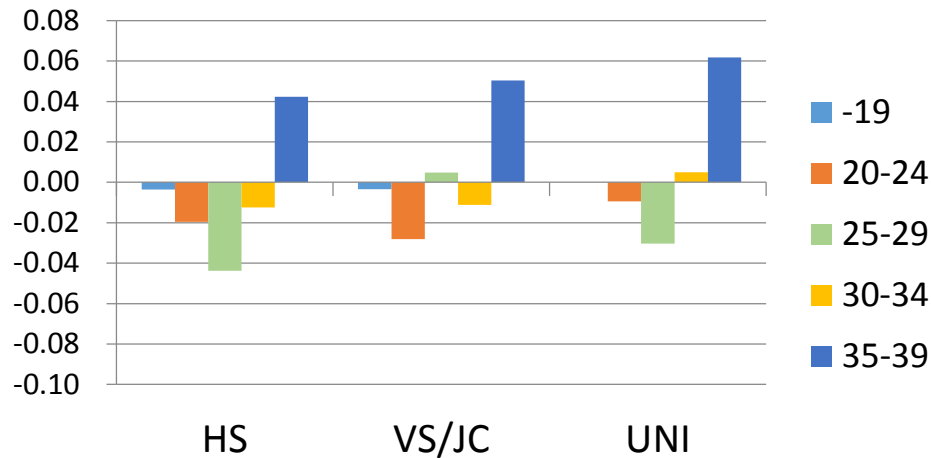
# Result (1)-3

TFMR\* Change by Age and Education: Women

1995 -> 2004

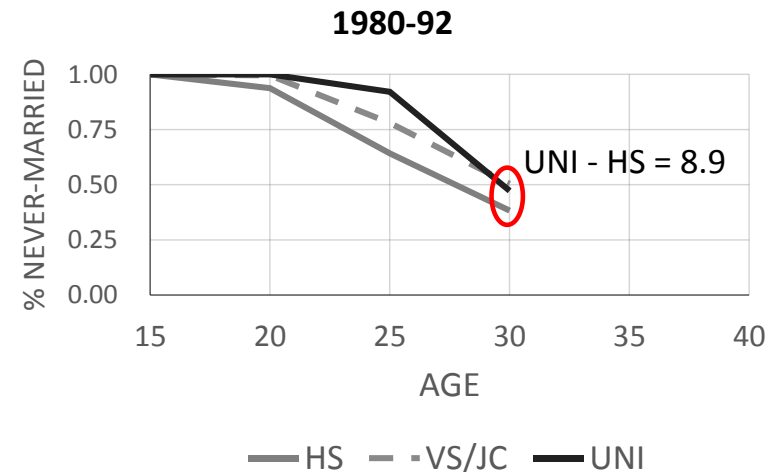
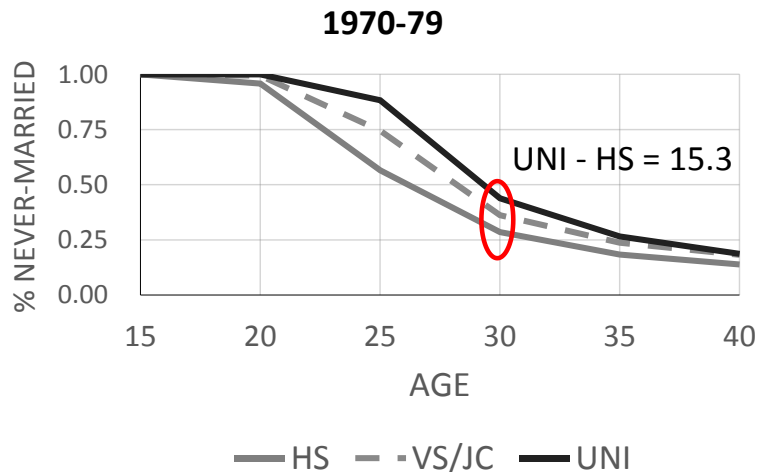
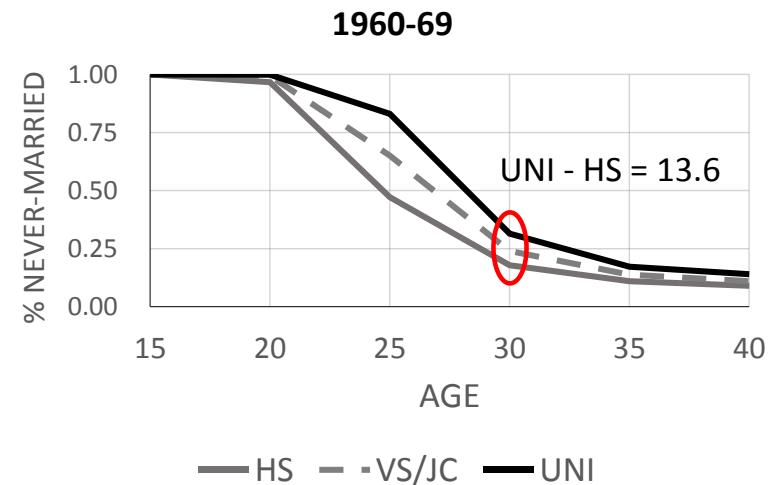
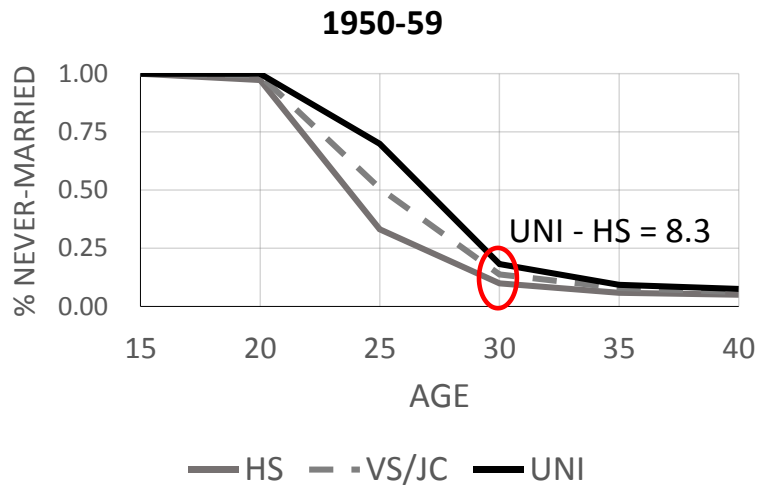


2004 -> 2008



# Result (1)-4

## Kaplan-Meier Survival Curves of FM by Women's Education: Cohort



# Result (2)-1

Ratios of Force of Attraction (FA) by Educational Pairings  
: 1995-2004 and 2004-2008

## 2004/1995

Women	Men		
	HS	VS/Tech	UNI
HS	0.62	0.79	0.78
VS/JC	0.70	0.95	0.58
UNI	0.93	1.51	0.75

## 2008/2004

Women	Men		
	HS	VS/Tech	UNI
HS	0.82	0.77	0.85
VS/JC	1.00	1.10	0.97
UNI	1.28	1.10	1.07



# Result (2)-2

Ratios of Availability of Eligible Partners (AR) by Educational Pairings  
: 1995-2004 and 2004-2008

## 2004/1995

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Women	Men		
	HS	VS/Tech	UNI
HS	1.03	1.04	1.06
VS/JC	0.96	0.94	0.99
UNI	0.90	0.89	0.92

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## 2008/2004

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Women	Men		
	HS	VS/Tech	UNI
HS	1.01	0.99	1.01
VS/JC	1.01	0.98	1.01
UNI	0.97	0.93	0.97

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# Conclusion

## 1. Educational differentials in marriage

- A shift from a negative to no-educational gradient is confirmed in the period observation.
- Turn-over of TFMR among university women age 35-39 in 2008.
- Shrinking educational differentials in the 1980s cohort (at age 30).

## 2. Educational assortative mating

- UNI women are under the severe marriage squeeze.
- Japan's tradition of female-educational-hypergamy is changing.
  - ex1. UNI women are more likely to marry with HS/VS men.
  - ex2. HS or JC women are much less favored by men in 2008.
- Educational homogamy among UNI is somewhat less intensified while women's hypogamy AND singlehood are increasing.

# Conclusion

3. Does the shift indicate changing economic foundation of marriage?
  - No or Not yet.
    - The current upturn of the TFMR among UNI women is mainly driven by the increase at age 35-39, the last minutes catch up.
  - But at least some supporting evidence for the cohort change.
    - Economic conditions
    - Particularly, life course preference is changing in support for more dual-earner type couple arrangements among young adults.

# Thank you!



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