

# ***Educational Differences in Active Life Expectancy for the Elderly in Taiwan, 1989-1999***

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## Objective of the Study

To examine the differences in LE and ALE by levels of education for the elderly population for the age 60 and older in Taiwan

# Previous Research on differences in health status & ALE by Education

- Studies show inequities by levels of education in active life expectancy (ALE)  
Elderly with lower level of education have higher mortality rates and prevalence of disability  
Differences in LE and ALE by levels of education are smaller for older males than older females

# Data

## Source of data

Surveys of Health and Living Status of the Middle Aged and Elderly in Taiwan (SHLSE)

## Survey design

Multi-stage national probability sampling method

Population: Age 60 and over in 1989 in Taiwan

Longitudinal national surveys

# Sample size and Response Rates

Content	1 <sup>st</sup> wave	2 <sup>nd</sup> wave	3 <sup>rd</sup> wave	4 <sup>th</sup> wave
Survey year	1989	1993	1996	1999
Interview months	4-11	4-12	4-12	4-12
No. of respondents (Age of respondents)	4049 (60+)	3154 (64+)	2669 (67+)	2310 (70+)
Deceased cases (Cumulate N.)	-	590	470 (1069)	426 (1488)
Response rates (%)	91.8%	91.2%	89.3%	90.8%

# Method

## IMaCh

Developed by Nicolas Brouard & Agnes Lièvre

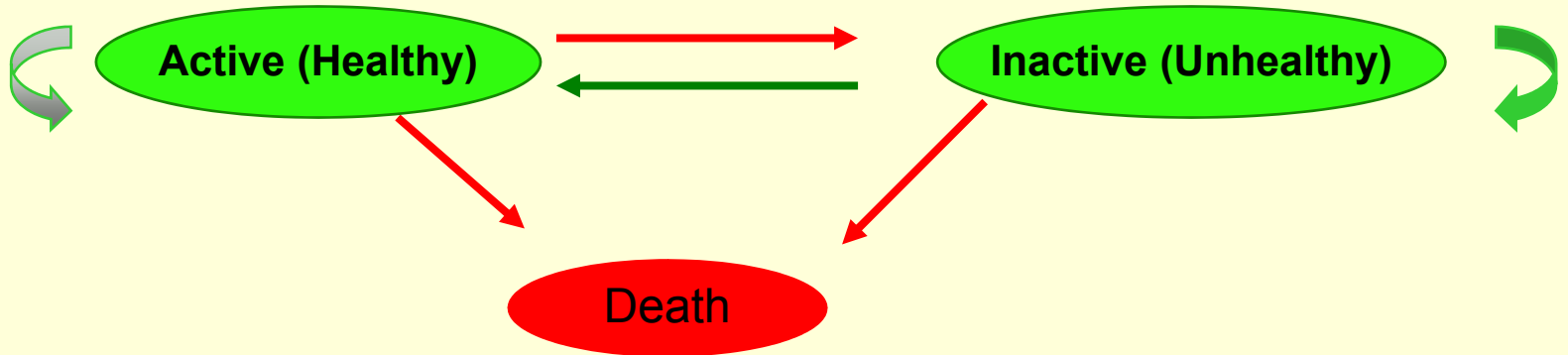
The program is based on multinomial logistic regression

## Advantages of IMaCh for the study

Deal with many waves of data at once and different lengths of intervals between surveys

Calculate ALE and provide us standard error

# Conceptual Framework



# Operational Definition for Health

Health status defined by

Bathing

Instrumental activity of daily living

- shopping
- managing money
- making the phone call
- taking the bus/train
- doing heavy house work

Active/Inactive state

have a lot of difficulties or unable to perform at least one of the activities

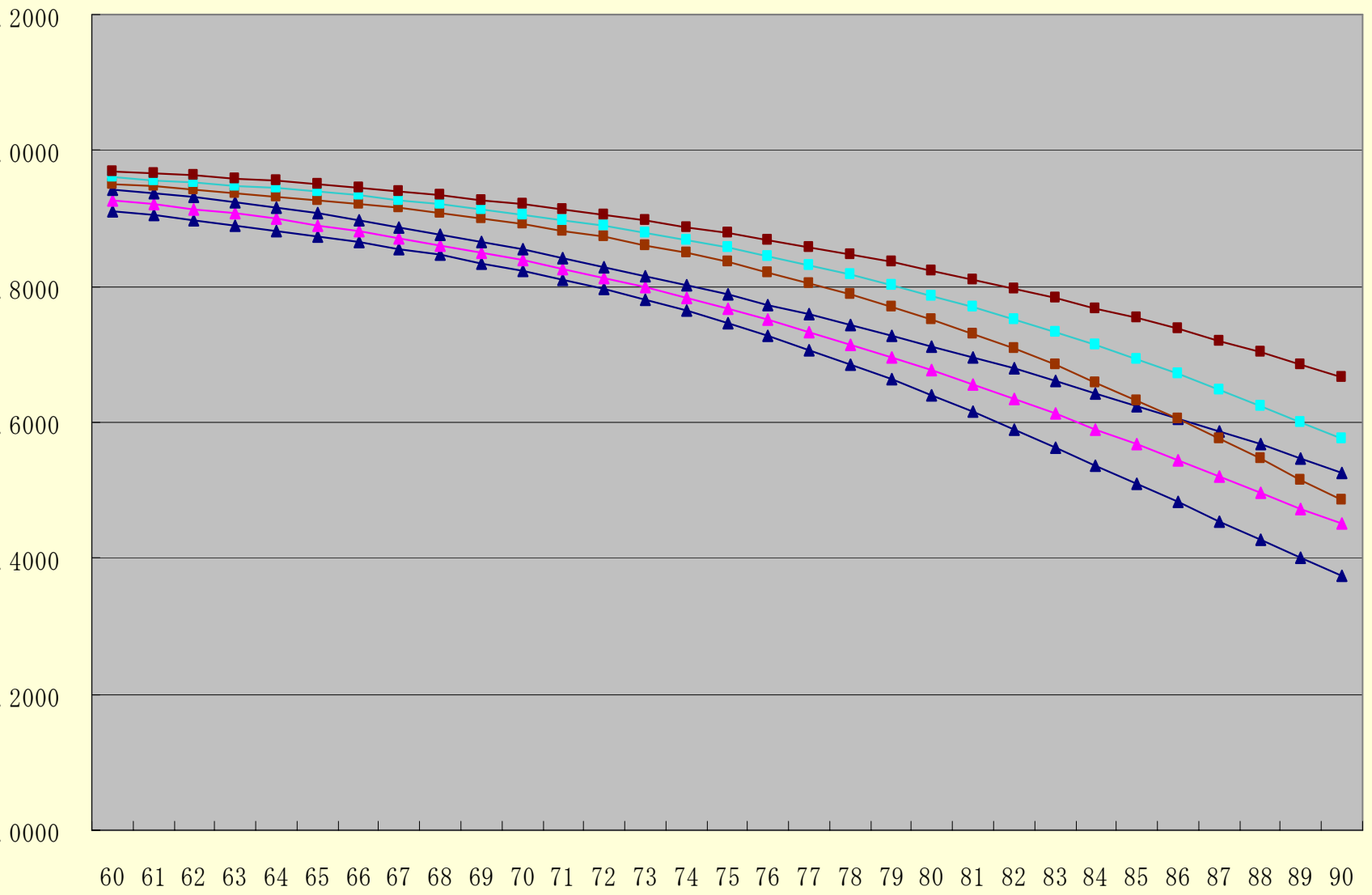


The results of active life expectancy

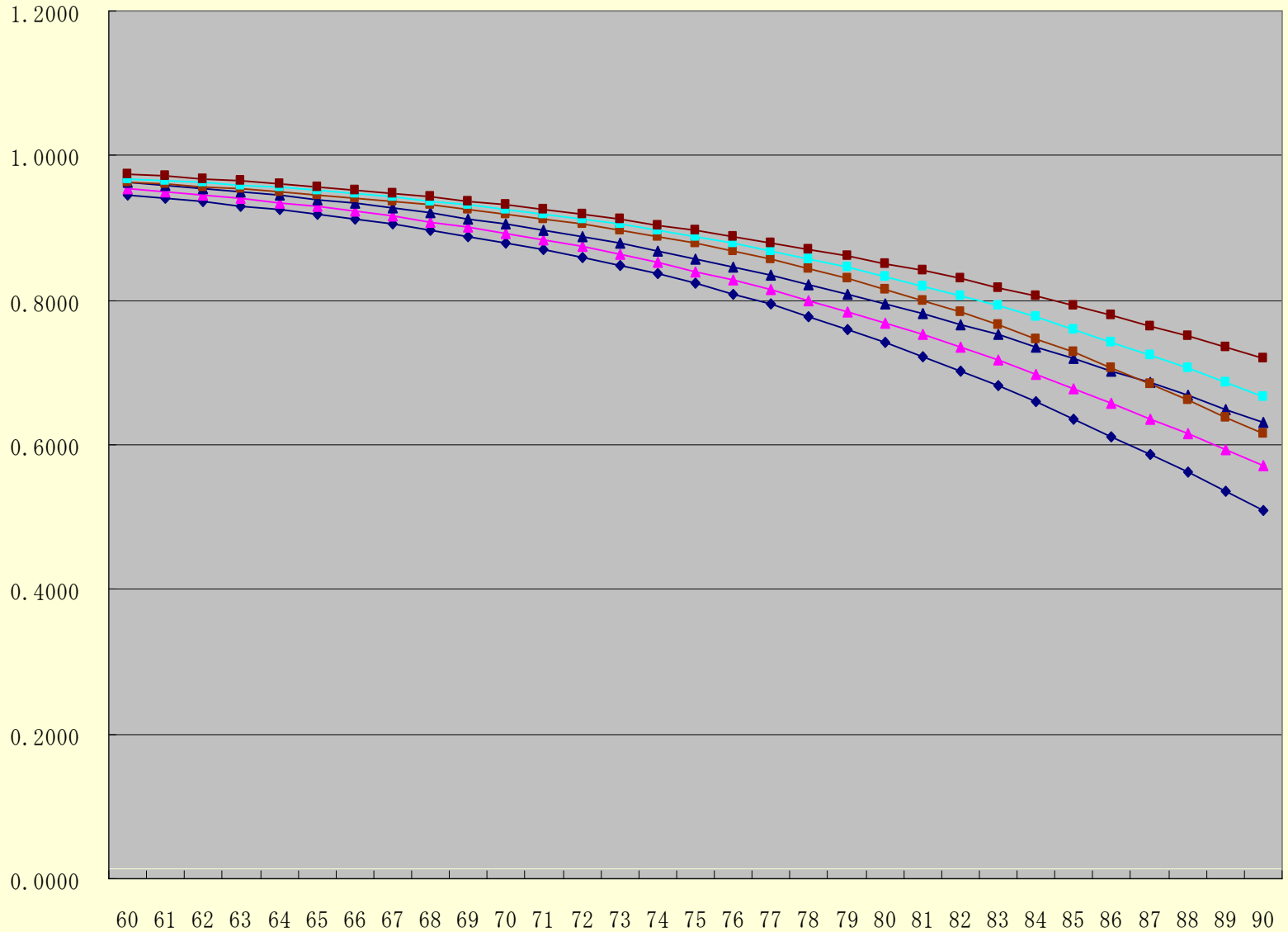
# Results-Characteristics of the sample

	Total	Males	Females
Total (N)	4038	2302	1736
(%)	100%	57.0%	43.0%
Age 60-63	1204	32.4%	26.4%
64-66	783	20.7%	17.6%
67-69	639	15.7%	16.0%
70-74	1162	16.6%	19.8%
75-79	250	9.4%	12.7%
80+	79	5.3%	7.4%
Years of education			
no education=0	2025	32.5%	73.8%
with formal edu=1	2004	67.5%	26.2%
Missing	9	5	4

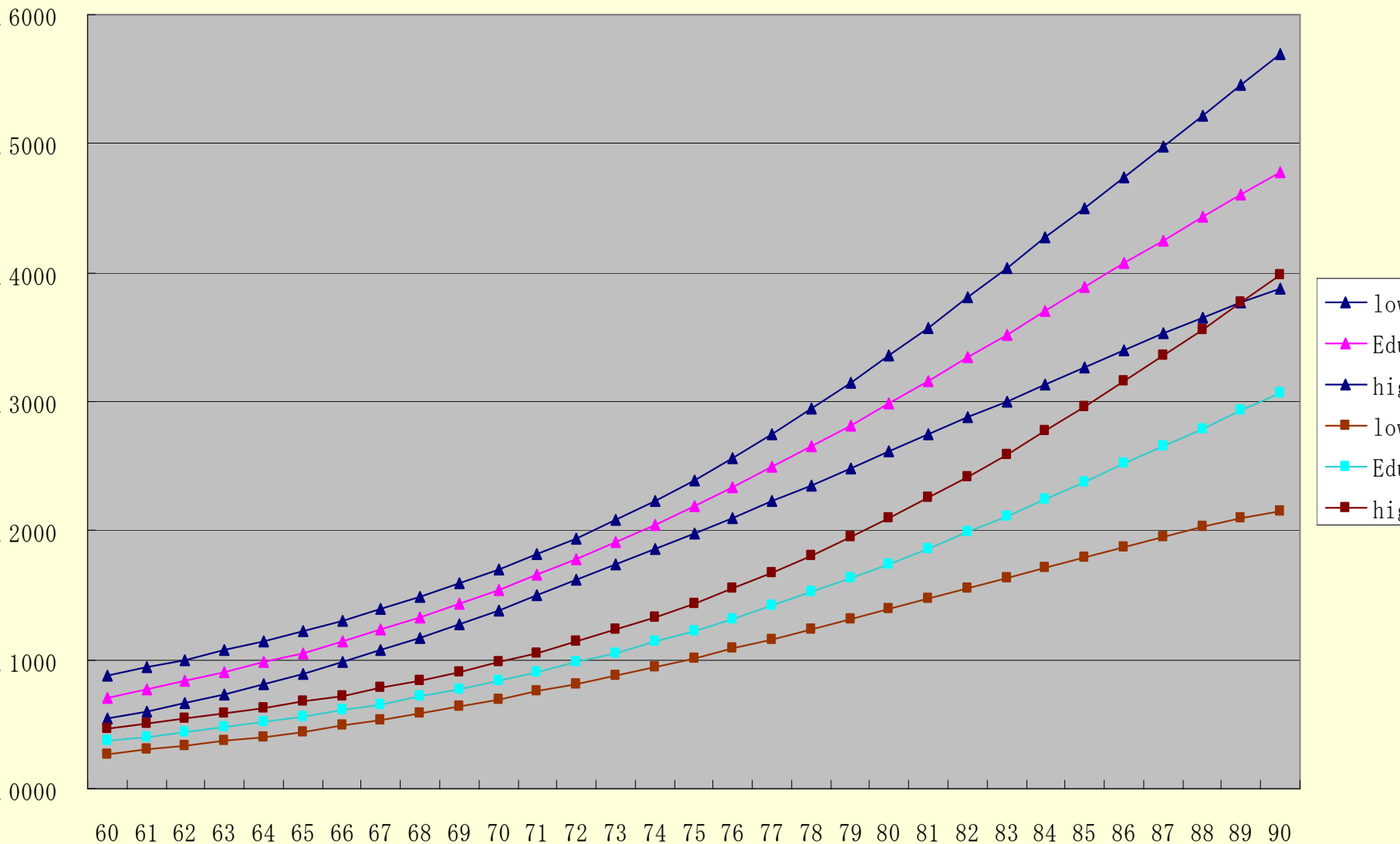
# Probability of Remaining Active by Education: Females



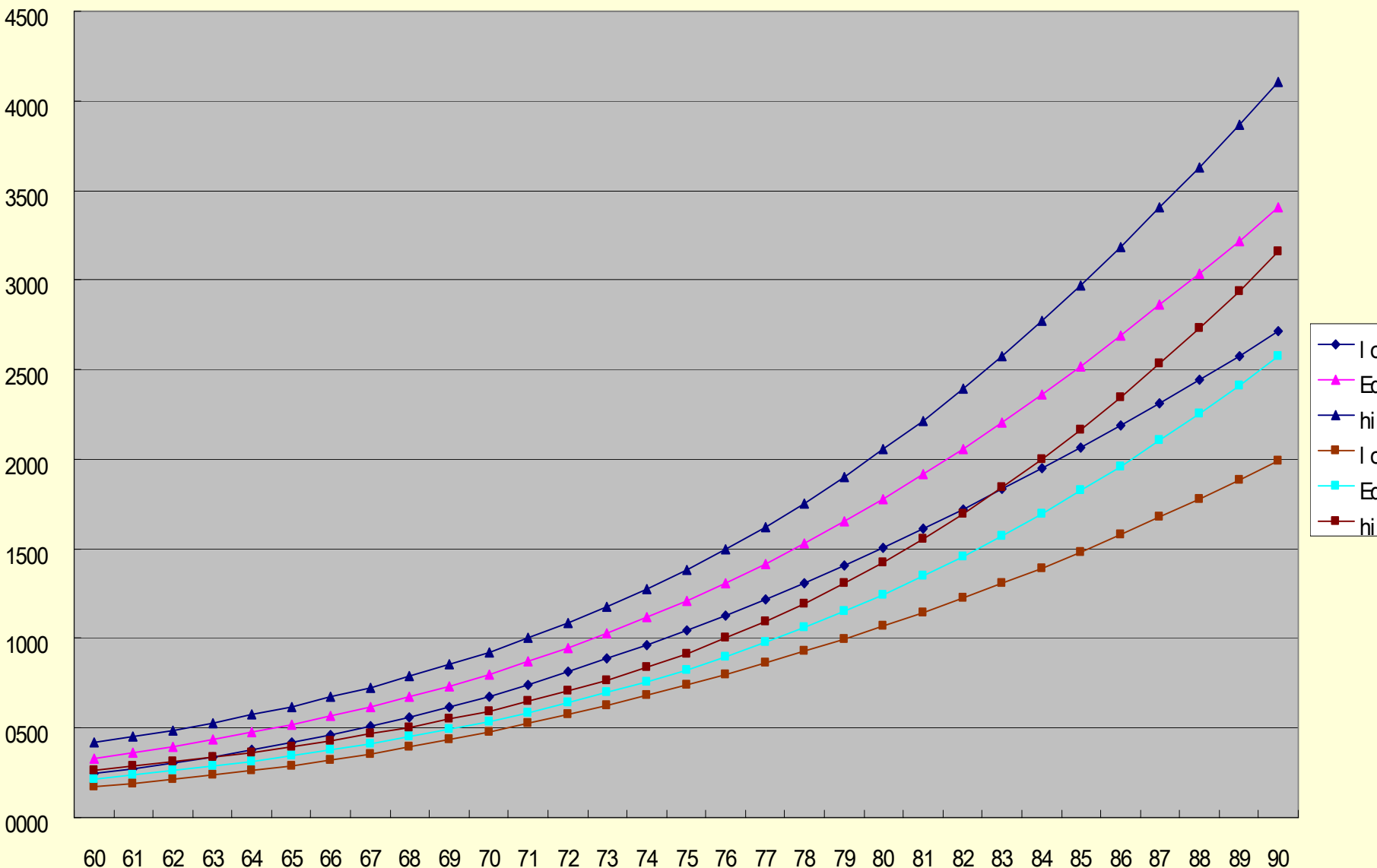
# Probability of Remaining Active by Education: Males



# Transition Probability from Active to Inactive by Education: Females



# Transition Probability from Active to Inactive by Education: Males



# Results in Health Transitions

## **Higher levels of education**

Have effects on health transitions for both genders across all ages

Higher probabilities for

- Remaining in an active state

Lower probabilities for

- Transitions to an inactive state

# Active Life Expectancy at age 60,70,80

Age60	Female			Male		
	Edu0	Edu1	Diff.	Edu0	Edu1	Diff.
IALE	9.69	7.94	1.65	4.64	4.13	0.51
ALE	<b>10.93</b>	<b>15.93</b>	<b>5.0</b>	<b>12.87</b>	<b>14.98</b>	<b>2.11</b>
LE	20.61	23.87	3.26	17.51	19.10	1.59

Age70	Edu0	Edu1	Diff.	Edu0	Edu1	Diff.
IALE	7.91	7.03	0.88	4.49	3.98	0.51
ALE	<b>4.82</b>	<b>8.34</b>	<b>3.52</b>	<b>6.81</b>	<b>8.33</b>	<b>1.52</b>
LE	12.73	15.37	2.64	11.3	12.31	1.01

Age80	Edu0	Edu1	Diff.	Edu0	Edu1	Diff.
IALE	5.59	5.57	0.02	4.09	3.64	0.45
ALE	<b>1.60</b>	<b>3.30</b>	<b>1.69</b>	<b>2.88</b>	<b>3.73</b>	<b>0.85</b>
LE	7.18	8.87	2.64	6.97	7.37	0.40

**All the differences between educational groups are statistically significant.**



## Conclusion

For both gender, the elderly with 1 year + education have significant effects on health transitions

- Higher probabilities for remaining in an active state

- Lower probabilities for entering into an inactive state

For both gender, there is no statistically significant effect on transition from inactive to active and probabilities of dying

Years of differences in ALE between educational groups are statistically significant