JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL

JÖNKÖPING UNIVERSITY

Who stays longer?

Individual factors influencing the timing of retirement

Johan Klaesson, Esteban Ochoa Lopez, Özge Öner

CEnSE Centre for Entrepreneurship and Spatial Economics
Jönköping International Business School

R | E | A | L
THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Ageing and the Economy

Responding to the challenges of shifting demographic forces is a complex and difficult task for countries because the implications are both diverse and profound!

Policy options for the long range!

Since the impacts of demographic trends usually manifest themselves slowly and therefore cannot normally be accommodated with rapid policy or institutional shifts.

An obvious problem is with the retirement age of elderly:

How to keep elderly in the labor force longer?

How to keep elderly in the labor force longer?

-Studies address a number of issues:

- Migration patterns for elderly
- Focusing on the pre-elderly age group (55-64) for understanding "retirement transition"
- Efforts to dampen age discrimination in the labor market
- Education programs that assist the population to adapt their skills for this change in the economic structure
- Increased investment in health care
- Increased immigration – within city and across regions
- Formulating new forms of employment (part-time retirees)
- Old-age entrepreneurship

What do we do?

We want to identify the individual factors that determine the “survival” of elderly in the labor market?

Who stays longer???

Why?

Many of the studies take a macro-perspective.

Such studies look into what happens after retirement. (e.g. where they move, what they prefer in their consumption, etc.)

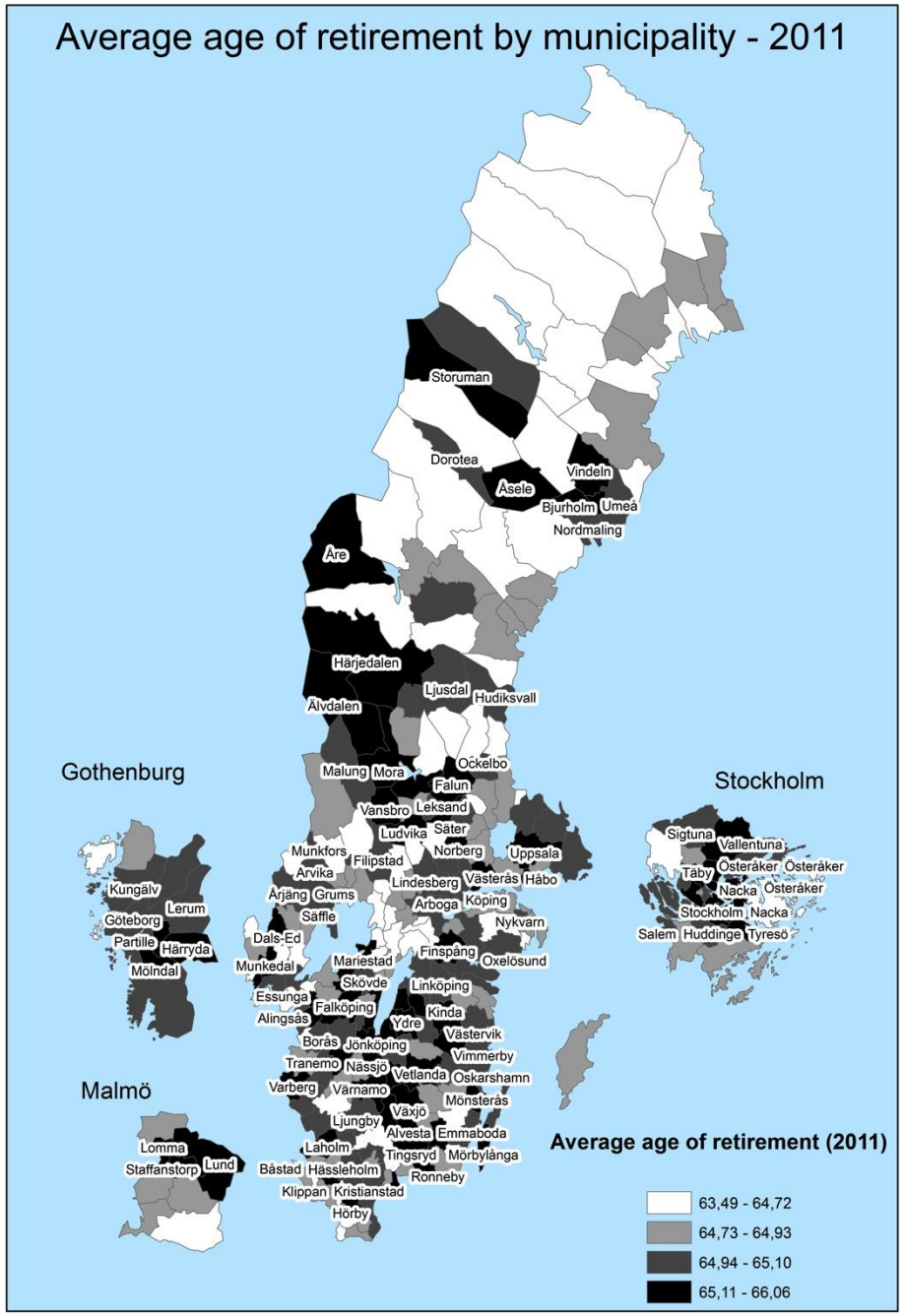
Problem is with identification – Detailed micro-data is a need!

We are asking this question because we can!

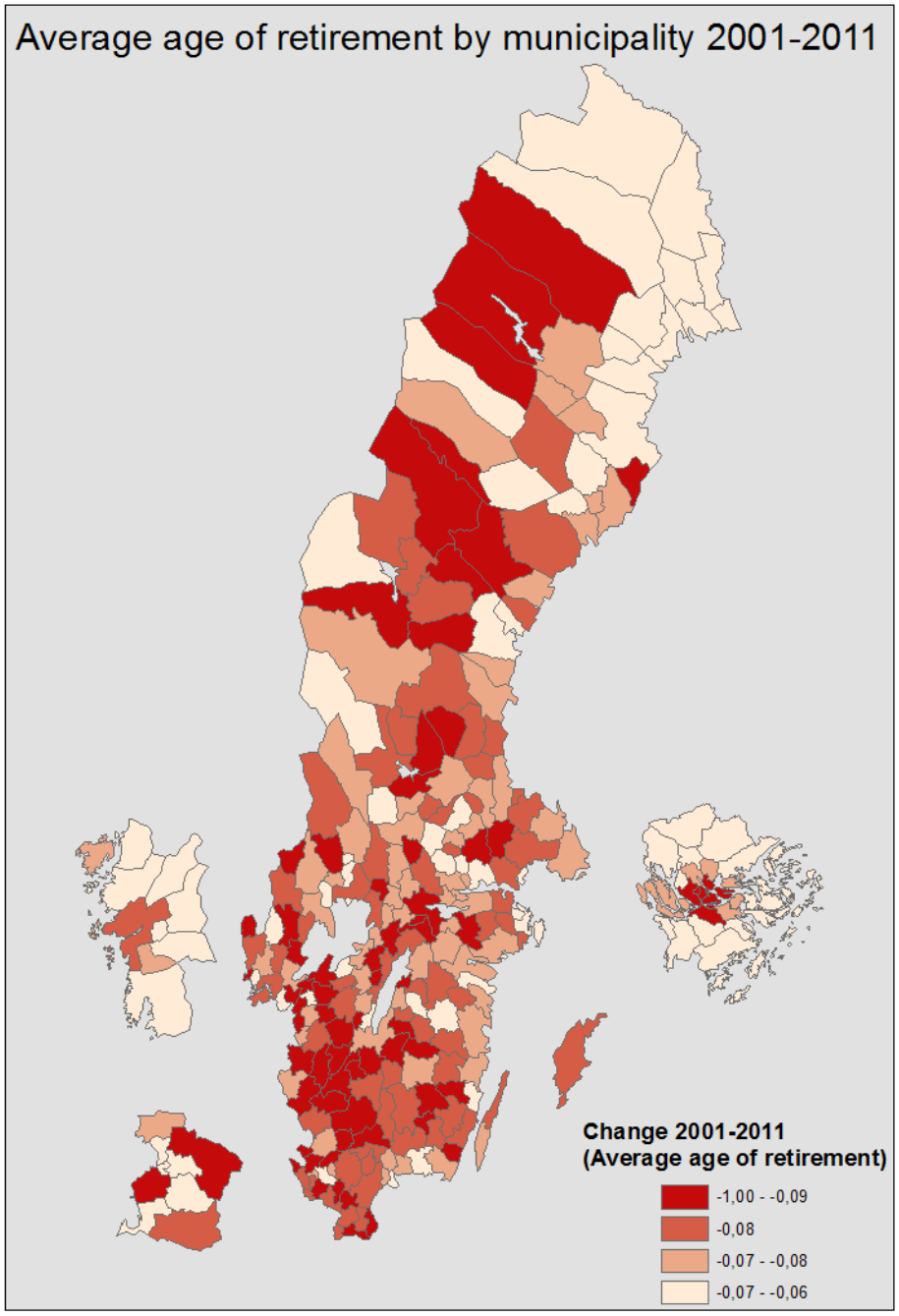
(Rich Swedish micro-data for a survival analysis!)

The Swedish Retirement/Ageing Context

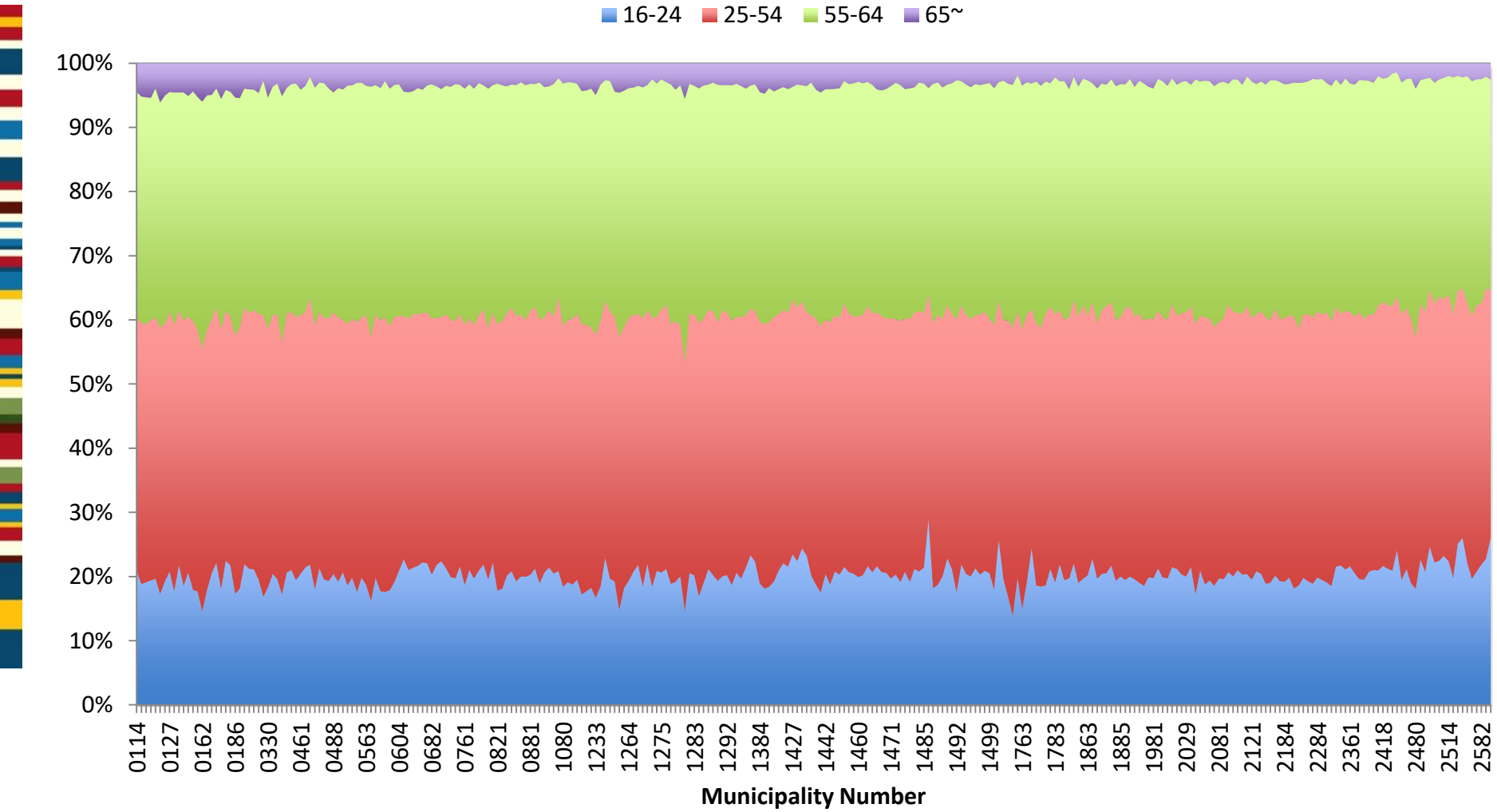
- Retirement Age:
  - Eligible for early retirement: 61 years
  - Retirement with full benefits: 65 years
  - Entitle to work until: 67 years
- Rural-Urban Migration
- After retirement entrepreneurship?
- “Encouraged” to retired by employers and peers?



JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY



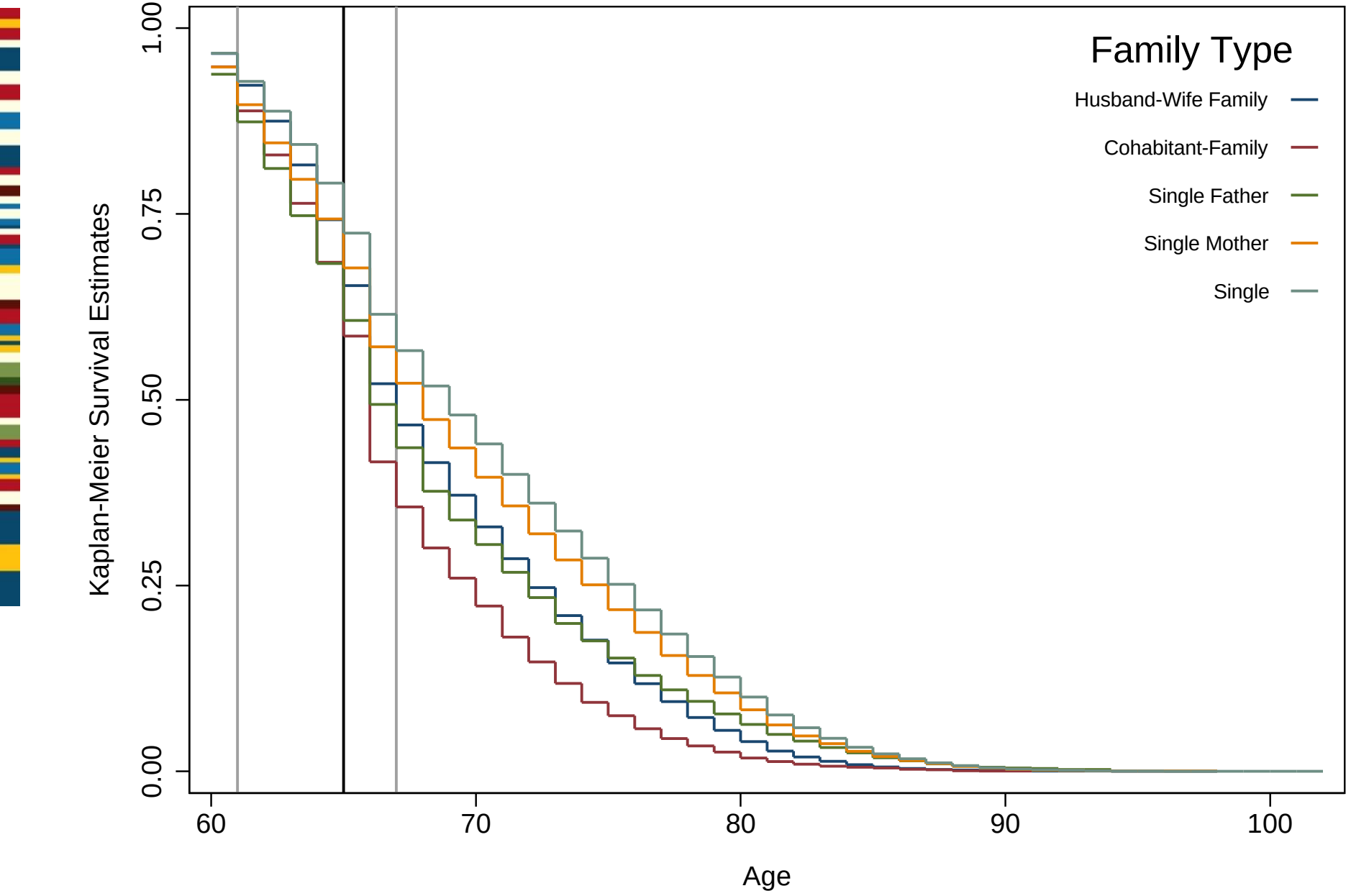
JÖNKÖPING INTERNATIONAL
BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY

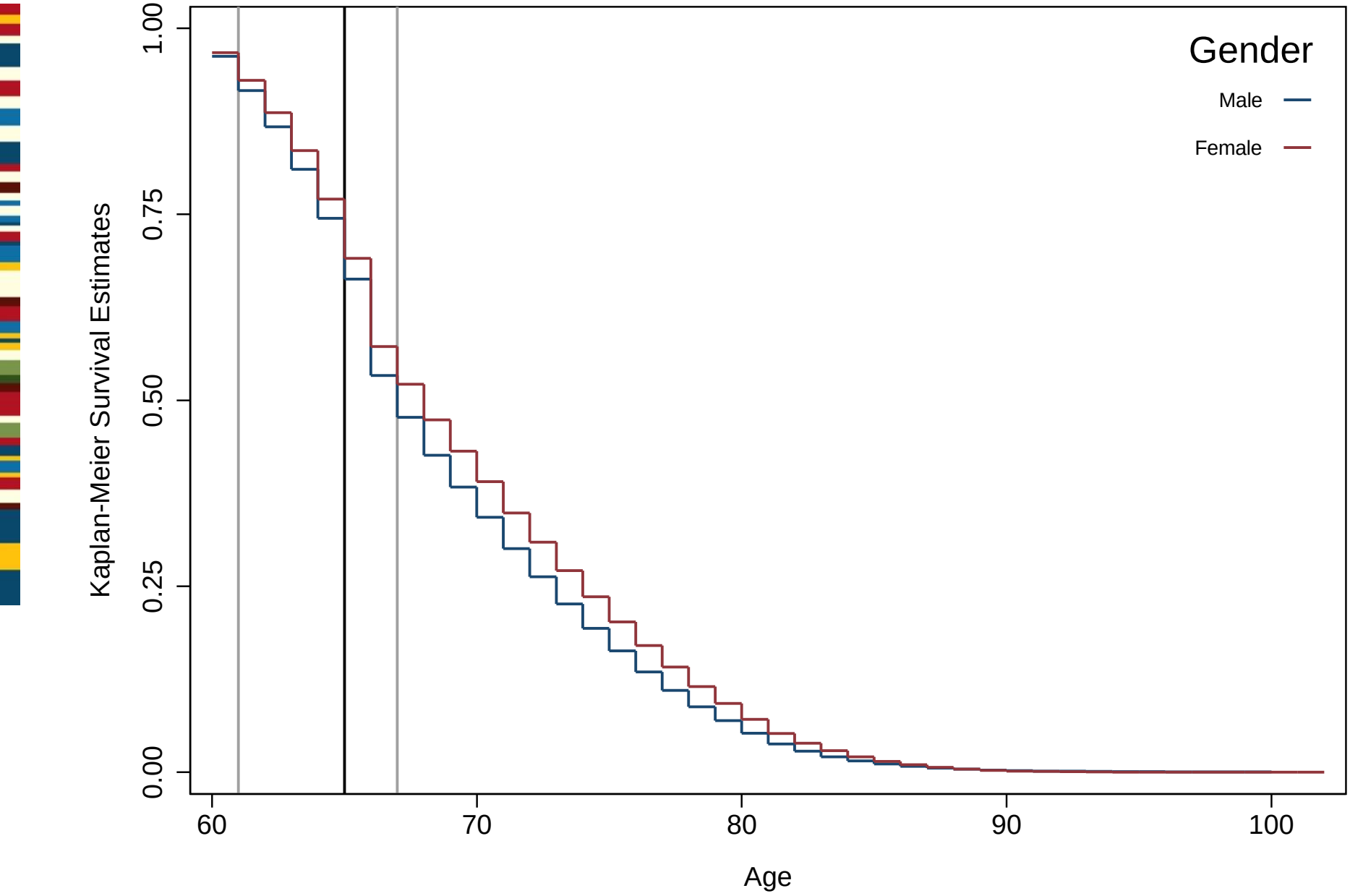


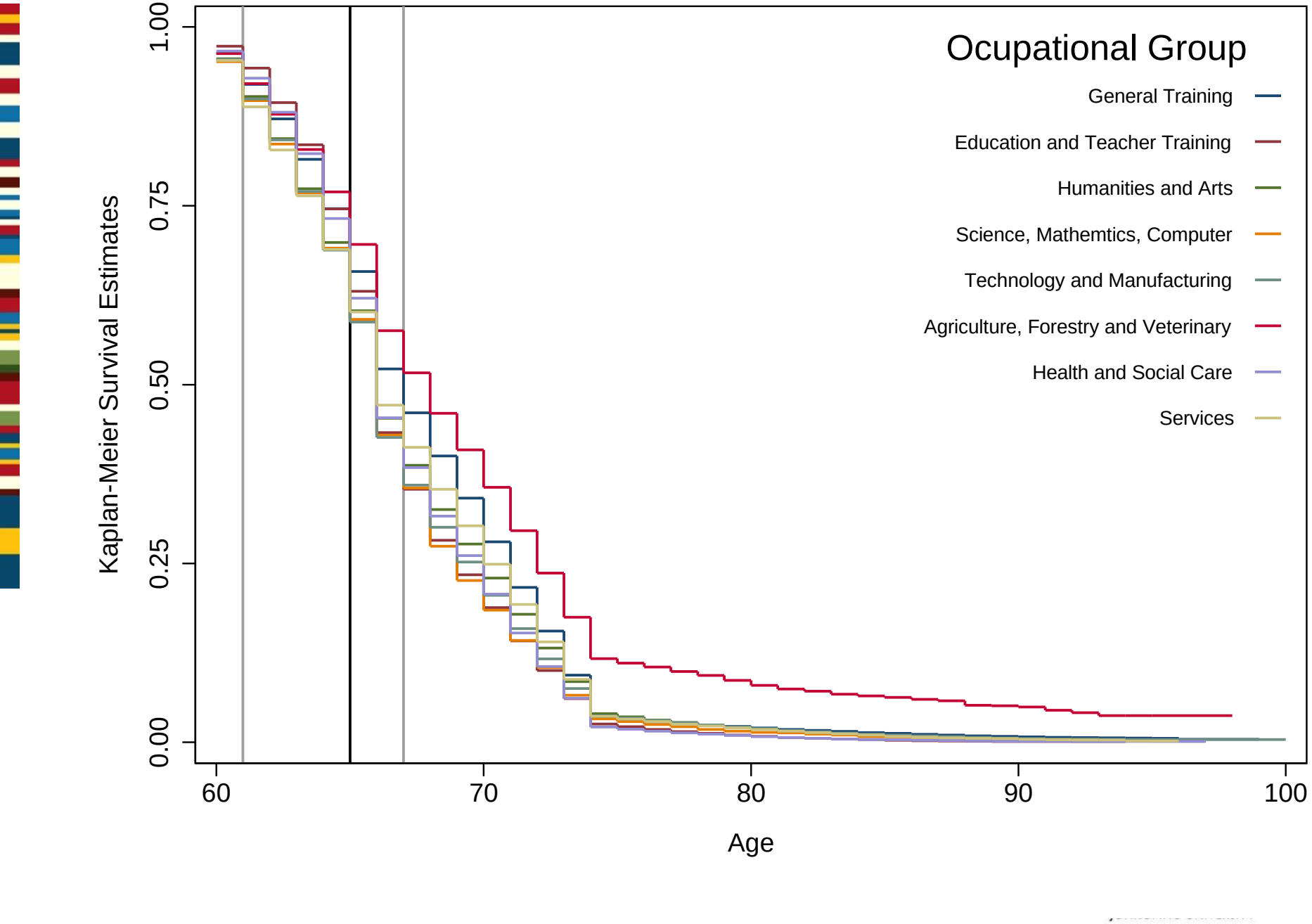
JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY

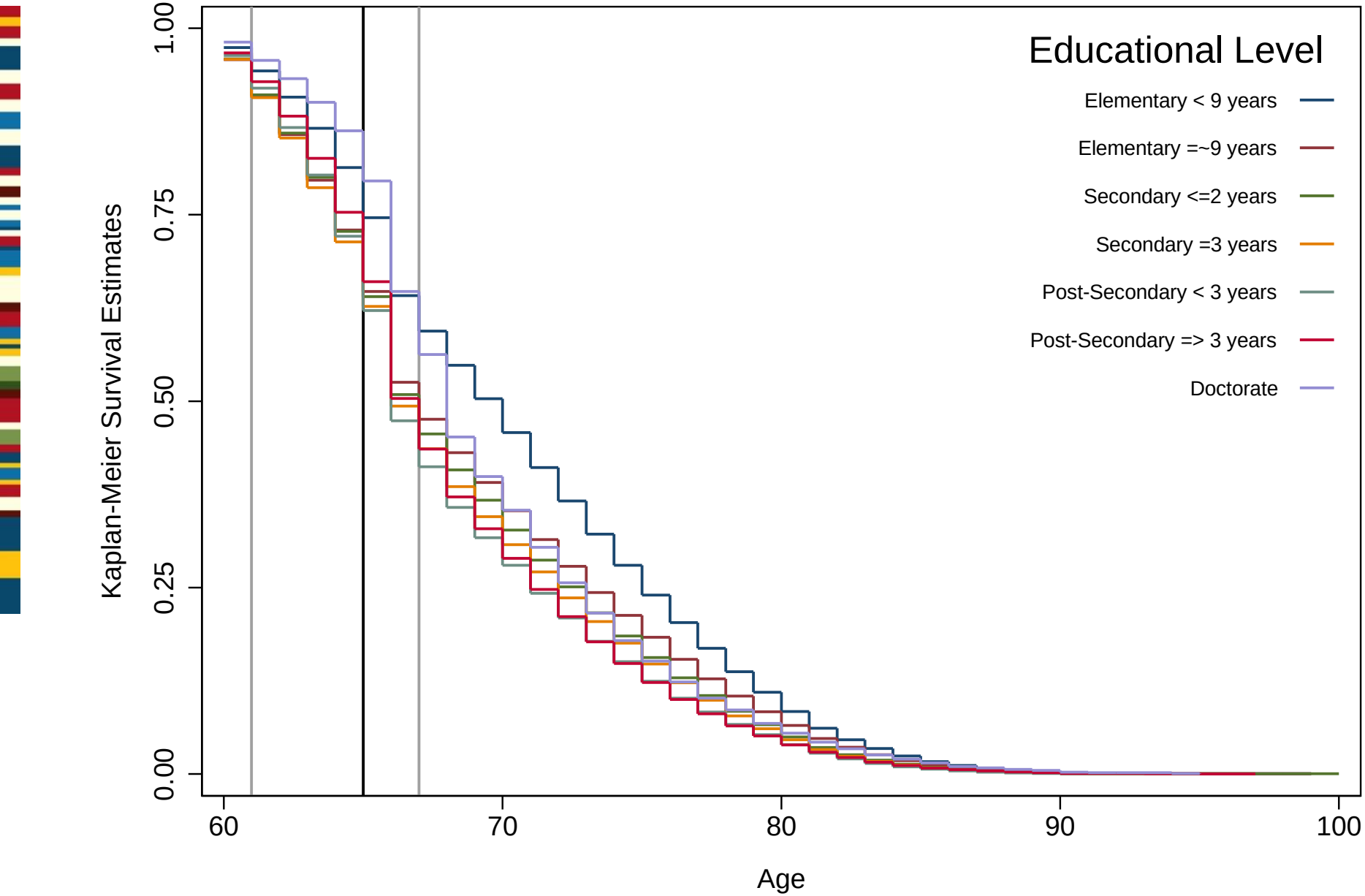
Data and variables

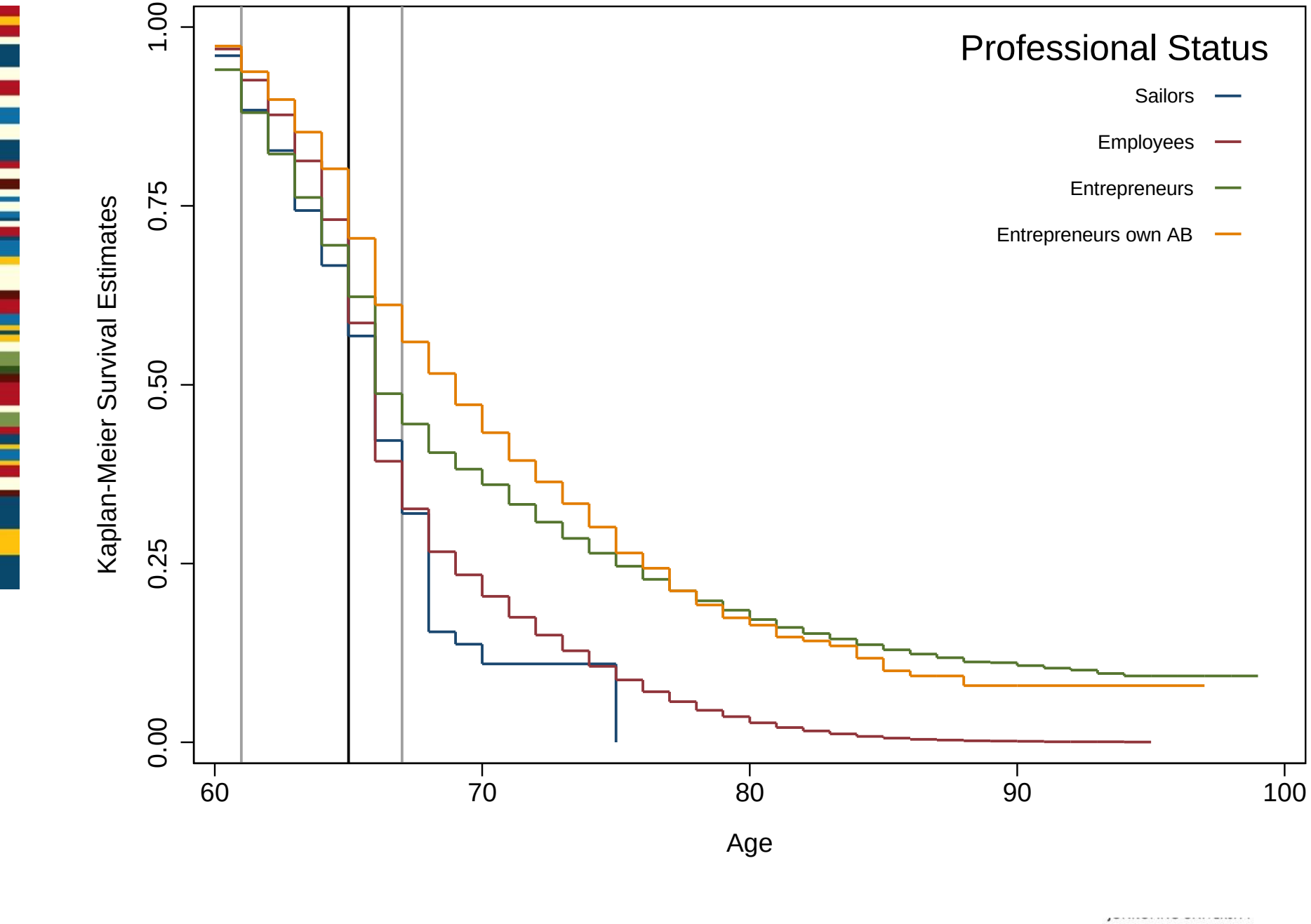
- Scope: individual data of work force in Sweden
  - Filter: All retired and potential retirees
- Time: yearly data between 2001-2011
- Individual Variables
  - Occupation, Family type, Gender, Age, Education, Municipality (Work-Live)
- Retirees identified by changes in income from year to year
- Total number of observations: 2,348,447
  - Retired: 1,614,855

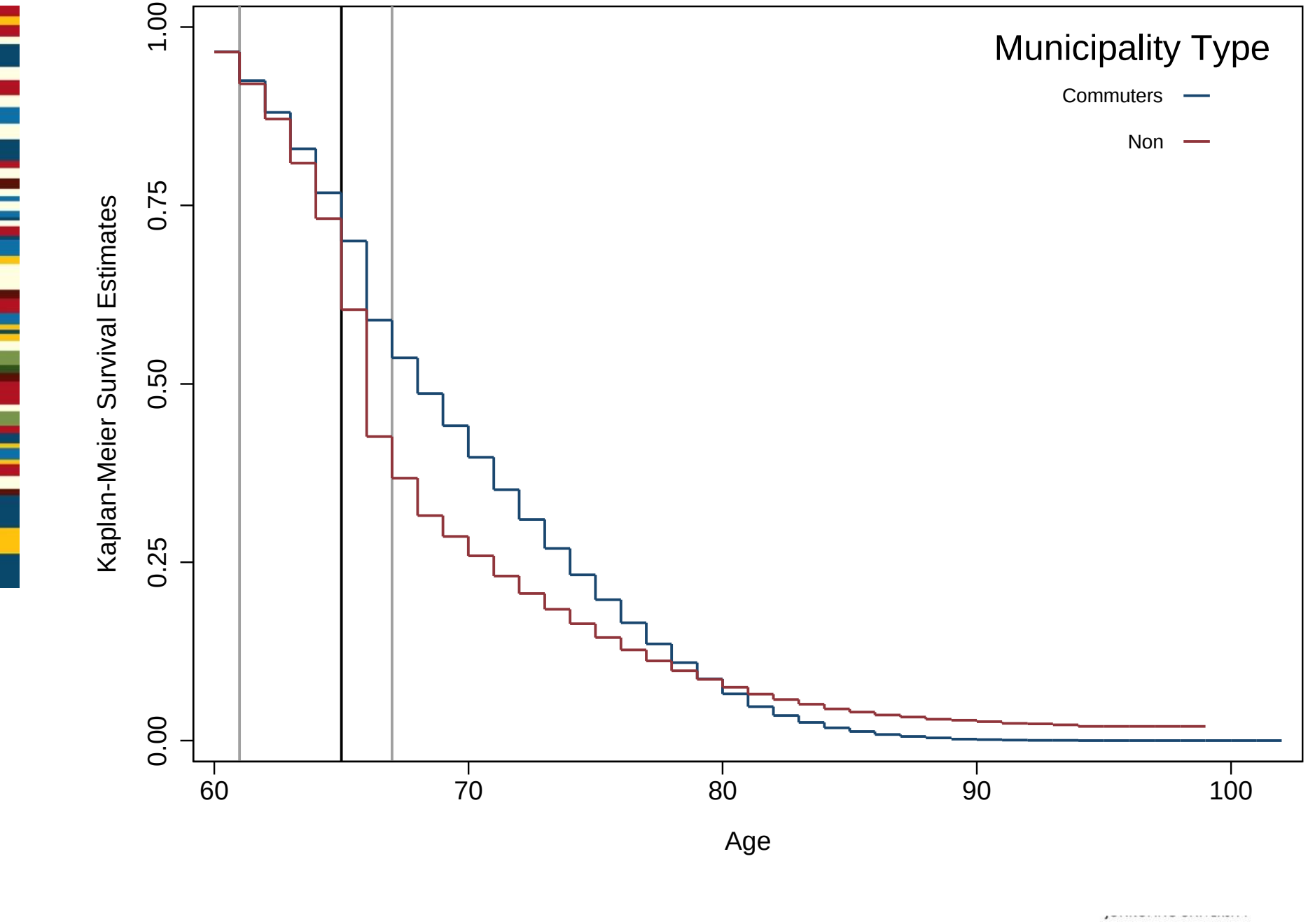

Family Type
Husband-Wife Family
Cohabitant-Family
Single Father
Single Mother
Single
Kaplan-Meier Survival Estimates
1.00
0.75
0.50
0.25
0.00
60
70
80
90
100
Age

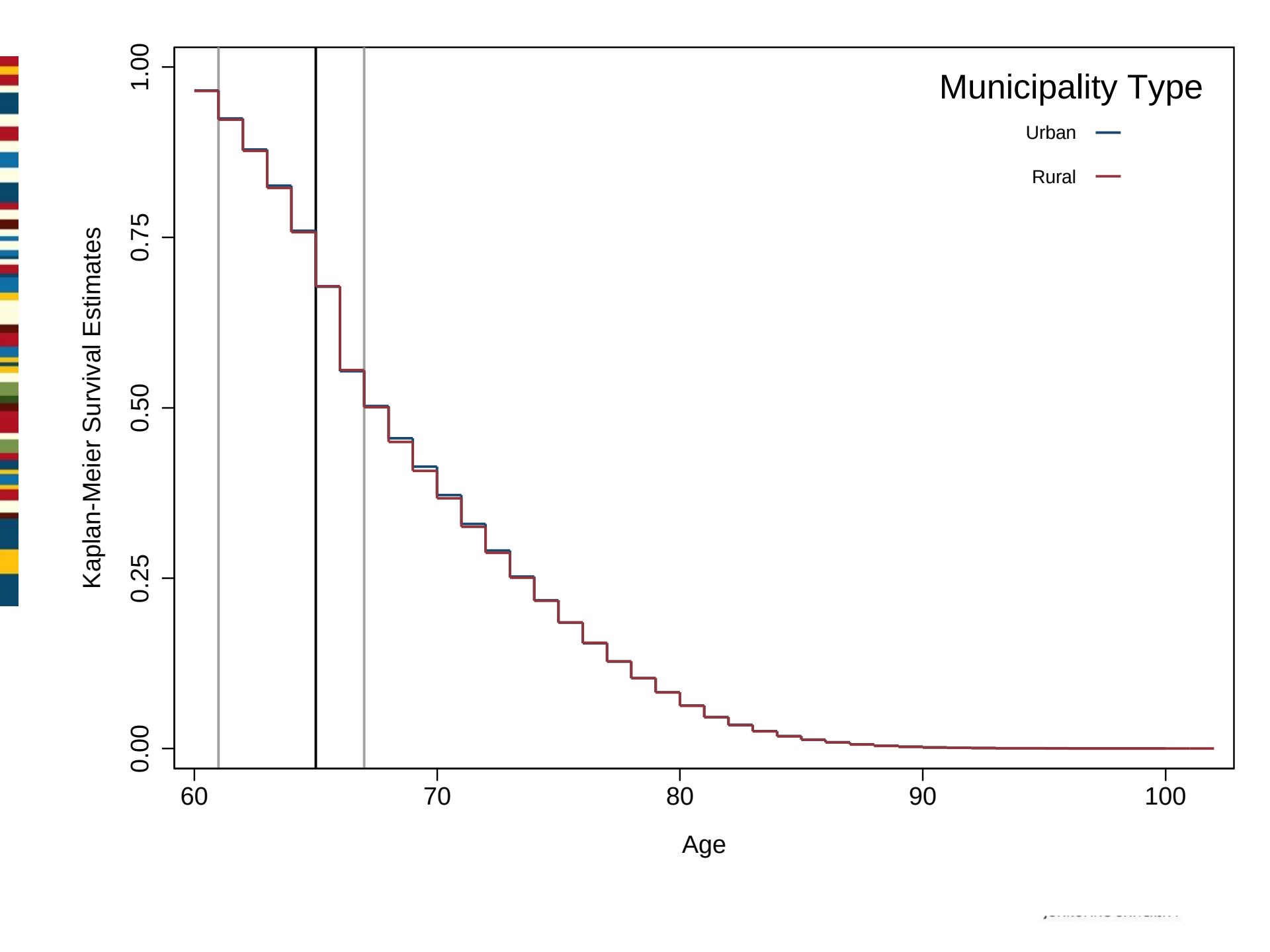

Kaplan-Meier Survival Estimates
1.00
0.75
0.50
0.25
0.00
60
70
80
90
100
Age
Gender
Male
Female

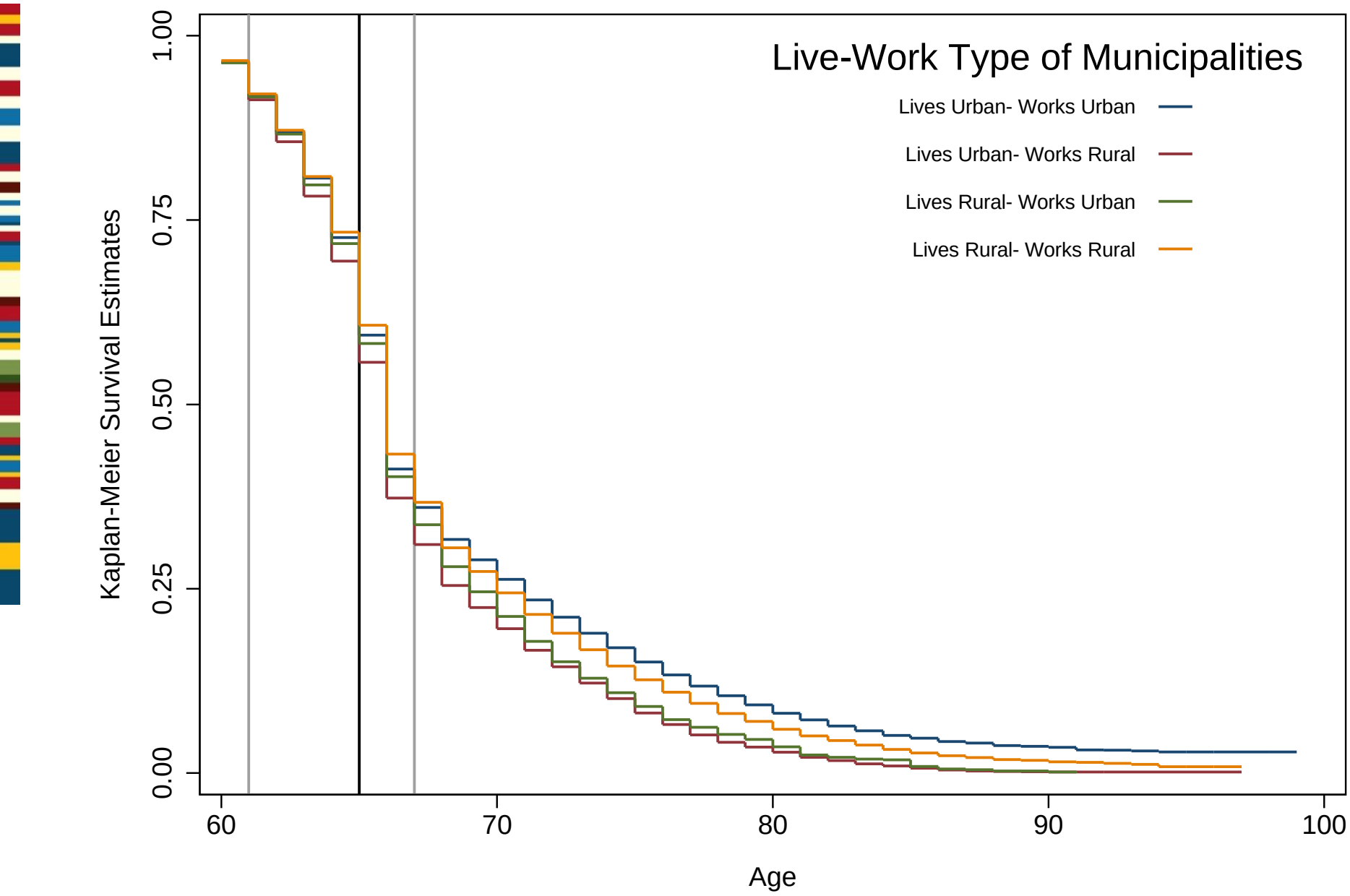

Ocupational Group
General Training
Education and Teacher Training
Humanities and Arts
Science, Mathemtics, Computer
Technology and Manufacturing
Agriculture, Forestry and Veterinary
Health and Social Care
Services
Kaplan-Meier Survival Estimates
1.00
0.75
0.50
0.25
0.00
60
70
80
90
100
Age


Kaplan-Meier Survival Estimates
1.00
0.75
0.50
0.25
0.00
60
70
80
90
100
Age
Educational Level
Elementary < 9 years
Elementary =~9 years
Secondary <=2 years
Secondary =3 years
Post-Secondary < 3 years
Post-Secondary => 3 years
Doctorate


Professional Status
Sailors
Employees
Entrepreneurs
Entrepreneurs own AB
Kaplan-Meier Survival Estimates
1.00
0.75
0.50
0.25
0.00
60
70
80
90
100
Age


Municipality Type
Commuters
Non
Kaplan-Meier Survival Estimates
1.00
0.75
0.50
0.25
0.00
60
70
80
90
100
Age


Municipality Type
Urban
Rural
Kaplan-Meier Survival Estimates
1.00
0.75
0.50
0.25
0.00
60
70
80
90
100
Age


Live-Work Type of Municipalities
Lives Urban- Works Urban
Lives Urban- Works Rural
Lives Rural- Works Urban
Lives Rural- Works Rural
Kaplan-Meier Survival Estimates
0.00
0.25
0.50
0.75
1.00
60
70
80
90
100
Age

Covariate	Haz. Ratio	Std. Err.
Gender		
Male*	1	
Female	1.072	0.002
Family Type Group		
Husband-Wife Family*	1	
Cohabitant-Family	1.174	0.008
Single Father	1.039	0.011
Single Mother	0.932	0.006
Single	0.852	0.001
Occupational Group		
General Training*	1	
Education and Teacher Training	1.057	0.006
Humanities and Arts	0.987	0.004
Science, Mathemtics, Computer	1.229	0.012
Technology and Manufacturing	1.061	0.004
Agriculture, Forestry and Veterinary	0.620	0.005
Health and Social Care	1.013	0.004
Services	0.961	0.005
Unknown	0.182	0.001
Educational Level		
Elementary < 9 years*	1	
Elementary =~9 years	1.145	0.004
Secondary <=2 years	1.208	0.004
Secondary =3 years	1.178	0.005
Post-Secondary < 3 years	1.226	0.005
Post-Secondary => 3 years	1.104	0.005
Doctorate => 3 years	0.807	0.008
Notes: Failure indicator: retired=1, n=2,325,407		
* Baseline category		

PRELIMINARY RESULTS
Cox proportional hazards model

Aim: Control for individual factors affecting retirement decisions simultaneously.

- Females seem to be now slightly more prone to retire than Males
- Single Mothers and Singles are still surviving more
- Humanities and Arts, Services and Agriculture survive more.
  - High Agriculture survival can be associated with farmers' subsidies?
- Only Doctors seem to stay longer, followed by the lowest educational levels, and masters

JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY

	Covariate	Model 1 Haz. Ratio	Model 2 Haz. Ratio	Model 3 Haz. Ratio	Model 4 Haz. Ratio	Model 5 Haz. Ratio
Gender	Male*	1	1	1		1
	Female	1.072	1.054	1.082	1.084	1.046
Family Type Group	Husband-Wife Family*	1	1	1	1	1
	Cohabitant-Family	1.174	1.168	1.185	1.185	1.079
	Single Father	1.039	1.052	1.085	1.084	1.069
	Single Mother	0.932	0.933	0.944	0.943	0.954
	Single	0.852	0.849	0.852	0.852	0.898
Occupational Group	General Training*	1	1	1	1	1
	Education and Teacher Training	1.057	1.036	1.014	1.016	0.858
	Humanities and Arts	0.987	0.98	0.974	0.973	0.912
	Science, Mathemtics, Computer	1.229	1.215	1.257	1.255	1.084
	Technology and Manufacturing	1.061	1.055	1.089	1.088	1.002
	Agriculture, Forestry and Veterinary	0.620	0.668	0.687	0.688	0.661
	Health and Social Care	1.013	0.997	0.983	0.983	0.821
	Services	0.961	0.957	0.966	0.966	0.906
	Unknown	0.182	0.174	0.204	0.204	0.273
Educational Level	Elementary < 9 years*	1	1	1	1	1
	Elementary =~9 years	1.145	1.138	1.104	1.104	1.162
	Secondary <=2 years	1.208	1.201	1.145	1.146	1.296
	Secondary =3 years	1.178	1.174	1.116	1.115	1.28
	Post-Secondary < 3 years	1.226	1.215	1.147	1.145	1.333
	Post-Secondary => 3 years	1.104	1.1	1.044	1.041	1.235
	Doctorate => 3 years	0.807	0.798	0.757	0.752	0.935
Professional Status	No Function*		1	1	1	1
	Sailors		1.343	1.546	1.549	
	Employees		1.121	1.036	1.101	1.309
	Entrepreneurs		0.652	0.631	0.685	1.03
	Entrepreneurs own AB		0.649	0.691	0.742	
Income	Last Income Earned (High=1)			0.548	0.547	0.338
Location	Commuters				0.919	0.914
	Lives Rural- Works Rural*					1
	Lives Rural- Works Urban					1.065
	Lives Urban- Works Rural					1.006
	Lives Urban- Works Urban					1.023

Concluding remarks

Next episode…

2 sets of factors to be investigated:

1. Institutional factors (tax rate, political climate, public services in municipalities, immigrants)
2. Labor market conditions (unemployment rate, business climate, diversity)