



Society of Actuaries in Ireland

2013 SAPS pensioner mortality study

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Working party and other contributors

- Ciaran McGrath
- Maura Carter
- Shane Prendergast
- John Pender
- Sarah Fee
- Aidan Kennedy
- Brian Fitzgerald
- Martin Whelan
- Mark Jordan
- Des Cryan
- Tracy Gilbert
- Mary Hall
- Emily O'Gara



2007 study - Overview

- Report published May 2008
- 98% of the data from 2002 to 2006 period
- Middle year for exposure was 2005
- 49 schemes (4 from Department of Finance)
- 93,400 lives at end of investigation (data for 38,000 public servants from Department of Finance)
- Results as a % of PN00 tables



2007 study – Overall results

Age Band	Male Lives PNML00	Female Lives PNFL00	Male Amounts PNMA00	Female Amounts PNFA00
60-69	101%	121%	98%	106%
70-79	99%	97%	98%	83%
80-89	110%	102%	102%	102%
90+	121%	96%	113%	100%
All ages	108%	107%	103%	102%
60+	105%	101%	101%	97%

After excluding public service data from Department of Finance:

Age Band	Male Lives PNML00	Female Lives PNFL00	Male Amounts PNMA00	Female Amounts PNFA00
60+	108%	115%	105%	118%



2007 study – Results by amount band

Pension Band	Males Actual / Expected PNMA00	Females Actual / Expected PNFA00
€5,000 or less	143%	146%
€5,000 to €10,000	135%	103%
€10,000 to €30,000	126%	117%
€30,000 or above	91%	83%
Overall	104%	101%



October 2008 review

(by Demography Committee)

Demography committee proposed the following underlying basis for the purposes of ASP PEN-2:

- Men: 108%* of PNML00
- Women: 108%* of PNFL00
- with CSO 2008 population projection improvements from 2006.

* 2007 SAPS study result (male lives, ages 60+, excluding Dept. of Finance data)



October 2008 review

(by Demography Committee)

Corresponding proxy basis was set as:

- Men: 62% of PNML00
- Women: 70% of PNFL00
- with an increase to the annuity value of 0.50% (men with no spouse's pension), 0.38% (women with no spouse's pension), 0.39% (men or women with spouse's pension) per annum compound for each year between 2008 and the year in which normal pension date falls.

Incorporated in ASP PEN-2 with effect from 1 September 2009.



January 2009 review

(by Demography Committee)

Demography committee proposed the following underlying basis for the purposes of ASP Pen-12, ASP LA-8, ASP PRSA-2:

- Men: 91%* of PNMA00
- Women: 91%* of PNFA00
- with CSO 2008 population projection improvements from 2006.

*91% = 105% / 115%

105% = SAPS result (male amounts, ages 60+, excluding Dept. of Finance data)

115% = SAPS pensioner mortality / life office annuitant mortality **

** Survey of Irish occupational pensioner mortality in Nov 2005, found that pensioner mortality from 1998 to 2003 was 115% to 120% of annuitant mortality



January 2009 review

(by Demography Committee)

Corresponding proxy basis was set as:

- Men: 52% of PNMA00
- Women: 60% of PNFA00
- increase to annuity value of 0.44% for men with no spouse's pension; 0.36% for women with no spouse's pension; and 0.27% for men or women with spouse's pension for each year between 2008 and the year in which normal pension date falls.

Incorporated in ASP Pen-12, ASP LA-8, ASP PRSA-2 with effect from 1 July 2009.



2013 study - Overview

- 52 schemes (7 from Department of Finance)
- 105,900 lives on average (data for 42,800 from Department of Finance)
- Results as a % of PN00 tables initially
- Age, gender, pension amount, industry
- Amounts not available for approximately 20,700 of the total 105,900 lives (public sector workers)
- Ill-health retirements, dependants, date of death not identified / provided in most cases



2013 study – Data by amount band

Amount band	Exposure (life years)		Deaths (lives)	
	Male	Female	Male	Female
Less than €2,500	17%	5%	21%	7%
€2,500 to €5,000	9%	4%	13%	4%
€5,000 to €10,000	8%	6%	8%	7%
€10,000 to €20,000	11%	8%	10%	8%
€20,000 to €30,000	10%	5%	8%	4%
Greater than €30,000	13%	2%	8%	2%
Total	70%	30%	68%	32%

Excluding 20% of lives with no amounts data (70% female)



2013 study – Data by age / gender

Age Last birthday	Exposure (life years)		Deaths (lives)	
	Male	Female	Male	Female
40-49	0%	0%	0%	0%
50-59	7%	6%	2%	1%
60-69	25%	13%	9%	3%
70-79	20%	11%	20%	7%
80-89	8%	7%	25%	16%
90-99	1%	1%	6%	9%
100-109	0%	0%	0%	1%
Total	61%	39%	62%	38%



2013 study – Exposure years

- Most data (87%) from 2008 to 2011 period
- Middle year for exposure was 2010

Exposure year	% of total lives exposure
2006	2%
2007	2%
2008	17%
2009	23%
2010	26%
2011	21%
2012	9%



2013 study – Scheme sizes

Average scheme size: 1,400 excluding DoF data; 2,040 including DoF data

Number of pensioners	Number of Schemes
200 to 300	2
300 to 400	7
400 to 500	12
500 to 1000	10
1000 to 2000	6
2000 to 5000	9
5000 +	6
Total	52



2013 study - Results

Age Band	Male Lives PNML00	Female Lives PNFL00	Male Amounts PNMA00	Female Amounts PNFA00
60-69	90%	99%	89%	129%
70-79	81%	77%	82%	88%
80-89	104%	94%	101%	97%
90+	124%	111%	121%	122%
All ages	96%	96%	96%	107%
60+	95%	94%	95%	104%

After excluding public service data from Department of Finance:

Age Band	Male Lives PNML00	Female Lives PNFL00	Male Amounts PNMA00	Female Amounts PNFA00
60+	98%	102%	96%	104%

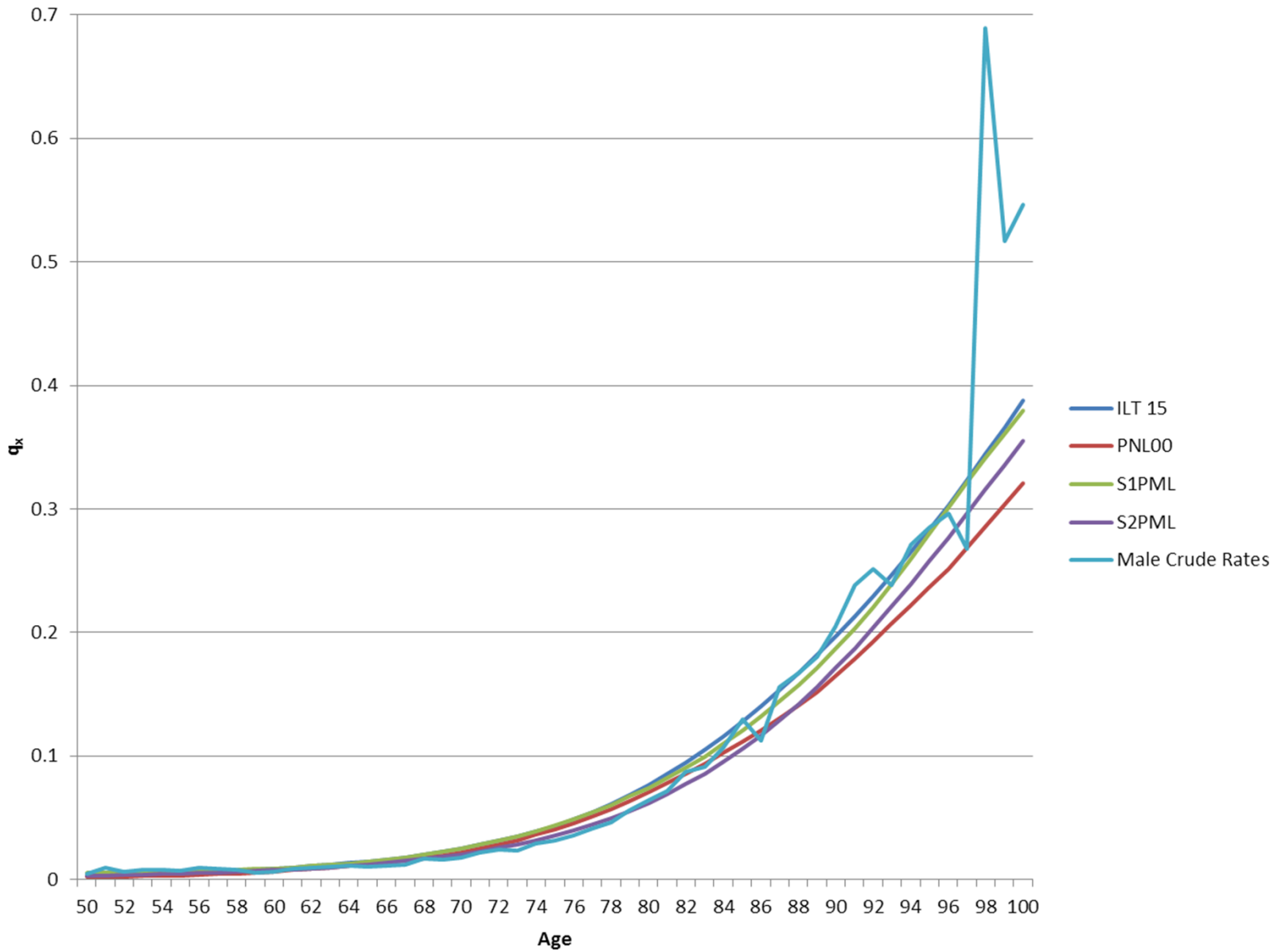


2013 study - Results by amount

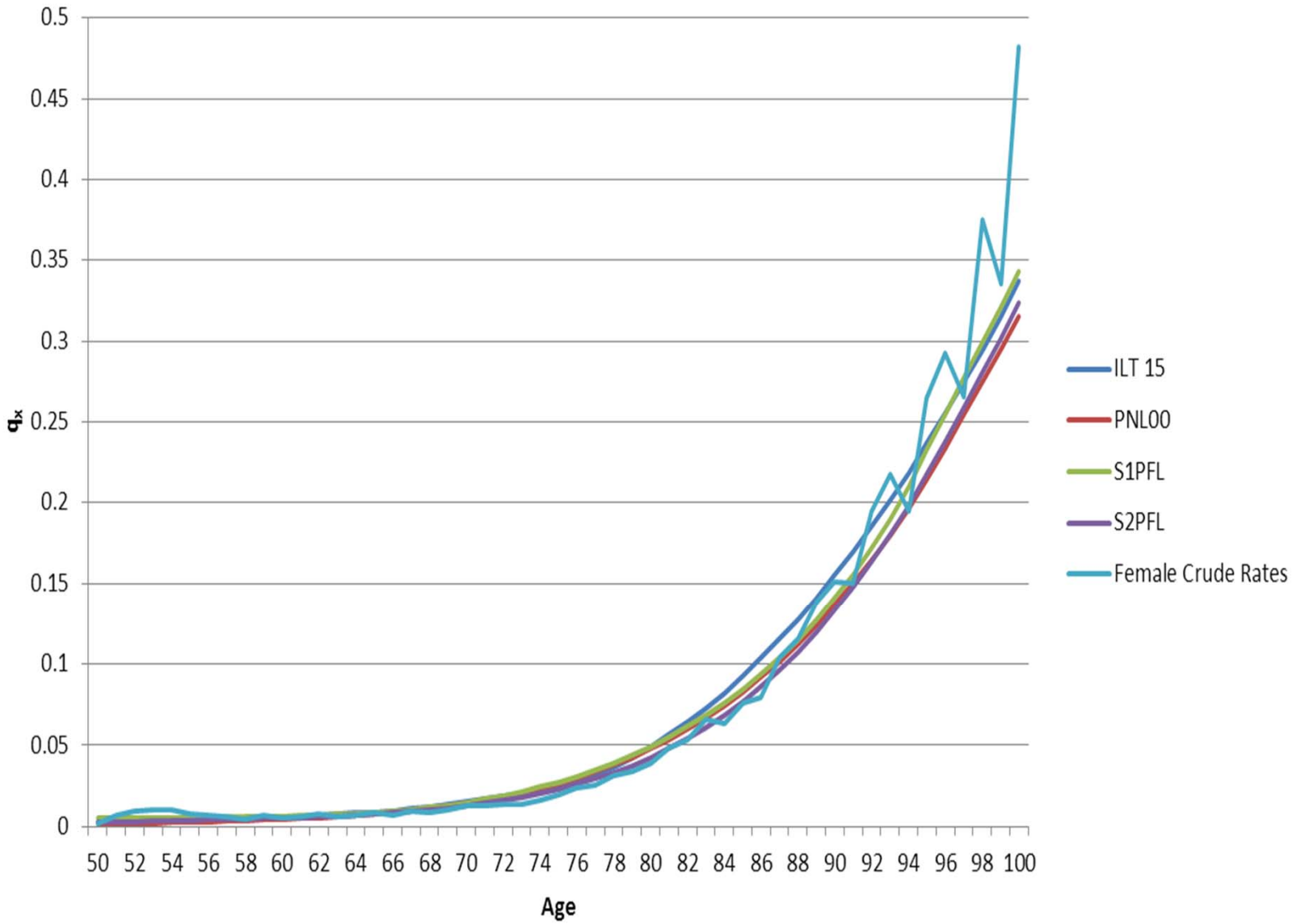
Amount band	A/E Deaths (lives) *		A/E Deaths (amounts)	
	Male	Female	Male	Female
Less than €2,500	109%	122%	124%	135%
€2,500 to €5,000	110%	117%	126%	129%
€5,000 to €10,000	110%	108%	128%	119%
€10,000 to €20,000	100%	100%	116%	111%
€20,000 to €30,000	88%	92%	102%	102%
Greater than €30,000	72%	84%	82%	93%
Total	99%	106%	96%	107%

* Excluding 20% of lives with no amounts data
 Measured against PNL00 and PNA00 tables

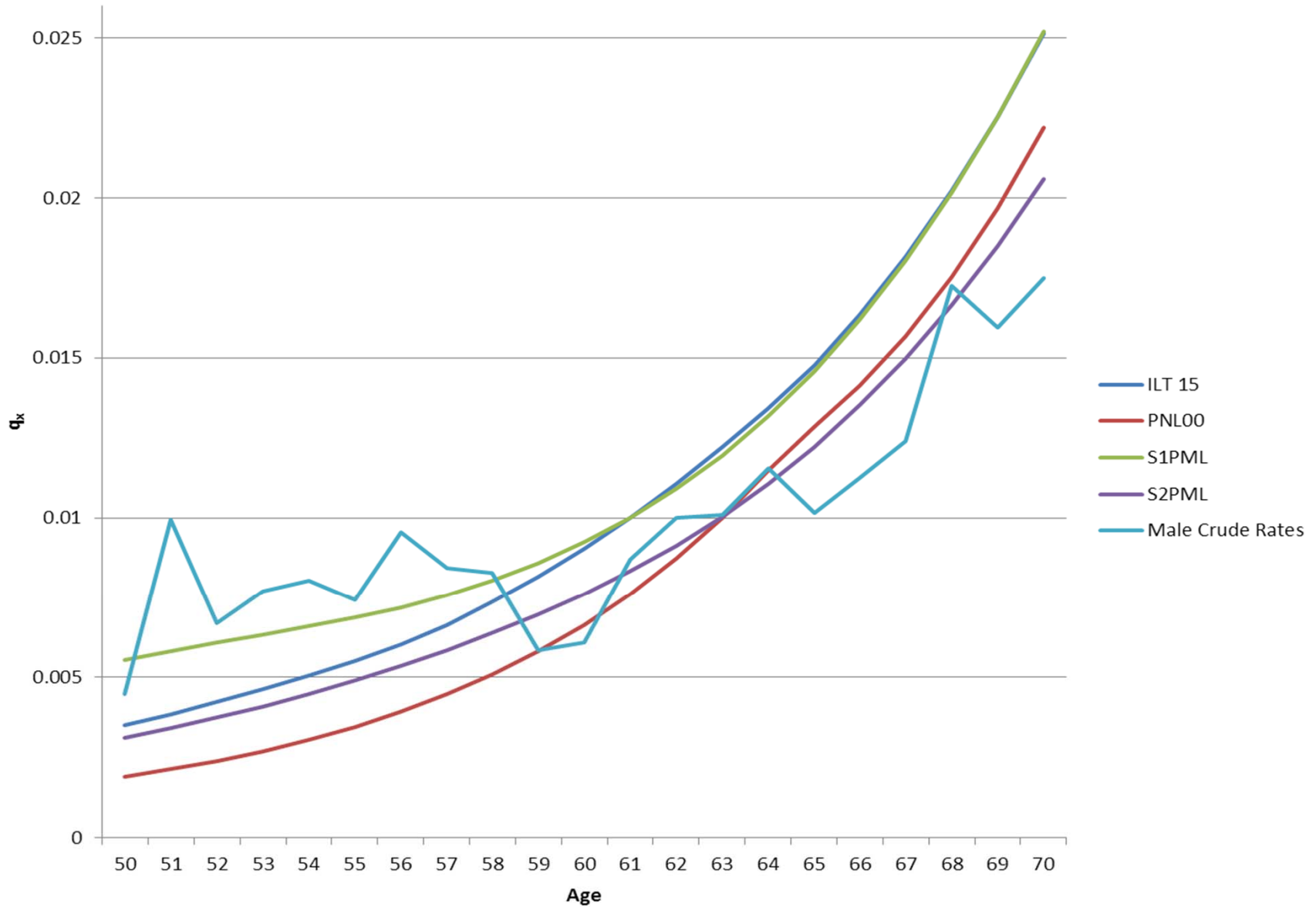
Males aged 50 to 100



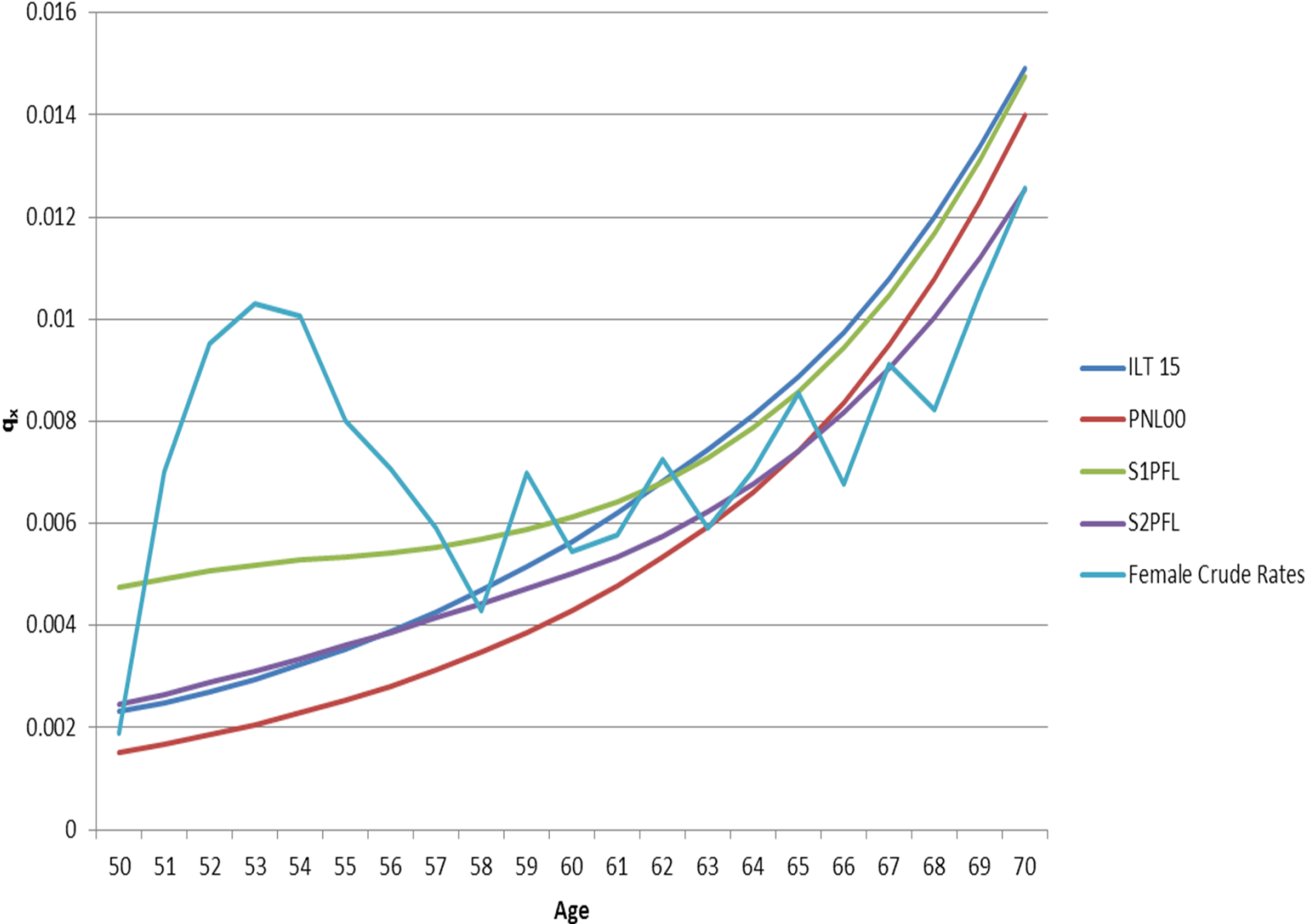
Females aged 50 to 100



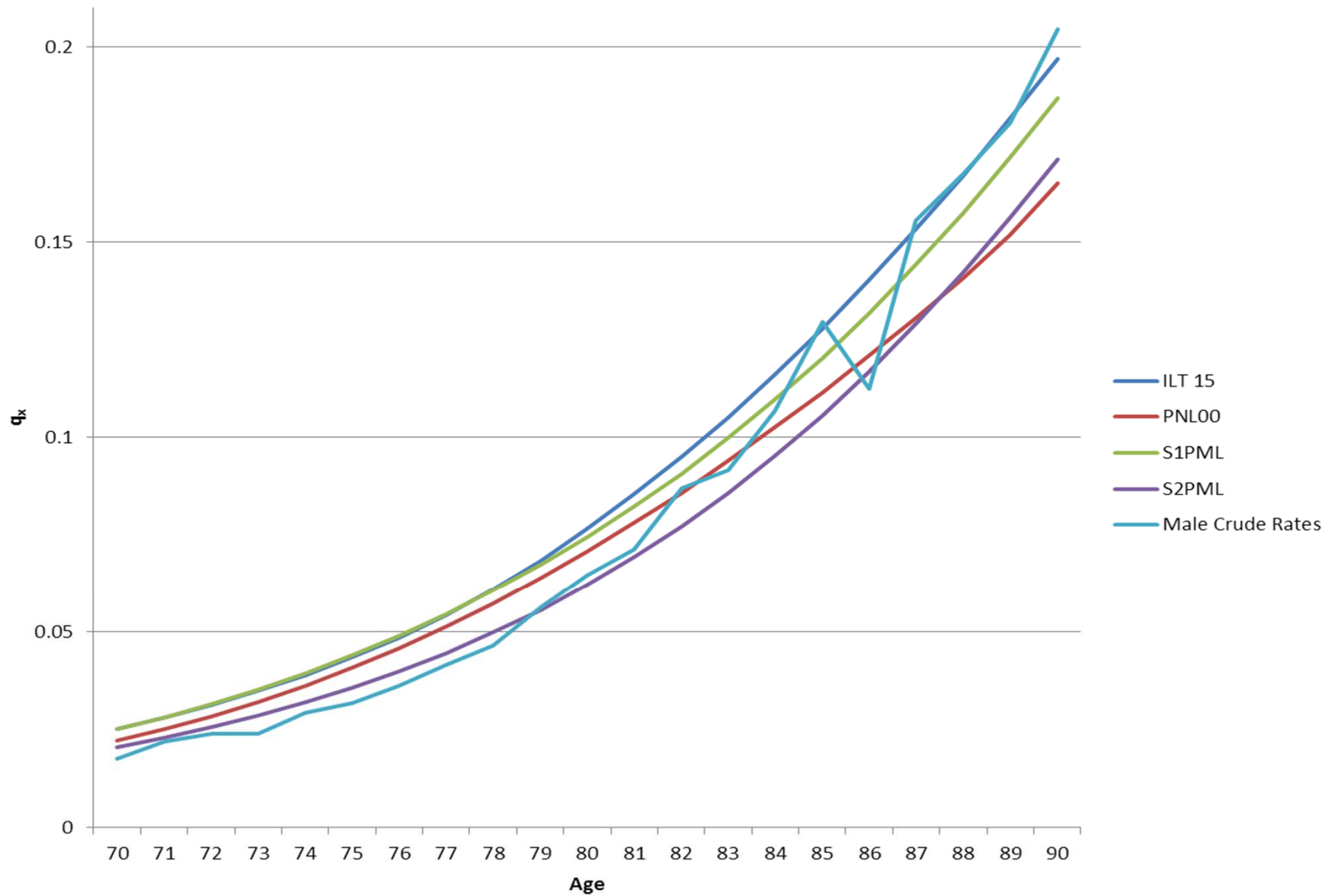
Males aged 50 to 70



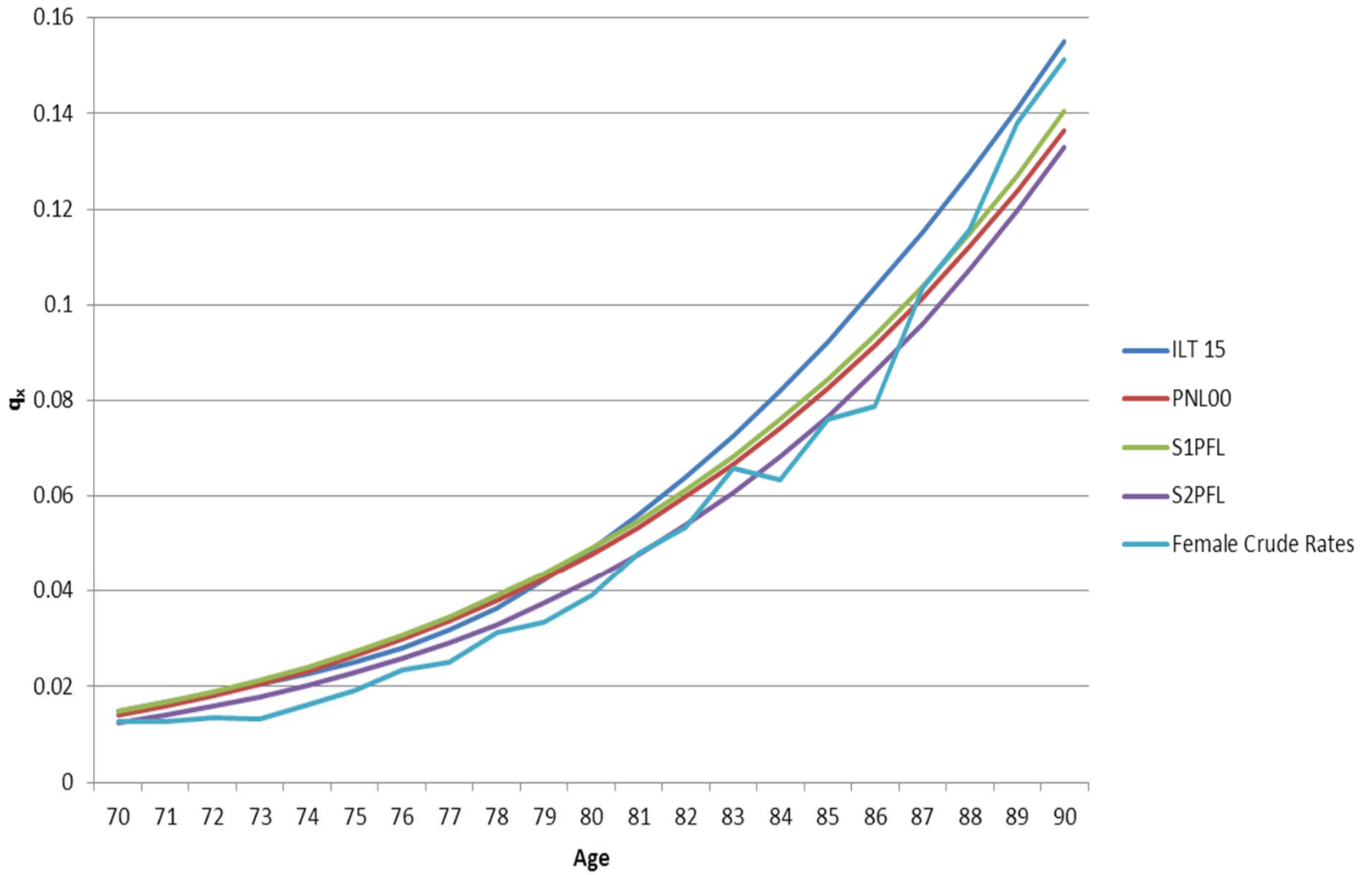
Females aged 50 to 70



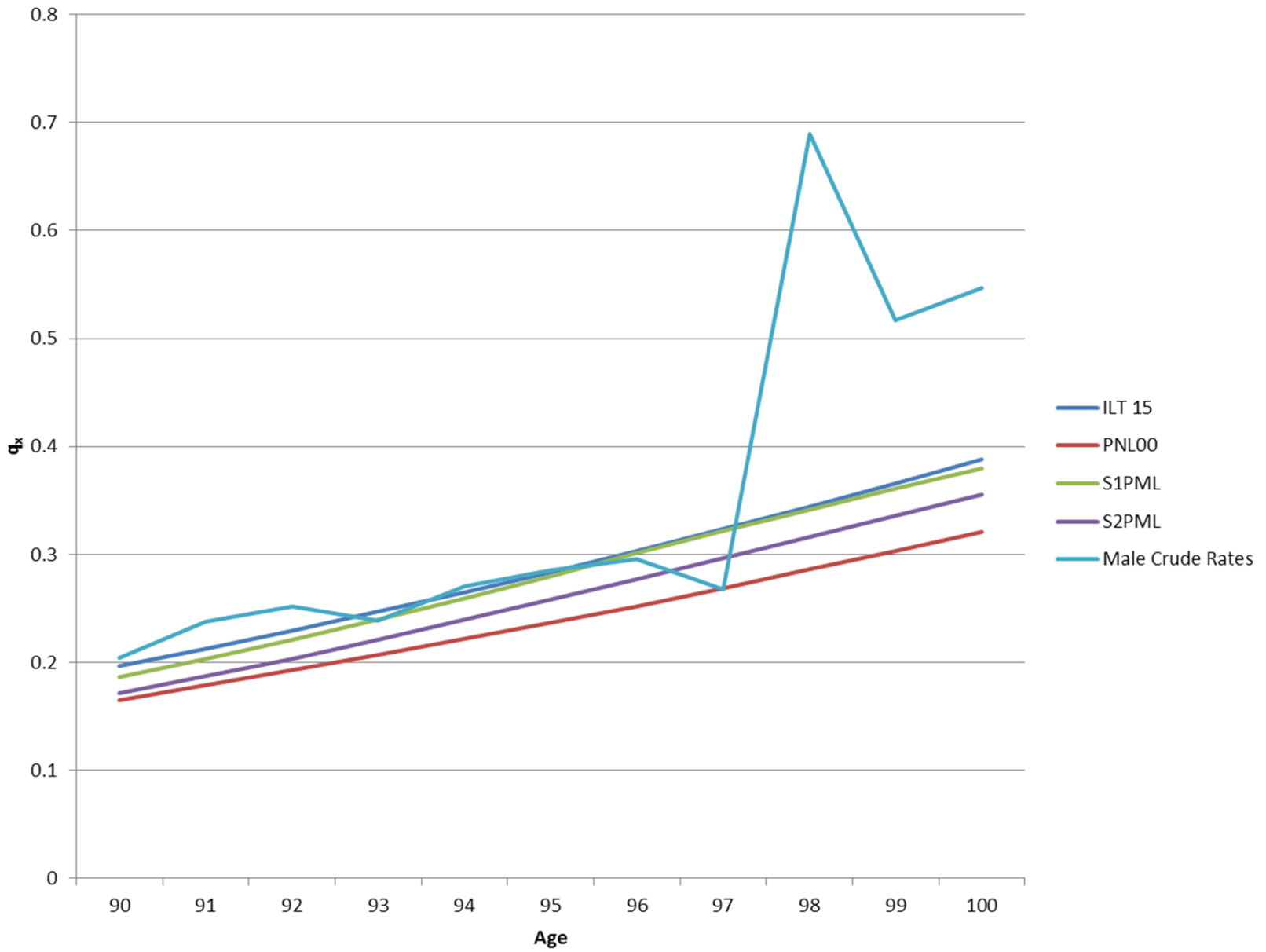
Males aged 70 to 90



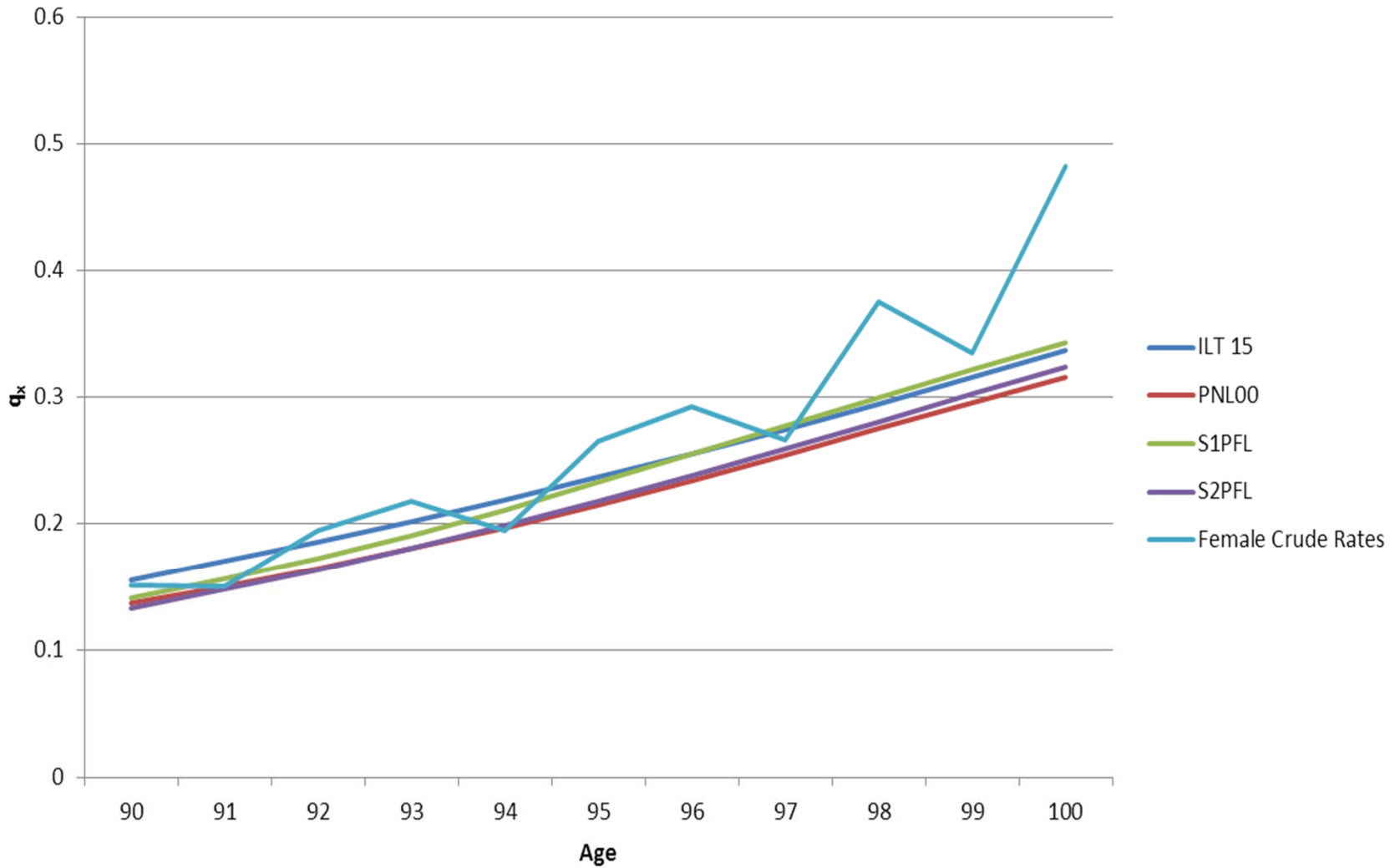
Females aged 70 to 90



Males aged 90 to 100



Females aged 90 to 100





Pension mortality improvements

Results for all ages

Study	Male Lives PNML00	Female Lives PNFL00
2007	108%	107%
2013	96%	96%

Implied improvement rates from 2005 to 2010 (5.33 years)

	Male Lives	Female Lives
Improvement rate p.a.	2.2%	2.0%

Adjusting for change in mix of schemes

	Male Lives	Female Lives
Improvement rate p.a.	2.1%	1.8%



Population mortality improvements

Period	Males p.a.	Females p.a.
1982-1984 to 1985-1987	0.2%	0.9%
1985-1987 to 1988-1990	2.5%	1.9%
1988-1990 to 1991-1993	1.5%	1.7%
1991-1993 to 1994-1996	1.1%	1.0%
1994-1996 to 1997-1999	1.6%	1.2%
1997-1999 to 2000-2002	3.6%	3.0%
2000-2002 to 2003-2005	4.4%	3.4%
1926 to 2002	1.4%	2.1%

Source: SAI Demography committee papers (June 2006 and June 2007)

Period	Males p.a.	Females p.a.
2002 to 2005	5.0%	3.5%
2006 to 2010	3.0%	2.5%

Source: CSO Population and Labour force projections



Life expectancies from age 65

108% PNL00 + CSO 2008 improvements from 2005

Age in 2013	Male	Female
45	25.0	26.0
65	22.5	23.9

98% PNL00 + CSO 2008 improvements from 2010

Age in 2013	Male	Female
45	24.1 (-0.9)	25.7 (-0.3)
65	21.5 (-1.0)	23.5 (-0.4)

98% PNL00 + CSO 2013 improvements from 2010

Age in 2013	Male	Female
45	23.4 (-1.6)	25.4 (-0.6)
65	20.7 (-1.8)	23.2 (-0.7)



Further work

- Issue final SAPS report
- Demography sub-committee to meet shortly
- Review underlying and proxy bases for ASPs
- Issue regarding CMI reference tables