

The proportion of marriages ending in divorce

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Outline of this presentation

Context

Previous work

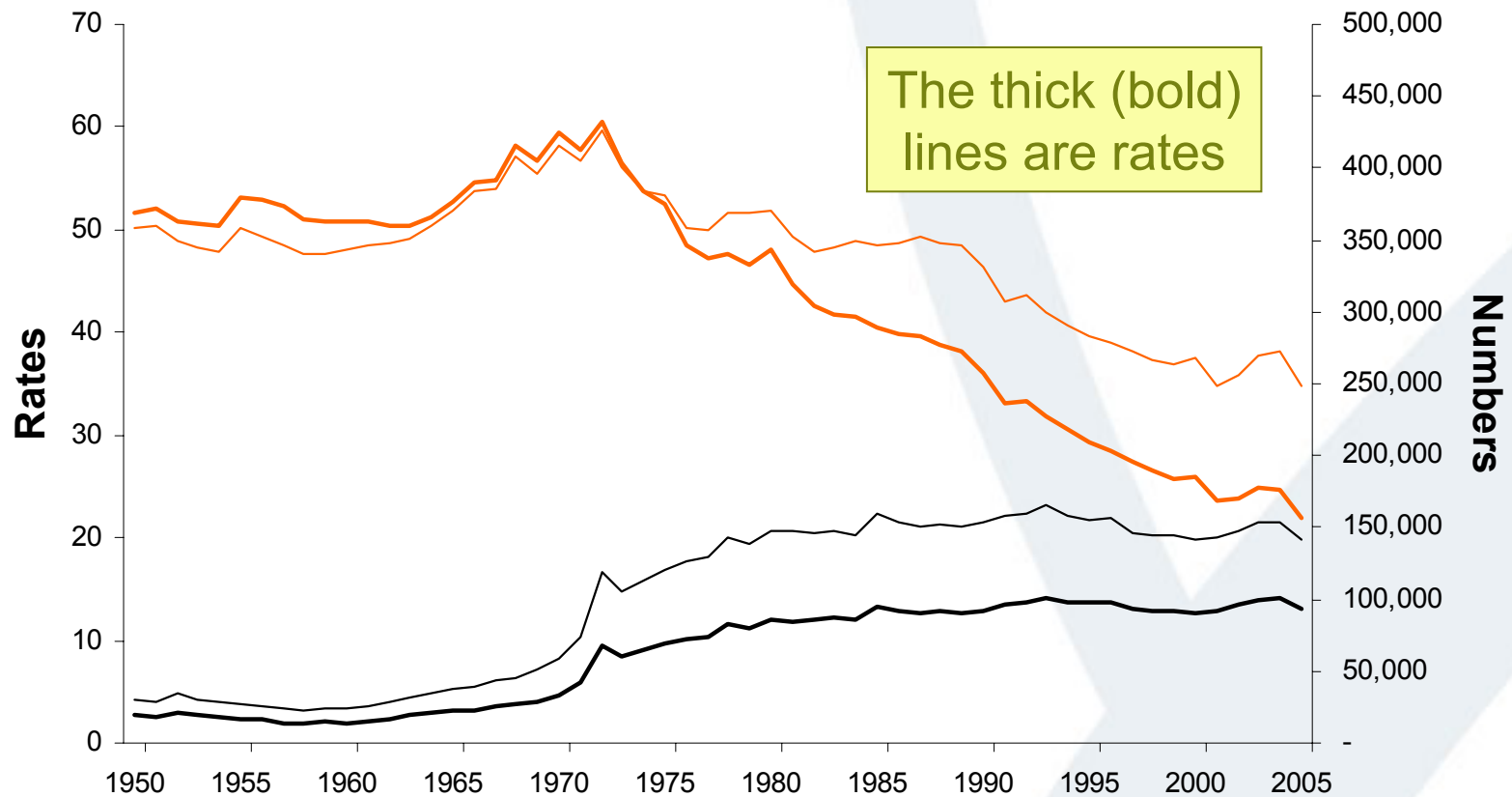
Method

Results

Discussion

Context: rising divorce?

Marriage and divorce, rates and numbers, England and Wales



- Number of divorces
- Number of marriages
- Divorces per 1,000 married females
- Marriages per 1,000 unmarried females

Context: falling divorce?

- Increase in divorce rates in 1970s
- Rates broadly steady for last 20-30 years
- Recent fall in divorce rates

Provisional 2006 rate in England and Wales at lowest level since 1984 (12.2 divorces per thousand married men and women, a drop of 7 per cent compared with the 2005 figure of 13.1)

- Changes in divorce rates are set within the context of a long-run fall in marriage rates since the early 1970s

Previous analysis

Considering mortality, after 50 years of (possible) marriage, the proportion ever divorced:

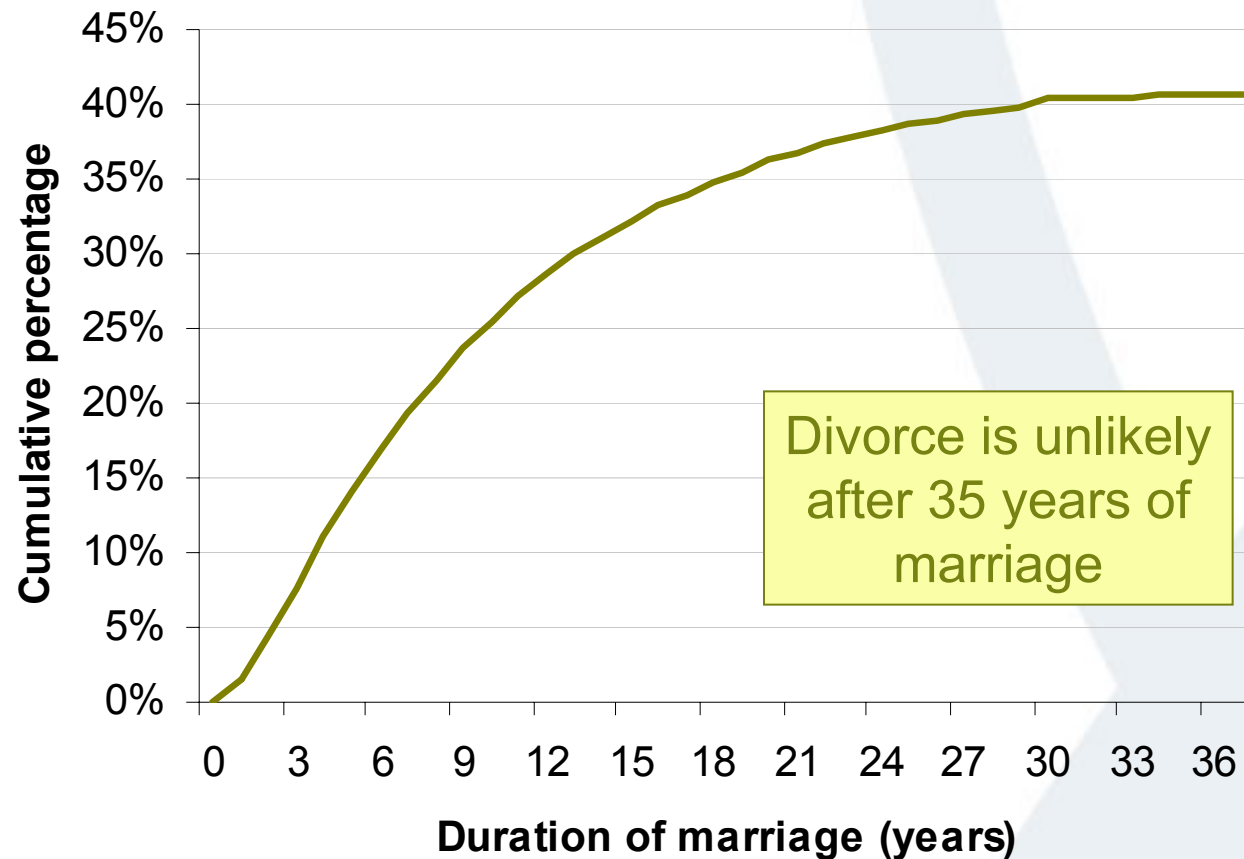
1979/80	33.8%
1987	37.2%
1993/94	40.7 %
2005	?

As with the previous work, we use a standard life table technique

This follows on from work by John Haskey in previous issues of Population Trends (27, 55 & 83)

Previous results

Proportion ever divorced, 1993/94 analysis



Method

- How do you calculate the **proportion of marriages ending in divorce**?

Take the total marriages for a given period and calculate the number that have ended in divorce.

- But which period?
- And should we control for anything?
- Does age or marriage duration make a difference?

Method

- How do you calculate the proportion of marriages ending in divorce?

Take the total marriages for a given period and calculate the number that have ended in divorce.

- Use most recent data from registration of marriages and deaths and from the courts for divorces
- Standardise for duration of marriage (marriage cohort) and consider age and sex

Method

There are two* ways to leave the state of marriage:
(1) death (2) divorce

To prepare the **life table** we need the probability of either event happening calculated similar to a rate as:

$$\frac{\text{Number of events}}{\text{Population at risk}}$$

*Note that this assumes a closed population.

Is the method simple?

In theory, all we need to do is:

(1) Calculate the numerator from registered events

and (2) Calculate the denominator:

- ~ Take the newly married population each year
- ~ Remove divorces
- ~ Remove deaths
- ~ Repeat for following year

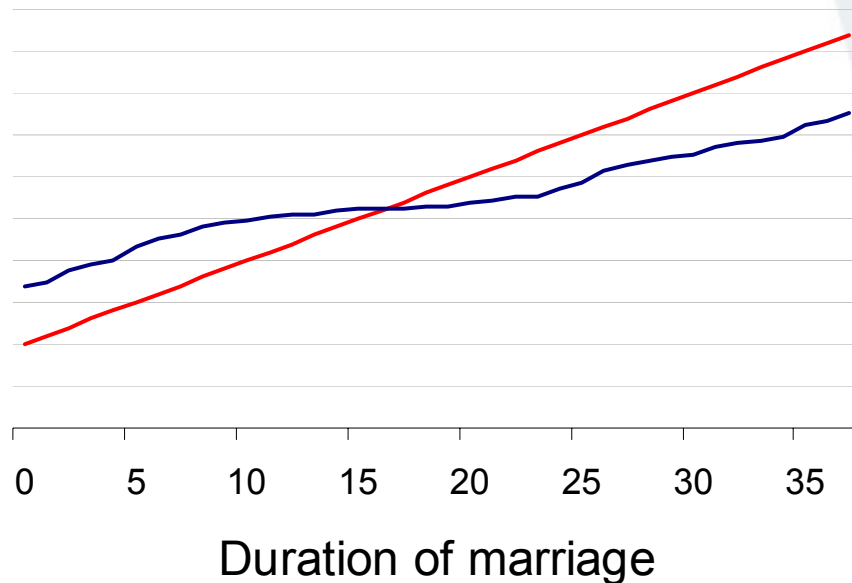
...but is it simple?...not really.

There are large difficulties with deaths (mortality)

(there are also some issues with migration and marriages abroad)

What is the distribution of deaths?

Example (not actual data)



We don't know whether deaths follow the red or the blue line?

We know the number of deaths by age, but not by duration

Unfortunately, death certificates do not collect 'year of marriage'.

Previous method

Previously the assumptions made about mortality involved:

- ~ calculating the probability of death for each year of death (by age)
- ~ **assuming** that the death rates at each year of marriage were equivalent to the death rates for the **median age of marriage** (at that year)

Previous method

Advantages,

- ~ easy method to understand
- ~ easy method to calculate
- ~ should give same cumulative deaths once we reach the bottom of the life table

But...

- ~ doesn't really consider the distribution
- ~ the total number of deaths may be incorrectly stated

Improving the method?

Incorporate the marital status estimates

Allocate deaths across the existing population

- ⇒ Should cope better with mortality
- ⇒ Considers some impact of migration
- ⇒ Improves reconciliation between (& QA of) marital status estimates
- ⇒ Informs other work, e.g. marital status projections

New method: summary

- Mid-year **2001 marital status estimates** by age and sex
- Allocate 2001 estimates to years of marriage (using the proportion of marriages that occurred in each year by age and sex)
- Adjust for divorces
- ‘Age on’ married population (by year of marriage, using events for 2001, 2002, 2003, 2004 and 2005, by age and sex)
- Calculate **life table** for 2005

New method: part one

Mid-year 2001 marital status estimates by age and sex

Number of married people by single year of age from existing marital status estimates

New method: part two

*Allocate 2001 estimates to years of marriage using the proportion of marriages that occurred in each year by age and sex**

Actual marriages by single year of age available for 1963 to now

From 1941-63 marriages by five-year age bands (allocated within bands according to 1963 proportions)

Before 1941, total marriages allocated according to 1931 proportions

* The results are constrained so that the allocated estimates do not exceed the total events for each age and sex. This only affects ages 30 and below.

(a) Estimate proportions (example with fictional numbers)

Source: Actual number of registered marriages

Age	Year of marriage				Total	
	...	1989	1990	1991		...
...						
18		500	450	550		50,000
19		1,000	1,200	800		70,000
20		1,500	1,000	1,300		120,000
...						

Age	Proportions (by age)				
	...	1989	1990	1991	...
...					
18		0.010	0.009	0.011	
19		0.014	0.017	0.011	
20		0.013	0.008	0.011	
...					

Total of registered marriages for all years



(b) Allocate estimates (example with fictional numbers)

Use the proportions to allocate the 2001 marital status estimates

Age	Allocation proportions				ESTIMATES
	...	1989	1990	1991	
...					Mid 2001
18		0.010	0.009	0.011	31,523
19		0.014	0.017	0.011	61,298
20		0.013	0.008	0.011	85,962
...					

Married population allocated to year of marriage

...	1989	1990	1991	...
...				
18	315	284	347	
19	876	1051	701	
20	1075	716	931	
...				



Marital status estimates to be allocated by proportions

New method: part three

Adjust for divorces

Implicitly, the allocation assumes that deaths and divorces are allocated evenly across all years of marriage.

This is reasonable for deaths...

(we do not know otherwise)

...but not divorces!

Adjust for divorces

Fortunately we have exact data by year of marriage for divorces*, so:

- ~ we add back divorces evenly
(to negate the assumption that they are allocated evenly)
- ~ then remove divorces according to the actual distribution of registered events

* We only have the data from 1963 onwards, but this covers the majority of the distribution and the years of high divorce

New method: part four

'Age on' married population (by year of marriage) for 2001, 2002, 2003, 2004 and 2005 (by age and sex)

Using the same method for deaths and exact divorces data we 'age on' the mid-year 2001* married population to calculate the number of individuals remaining married by age and year of marriage.

*Note that an adjustment is made to convert events from mid-year to end-year

New method: part five

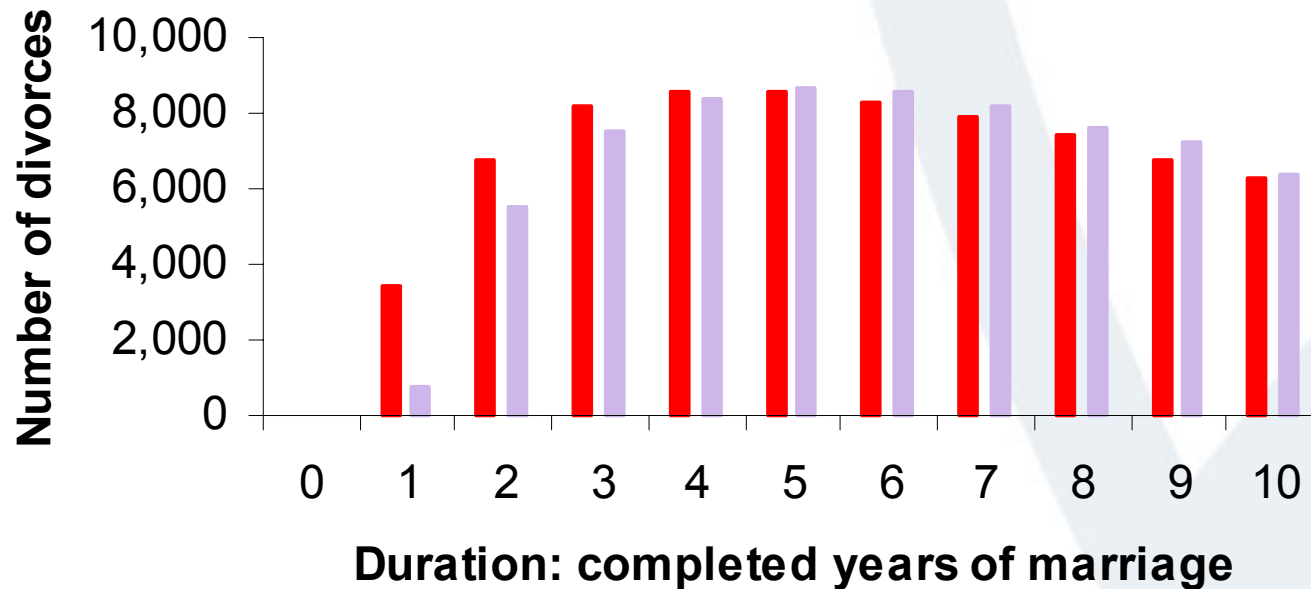
Calculate life table for 2005

We can now calculate the life table

The only remaining issue is the difference between **duration** and **year of marriage**

Duration and year of marriage

There is a small issue with how to calculate **duration of marriage**:



■ Month-difference method

■ Year-difference method

Duration and year of marriage

Numerator




We use the actual month difference data

Denominator

The population at end-2004 is by year of marriage. Therefore, the year-difference method is used and then adjusted by six months

For deaths, the year difference method is used.

Results: the life table

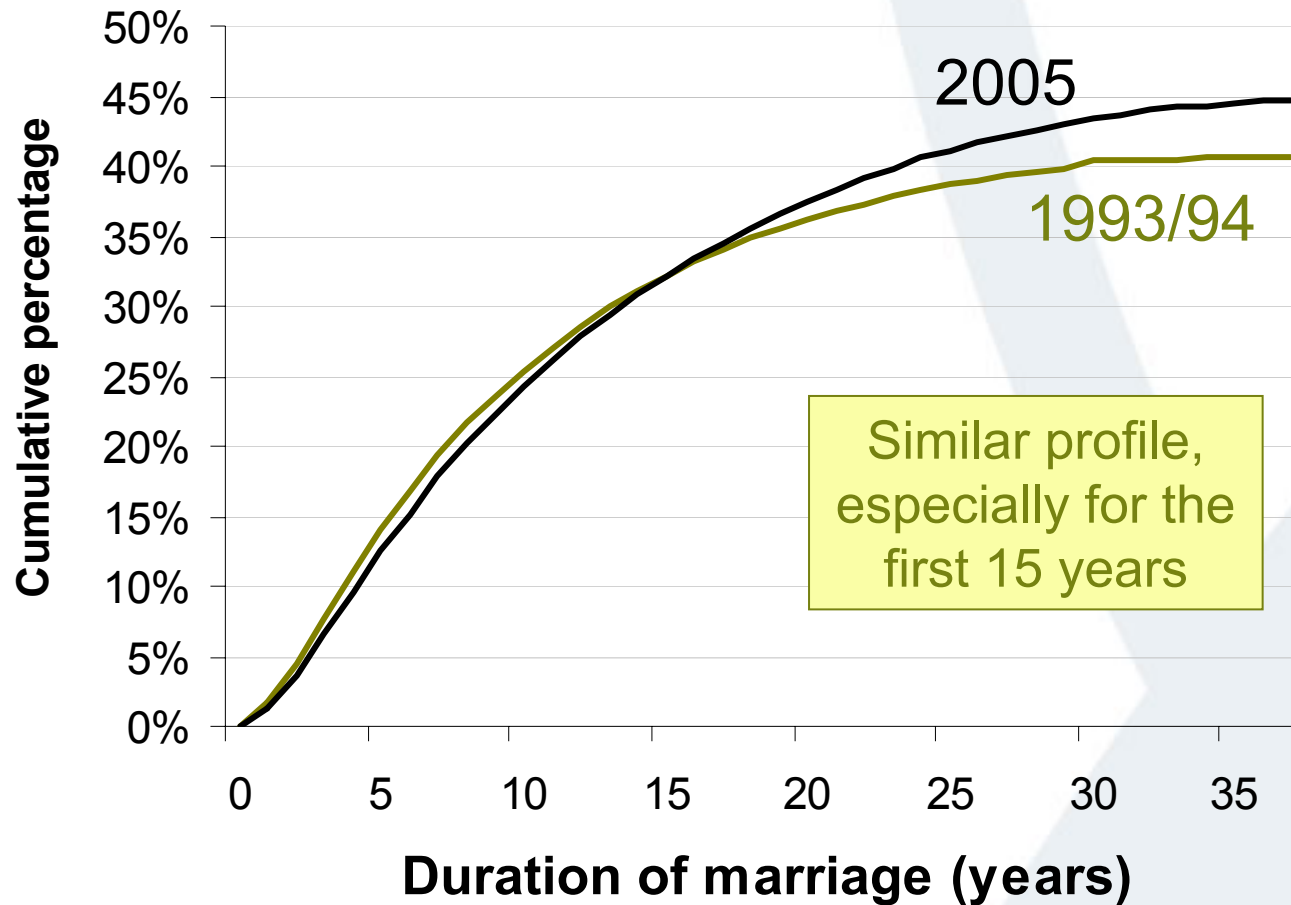
Duration of marriage	Number of marriages surviving	Cumulative % of marriages ended - divorce	Cumulative % of marriages ended - death	Average number of years of life of marriage
0	100,000	0.0	0.3	30.9
10	75,196	 22.3	2.5	29.3
15	65,384	30.8	3.9	28.3
20	58,045	36.5	5.4	26.6
25	52,157	40.5	7.3	24.3
30	47,457	43.0	9.6	21.5
35	43,375	44.4	12.3	18.3
40	39,548	45.0	15.5	14.8
45	34,723	45.2	20.1	11.5
50	28,462	45.3	26.2	8.5
55	19,562	45.3	35.1	6.3
60	9,791	 45.3	 44.9	

Key findings

- Divorce rates in 2005 suggest that approximately 45 per cent of marriages will end in divorce. Almost half these divorces will occur before couples reach their tenth anniversary
- Making the assumption that divorce rates and mortality rates remain unchanged from 2005, around 10 per cent of those marrying in 2005 will celebrate their diamond (60th) wedding anniversary, with 45 per cent of marriages ending due to divorce and 45 per cent of marriages ending due to death.

Results

Proportion ever divorced, 1993/94 & 2005 analysis



Discussion

- Will it reach 50 per cent?

We know that in 2006, the divorce rate in England and Wales fell for a second consecutive year

- What drives the change?

Higher proportion of marriages 'ever' ending in divorce, because...

- Increased life-expectancy?
- Higher divorce rates? (...for longer durations or older ages?)

Discussion

Further caution

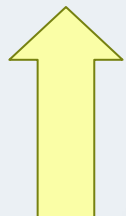
- Analysis is a period measure based on a synthetic cohort (based on 2005 events)
- It assumes the future will match the present
- Issues with data, e.g. no data on migration by marital status or marriages abroad
- Arguably, the complicated method is disguised by the simplicity of the result, often reported simply as an overall proportion of marriages that will end in divorce.

Other findings: age at marriage

Table: Cumulative proportion of marriages ending in divorce for women who were single prior to marriage for marriage in 1966 by age

		Duration of marriage (completed years)						
		5	10	15	20	25	30	35
Under 20	1966	6.4	19.3	28.6	35.2	39.4	42.1	43.4
30-34	1966	1.7	5.9	9.4	12.1	13.4	14.6	15.1
45-49	1966	0.5	2.6	4.0	4.6	5.0	5.3	5.3

Source: England and Wales (note: analysis excludes mortality)



Those who marry older have lower proportions of marriages ending in divorce.

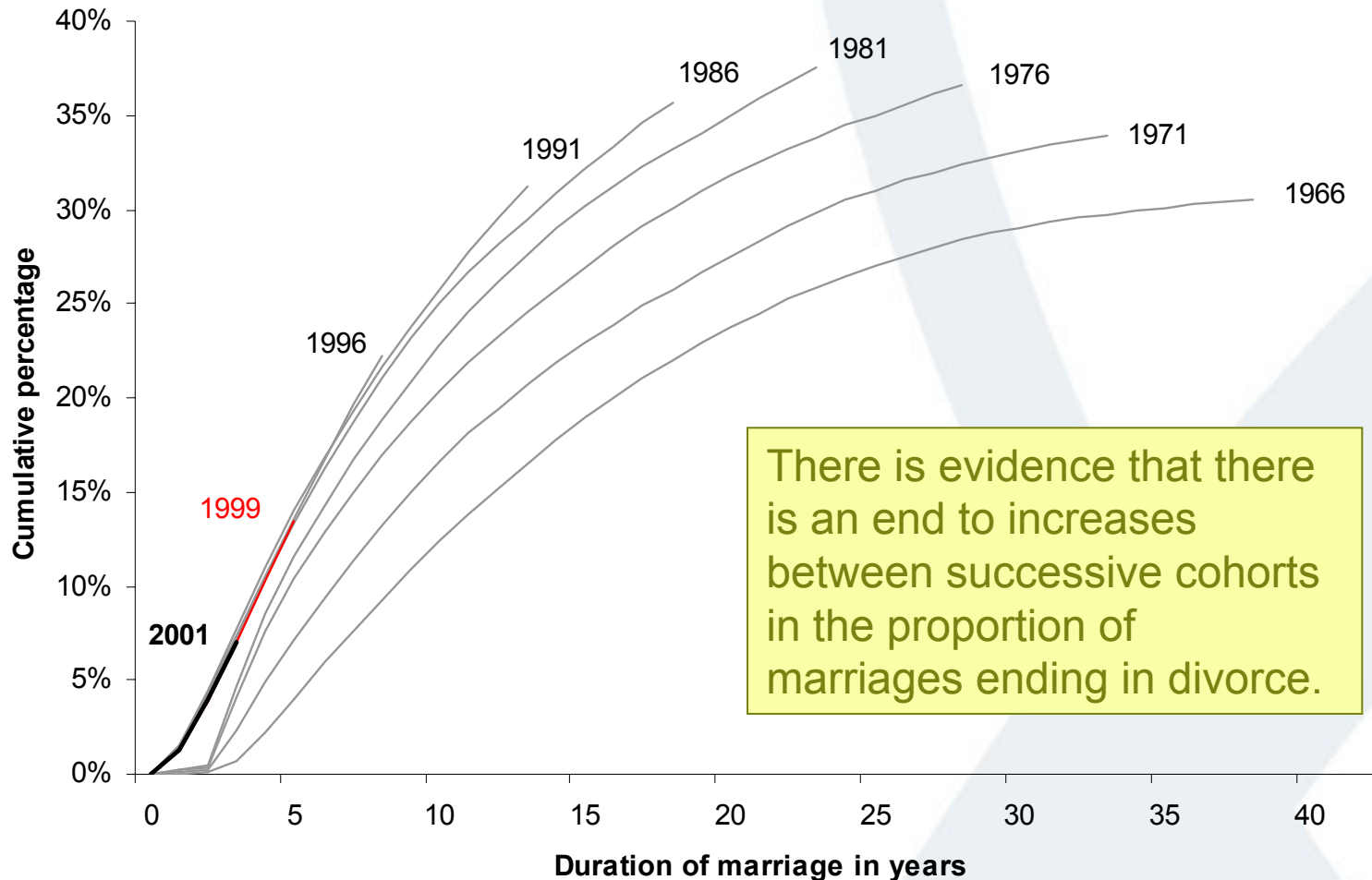
Other findings: marital status

- The cumulative proportion of marriages ending in divorce varies with previous marital status.

Widows and widowers have similar proportions to never-married men and women, whereas **those who have previously divorced have higher proportions of marriages ending in divorce.**

Other findings: marriage cohorts

Marriages which ended in divorce: E&W marriage cohorts



International comparison

EU statistics on proportion of marriages ending in divorce for the **1984 marriage cohort** (not complete)

England and Wales: 43%

Sweden	52%	Germany	38%
Finland	49%	France	37%
Denmark	45%	Portugal	21%
Norway	44%	Spain	14%
Belgium	41%	Greece	14%
Austria	39%	Italy	9%

Source: Demographic statistics, 2002 edition, Eurostat

International comparison

➤ Canada

The proportion of marriages expected to end in divorce by 30th wedding anniversary was approximately **38%** in 2003.

➤ USA

In 1995 the probability of **first** marriage disruption (separation or divorce) after 15 years was approximately **43%** (women aged 15-44)

➤ Australia

Around **33%** of marriages entered into in 2000/02 could be expected to end in divorce.

Sources:

Statistics Canada, <http://www.statcan.ca/Daily/English/050309/d050309b.htm>

Table 21, Cohabitation, marriage, divorce, and remarriage in the United States, Vital and health statistics, Series 23 4102.0 - Australian Social Trends, 2007, Released at 11:30 AM (CANBERRA TIME) 07/08/2007

International comparison

➤ Republics of the former USSR

The proportion of marriages that end in divorce varied from **16%** in Georgia to **41%** in Latvia (1994 study using most recent data available)

➤ Ethiopia

45% of **first** marriages in Ethiopia end in divorce within 30 years, and two-thirds of women who divorce do so within the first 5 years of marriage.

➤ Tsimane (forager-horticulturalists in lowland Bolivia)

‘Marriages among the Tsimane are very stable with roughly **20%** of marriages ending in divorce’

Sources:

Marital status behaviour of women in the former Soviet Republics, *European Journal of Population*, Vol. 11 No. 1, 1995, Springer Netherlands
Divorce in Ethiopia: The impact of early marriage and childlessness, *Journal of Biosocial Science* (2000), 32: 355-372 Cambridge Univ. Press
Why do men marry and why do they stray? <http://www.anth.ucsb.edu/faculty/gurven/papers/winkingetal2007proc.pdf>

And finally...

This presentation

- ⇒ Please contact me with any questions or comments
- ⇒ The contents of this presentation are published in Population Trends 131
- ⇒ It is available online, please contact me for the link.

Families demography

- ⇒ Please contact me with any questions or suggestions for future work regarding:
 - ⇒ Families, children and households
 - ⇒ Partnership status (formation & dissolution)

Also, you may be interested to know that the next issue of Population Trends should include an article on:
Age differences at marriage and divorce

Thank you

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