September 13, 2018

# Capturing Trends in Divorce in an Era without Vital Statistics

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## Short Abstract

This paper examines what we can learn about recent trends and patterns in divorce in Canada from administrative and survey data. Statistics Canada abruptly stopped publishing vital statistics on marriage and divorce in 2008, leaving a knowledge gap in these important demographic indicators. We examine trends in divorce using retrospective partnership histories from survey data and administrative tax data and compare them with vital statistics during the period that they are available (1991-2008). Using survey and tax data, we update trends in divorce through 2015 with tax data and 2017 with survey data. Last, we discuss data gaps and make suggestions for more accurate measures of union dissolution.

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**Acknowledgements**: We acknowledge research funding from the Social Sciences and Humanities Research Council of Canada (430-2017-00357; 435-2017-0618 and 890-2016-9000), Canadian Institutes for Health Research (MYB-150262) and research assistance from Kathya Aathavan and Xiangnan Chai.

## Extended Abstract

Measures of marriage and divorce are key indicators of formal unions, which are also important for understanding the family context where most fertility takes place, as well as wealth accumulation, housing, and caregiving. Vital statistics are the key source of marriage and divorce information in most countries, although some countries have recently moved away from this mode of data collection into alternate strategies of estimation. For example, when the National Center for Health Statistics in the United States stopped collecting detailed divorce data in year 1996, their argument was that similar data could be collected more easily and inexpensively through surveys. Kennedy and Ruggles (2014) showed that the Current Population Survey (CPS) estimates of divorce were generally closed matched to vital statistics. However, the CPS stopped asking about marital history, which left the Survey of Income and Program Participation (SIPP) to fill in the gaps which substantially understated divorce (Kennedy and Ruggles 2014). Then, in 2008, the American Community Survey began to include questions about marriages and divorces to fill this void (Elliot et al. 2010).

In Canada, Statistics Canada stopped publishing estimates of marriage and divorce in 2008 with no alternative data source in place for creating these estimates. Rather, these estimates were seen to no longer be a priority since the online reports and estimates of marriage and divorce were not being downloaded as much as other topics (Conversation with Statistics Canada committee chairperson from 2008). *The implication of this decision is that there are currently no estimates of marriage and divorce trends for the country of Canada in the last decade*. In this paper, we examine trends and correlates of divorce from two data sources (retrospective partnership histories from survey data and administrative tax data) and compare them with vital statistics during the period that they are all available (1991-2008). Then, using survey and tax data, we update trends in marriage and divorce (through 2015 with tax data and through 2017 with survey data). Last, we discuss data gaps and make suggestions for more accurate measures of union dissolution.

## Data Sources

*Vital Statistics*

The first source of data that we use is the Vital Statistics Registry at Statistics Canada. Data on divorce go back to 1969 to 2008. However, there are some changes that have occurred over time in how the data are collected or what they represent. Before 1986, divorce law was under provincial and territorial jurisdiction. In 1986, the federal parliament passed the Divorce Act, which was Canada's first divorce law at the federal level. Irregularities in trends between 1985 and 1987 are likely related to this change. A second important change is that before 1991, the "married" category includes common-law marriages and the two groups cannot be distinguished. Therefore, for defining divorces per 1000 legally married women, we can only go back to 1991 with vital statistics. A third issue is that same-sex couples entered vital statistics in 2006. Before 2006, only divorces from opposite sex couples were recorded. Since 2006, each same sex marriage or divorce can be counted, but note that figures for women may include the same event twice, since both women will be in the denominator. We present some data from 1969-2008, the entire period when vital statistics data are available. Then we show data from 1991-2008 to compare recent trends from vital statistics with those from the United States.

*General Social Survey on the Family*

The second data source that we use is the Canadian General Social Survey. This is the only nationally representative survey in Canada that can be used to estimate marriage and divorce rates.[1] We use the survey waves which focus on the family: 1990, 1995, 2001, 2006, 2011, and 2017 when it becomes available in the fall of 2018). These surveys recorded partnership histories of respondents including their current marital status, number of total marriages and the start and end dates of two to four marriages depending on the wave. Our analysis captures marriages and divorces in the calendar year prior to the survey. We have completed this data analysis for all the cycles where the data are available and we will do the comparable analysis for the 2017 wave in the fall of 2018. The results are waiting to be vetted and released from the Research Data Centre at the University of Western Ontario.

These surveys have strengths and weaknesses for measuring divorce trends. First, they are large-scale data sets that Statistics Canada declares to be representative of Canada's 10 provinces, but not territories or residents of institutions. Sample sizes for the waves we use vary from 10,749 to 24,310. Recall bias is likely to be low about recent changes in marriage and divorce (in the calendar year before the survey). However, response rates are not very high, between 65.8% and 81.4%. And there is a small amount of missing data, and some missing information on higher order marriages among a small group of respondents. Another weakness is that the sample size of older respondents among which to estimate divorce is not super large and small numbers of divorces in certain age groups can change estimates greatly. As far as we know, no one has used these surveys to estimate marriage and divorce rates for the Canadian population.

*Administrative Tax Data*

The third data source that we use is administrative tax data. The data are the T1 Family File (T1FF) from 1993 to 2015. For a given year, these data cover all tax filers who completed a T1 tax return and, if identifiable, non-filing spouses/partners or children in a tax filer's census family. In 2014 about 75% of the Canadian population filed a tax return. Including imputed spouses and children, the completed T1FF sample is approximately 96% of the population (Statistics Canada 2016). These data include person-family unit information. The family unit in the T1FF is based on a concept of a census family. A census family includes couples (married or common-law) living in the same dwelling, with or without children, and long-parents with one or more children. Children in a couple family or lone-parent family do not live with their spouse or partner and do not have their own children living at the same address. Those who are living alone and not part of a couple family or lone-parent family are called "non-family persons" or "persons not in census families" (Statistics Canada 2016).

The T1FF data do not directly collect the date of a marriage or divorce. Instead, we use the available information in the T1FF to estimate marriages and divorces. These data include self-reported marital status as of December 31st of the tax year and processed family composition information that is based on self-reported marital status plus a probabilistic approach if spouses report contradictory information. We use year-to-year changes in individuals' marital status and family composition to identify marriages and divorces in a given year. To do so, we link the same individual in the two consecutive tax years with the longitudinal person ID.

[1] The long-form census and Labour Force Survey measure current marital status, but not recent changes in marriage.

Each year, approximately 20-25% of the sample does not have a valid longitudinal person ID. Although some imputed spouses and children have a valid longitudinal person ID, all those without a valid longitudinal person ID are non-filing spouses and children. In particular, almost all (97-99%) of them are children. For those who have a valid longitudinal person ID, approximately 96-97% are observed in two consecutive tax years. To calculate marriage and statistics, we use only those who are observed for two consecutive years. Compared to those who are observed for two consecutive years, those who are not observed in the following year are more likely to be aged under 30 or over 80, much less likely to be married at time t-1, much more likely to be widowed or single, less likely to be from Quebec, more likely to be from British Columbia, more likely to be non-resident, and more likely from lower income family.

Also, we exclude those who are an imputed person, a deceased filer, or a living tax filer matched to a deceased filer in either year. This restriction reduces our sample size by less than 5%. Estimated marriage and divorce rates without this restriction are similar to results with the restriction.

We define marriage and divorce in several ways based on information available in the T1FF. We use marital status (MSTCO) and family composition (FCMP) to infer changes in marital status. Variable MSTCO records self-reported marital status on a T1 General Form (Income Tax and Benefit Return). Marital status as of December 31st of the tax year is ticked in one of the six options: married, common-law, widowed, divorced, separated, and single. Based on self-reported marital status, the legally married are those who are married or separated. The remaining categories are legally unmarried.

A family composition as of December 31st of the tax year is broadly classified into five categories: couple families, common-law families, lone-parent families, non-family persons, and not used anywhere. To identify individual's marital status based on variable FCMP, we also use variable "indfl_i" which helps determine whether an individual is an adult or child. Based on these two variables, the legally married are adults in couple families. The legally unmarried include children, non-family persons, and adults living in a common-law family or lone-parent family.

To identify a divorce in calendar year "t," we estimate seven definitions of divorce in the T1FF. Based on self-reported marital status, a divorce is defined as a transition of marital status from *legally married* in year "t-1" to

1) *divorced*
2) *divorced or living common-law*
3) *divorced or single* (ms3 – d/s )
4) *divorced, living common-law, or single* in year "t."

Then, based on family composition, a divorce is defined as a transition of family composition from *adults in couple* families in year "t-1" to

5) *adults in lone-parent families or non-family persons*
6) *adults in lone-parent families, non-family persons, or adults in common-law families*
7) *adults in lone-parent families, non-family persons, adults in common-law families, or children* in year "t."

We also investigate to what extent divorce rates change (by age and sex) if we examine people who reported being married in consecutive years, but to different people. We don't report these results here in this abstract, but we have them completed and will show them in the full PAA paper in the spring.

**Preliminary Results**

First, we present descriptive statistics from vital statistics. Figure 1 presents the number of total divorces granted in Canada for all ages combined from 1969 to 2008, the entire period for which we have vital statistics data. There was a large increase in the number of divorces from 1969 through the late 1980s and then a plateau. The irregularity between 1985 and 1987 is likely due to the changes in divorce law (as mentioned above, divorce moved from provincial to federal jurisdiction with the Federal Divorce Act of 1986).

Figure 2 presents the number of divorces in Canada over time for women by age group. It shows that among women less than 40 the number of divorces increased through the 1980s or 1990s and then declined to 2008. Among women older than 40, the number of divorces has increased steadily over time.

Figure 3 examines age-specific divorce rates for women from 1991-2008, the period of vital statistics with comparable definitions bringing the data to the most recent available period. We can see that divorce rates decline with age over the entire period. Among younger adults, ages 29-39, there are some ups and downs in the age-specific divorce rate over the 1990s and 2000s, but rates are similar in 2008 as they were in 1991. Among older adults, starting with the age group 40-44, there is a slight but steady increase in divorce rates and this holds through ages 60-64. These dates are similar to those shown in Brown and Lin (2012; they show 1990-2010). These data show that changes in divorce among older adults are happening in Canada, but not nearly to the extent that we have seen in the United States.

Next, we examine to what extent we can capture divorce trends with tax data. Figure 4 presents divorces per 1000 married women (all ages) from vital statistics shown with the blue dotted line for 1993-2008) and then shows our seven definitions of divorce estimates from the tax data. The best measure is ms1 (shown in orange) which tracks nicely with the vital statistics estimates. This is coded as divorces from people who were married in year t-1 and then divorced in year t. The second best measure is definition ms2 (shown in gray), which codes divorces from people who were married in year t-1 and then divorced or living common-law in year 2. This measure has a similar trend to that observed from vital statistics, but a higher level. The other measures are much higher and also change more from year to year.

To delve further into how well the tax data measure divorce, we next examine age-specific divorce rates for 2007 using vital statistics and the seven definitions with tax data. The best measure from the previous figure (shown in orange), underestimates divorces at younger ages (through age 39) but tracks well with divorces at older ages. The second best measure (shown in gray) captures younger divorces better, but slightly overestimates divorces in the 30s and 40s compared to vital statistics. All other measures are further away for capturing divorces through midlife.

Last, to examine recent trends in age-specific divorce rates in Canada from the end of vital statistics (2008) through 2015, we turn to Figures 6a and 6b. These two figures take the two best estimates of divorce from the tax data (shown in Figures 4-5) and break down recent trends by age. Both measures show a decline in divorce among young people 20-24, although the decline is steeper with the first measure than the second. This is likely due to greater selectivity into marriage at young ages. Among those ages 25-29, we see a decline in divorce for the first measure but not the second. Among all other ages, the pattern of divorce is relatively flat across both measures, although the level is higher for the 2$^{nd}$ estimate compared with the first.

**Next Steps**

What do we know about trends in divorce from these three sources? First, we learn than from vital statistics and the tax data that during the 1990s and most of the 2000s that the overall divorce rate in Canada was fairly flat, with small increases in divorces at ages 40-64. These increases are much smaller than those found in the United States, which experienced a doubling of the divorce rate among older adults (Brown and Lin 2012). After 2008, when vital statistics are no longer available, the two best estimates of divorce from the tax data shown slight declines in divorce through 2015. We do not yet have results to report updating estimates of divorce from the 2017 General Social Survey, but will have them for PAA 2019.

We also note that estimating divorce with tax data includes a number of complicating factors. One is that most of our measures of divorce using tax data show much higher numbers than what we see with vital statistics. These differences between the tax data and vital statistics data can be due to the nature of self-reported marital status in the T1FF. People may misreport their legal marital status; for example, those who are living in a common-law relationship without a legal marriage may report them as "married." Tax returns depend on whether two people live together or not, rather than whether they are legally married or not. As a result, using the T1FF may result in overestimated marriages compared to the vital statistics.

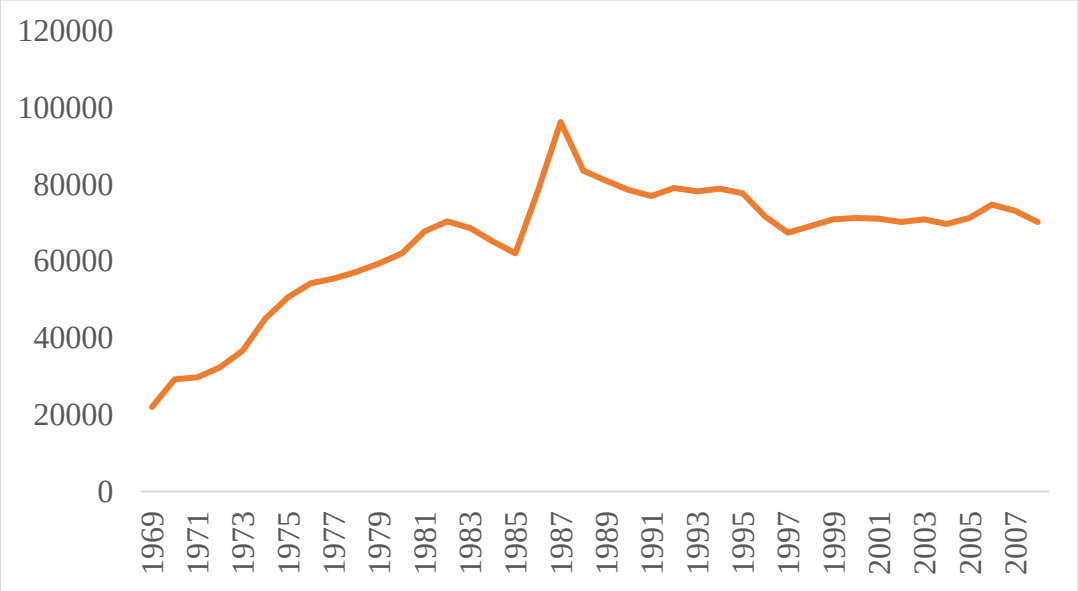
Another issue is that the different measures of divorce from the tax data vary a lot regarding how well they capture divorce at younger ages, while most measures capture divorces at older ages quite well. We believe that this may be due to lower than average tax filing rates amongst divorcees and young people.

A third issue with estimating divorce with tax data is that some people report being married in subsequent years, but married to different people. We have examined age and sex differences in how important this is, and we will present it at PAA 2019.

Where do we go next to estimate divorce in Canada? Unlike the United States, there was no survey question put in place on a large representative survey to take over estimation of marriage and divorce after these data were no longer published by Statistics Canada. We recommend questions about marriages and divorces in the last year to be added to a large survey such as the Labour Force Survey (which is sampled from the long-form census).

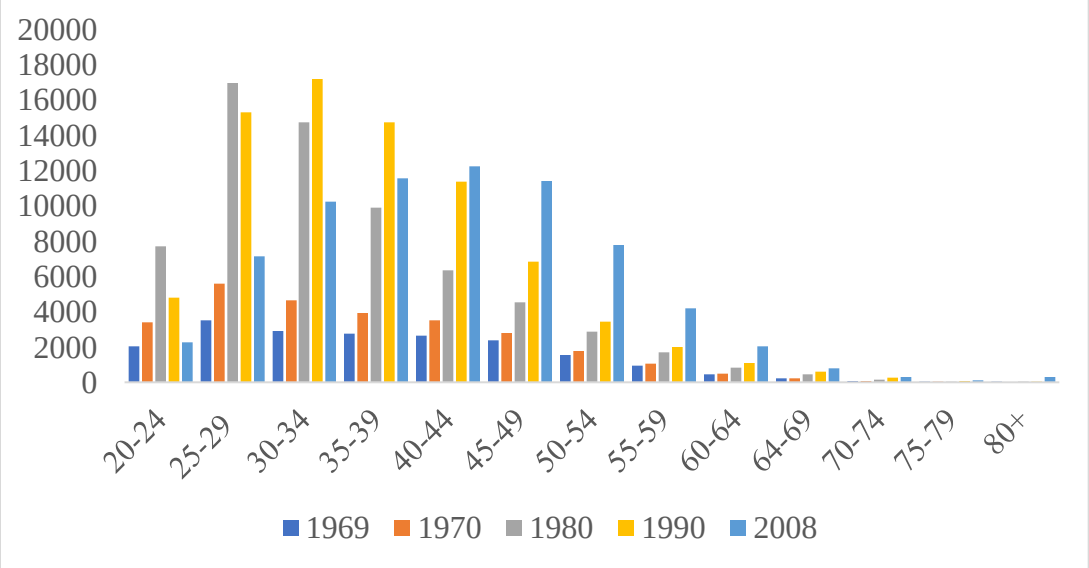
**Figures**

*Figure 1: Number of total divorces granted in Canada 1969-2008 (all ages combined)*



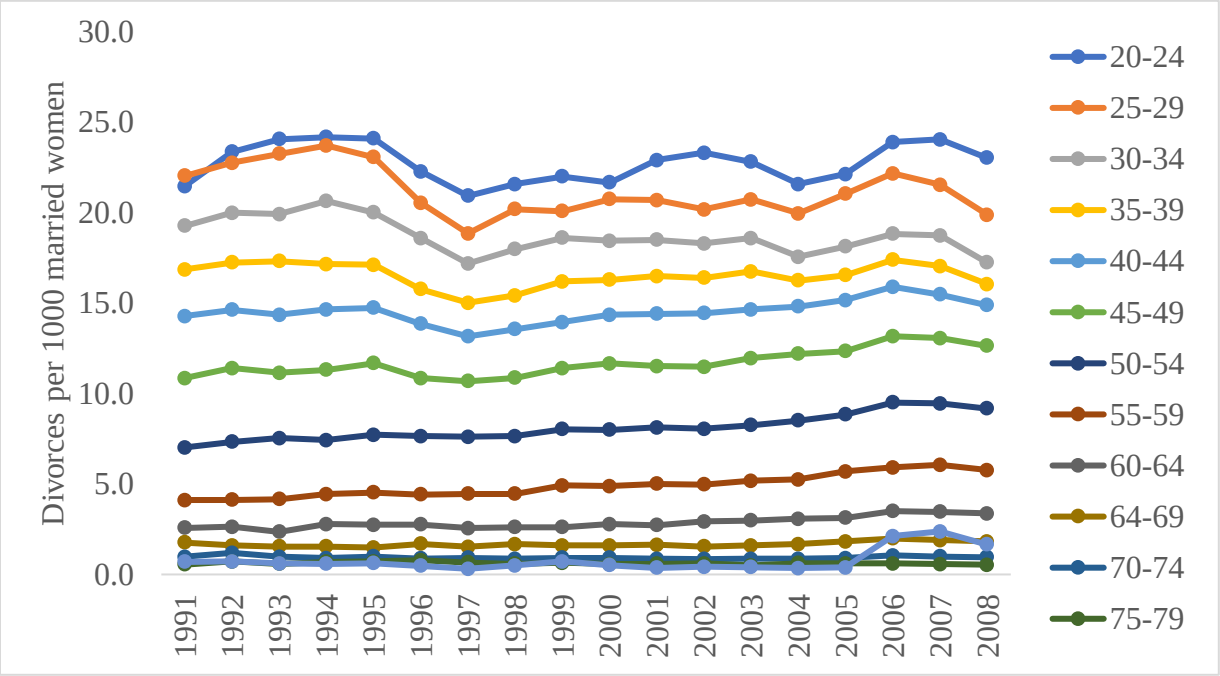

Note: Estimated from vital statistics data.

*Figure 2: Number of divorces in Canada over time among women by age (1969, 1970, 1980, 1990, 2008)*



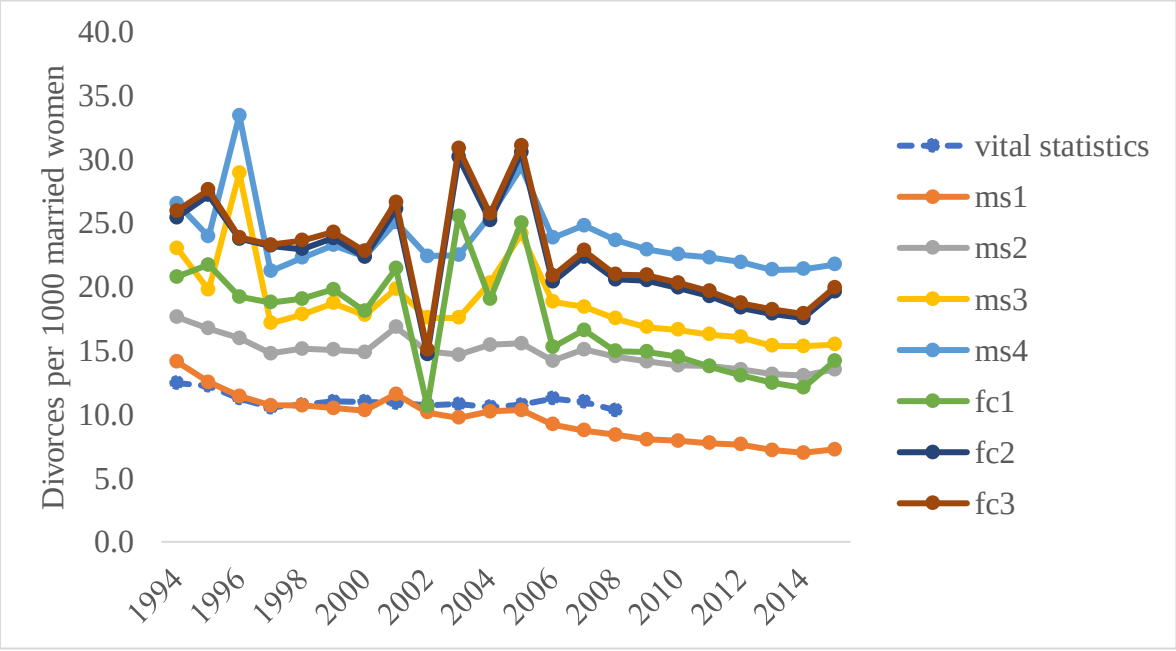

Note: Estimated from vital statistics data.

*Figure 3: Age specific divorce rates, Women (1991-2008)*



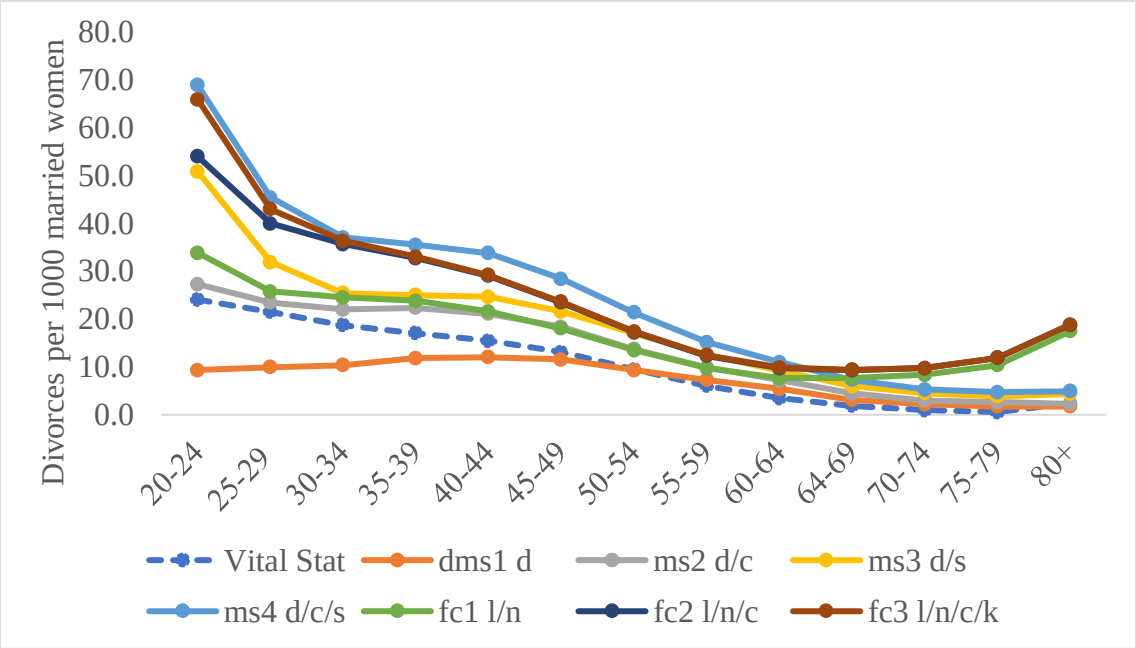

Note: Estimated from vital statistics data.
For each age group, a divorce rate in year t is equal to the number of divorces granted in year t divided by the number of legally married women at year t.

*Figure 4: Divorces per 1000 married women, all ages. Each line is a different definition with tax data (solid lines) compared with vital statistics (dotted line).*




Note: Estimated from vital statistics data (blue dotted line 1993-2008) and tax data (1993-2015).

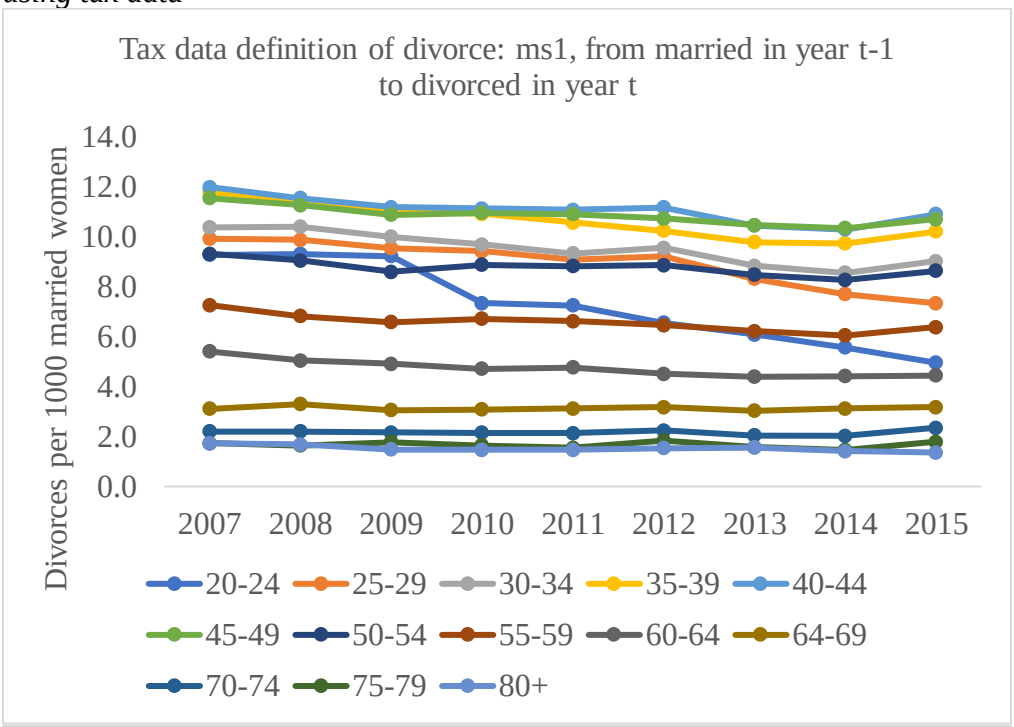
*Figure 5: Age-specific divorce rates, women in 2007*

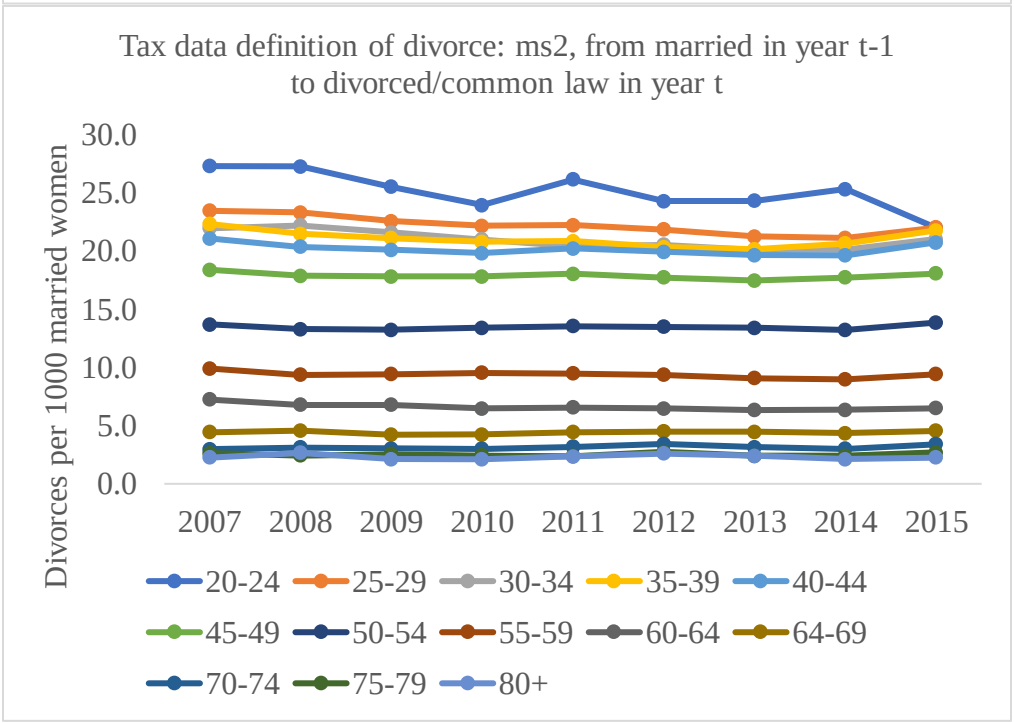



Note: Estimated from vital statistics data (blue dotted line) and tax data.

| | |
|---|---|
| div_ms1 d | From legally married in time t-1 to divorced in year t |
| div_ms2 d/c | From legally married in time t-1 to divorced/ common-law in year t |
| div_ms3 d/s | From legally married in time t-1 to divorced/ single in year t |
| div_ms4 d/c/s | From legally married in time t-1 to divorced/ common-law/ single in year t |
| div_fc1 l/n | From *adults in couple* families in year "t-1" to lone parent/ non-family person in year t |
| div_fc2 l/n/c | From *adults in couple* families in year "t-1" to lone parent/ non-family person/ common-law in year t |
| div_fc3 l/n/c/k | From *adults in couple* families in year "t-1" to lone parent/ non-family person/ common-law/ kid in year t |

*Figures 6a, 6b: Age-specific divorce rates (2007-2015) using two different definitions of divorce using tax data*



## References

Brown, S. L., & Lin, I. F. (2012). The gray divorce revolution: Rising divorce among middle-aged and older adults, 1990–2010. *The Journals of Gerontology: Series B, 67*(6), 731-741.

Elliott, D. B., Simmons, T., & Lewis, J. M. (2010). Evaluation of the marital events items on the ACS (U.S. Census Technical and Analytic Reports on the American Community Survey). Washington, DC: U.S. Census Bureau.

Kennedy, S. & Ruggles, S. (2014). Breaking up is hard to count: The rise of divorce in the United States, 1980-2010. Demography, 51(2): 587-598.