

Dillender, Marcus

Working Paper

Social security and divorce decisions

Upjohn Institute Working Paper, No. 14-206

Provided in Cooperation with:

W. E. Upjohn Institute for Employment Research, Kalamazoo, Mich.

Suggested Citation: Dillender, Marcus (2014) : Social security and divorce decisions, Upjohn Institute Working Paper, No. 14-206, W.E. Upjohn Institute for Employment Research, Kalamazoo, MI, <https://doi.org/10.17848/wp14-206>

This Version is available at:

<https://hdl.handle.net/10419/98589>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



2014

Social Security and Divorce Decisions

Marcus Dillender

W.E. Upjohn Institute

Upjohn Institute working paper ; 14-206

Citation

Dillender, Marcus. 2014. "Social Security and Divorce Decisions." Upjohn Institute Working Paper 14-206. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
http://research.upjohn.org/up_workingpapers/206

This title is brought to you by the Upjohn Institute. For more information, please contact ir@upjohn.org.

Social Security and Divorce Decisions

Upjohn Institute Working Paper 14-206

Marcus Dillender

W.E. Upjohn Institute for Employment Research

e-mail: Dillender@upjohn.org

January 2014

ABSTRACT

People who have divorced are entitled to Social Security spousal benefits if their marriages lasted at least ten years. This paper uses 1985–1995 Vital Statistics data and the 2008–2011 American Community Surveys to analyze how this rule affects divorce decisions. I find evidence that the ten-year rule results in a small increase in divorces for the general population; however, the effects vary greatly by age. Divorce decisions change very little for people under the age of 35. For people 55 and older, however, divorces increase by approximately 20 percent around the ten-year cutoff, which leads to an increase in the likelihood of being divorced of 11.7 percent at ten years of marriage. For people between the ages of 35 and 55, who account for over half of divorces, the likelihood of being divorced increases by almost 6 percent as marriages cross the ten-year mark. This heterogeneity across ages likely exists because older people are more focused on retirement and have less time to remarry. These results indicate many people delay divorcing because they need Social Security benefits.

JEL Classification Codes: J12, H5, J18

Key Words: Marriage, Divorce, Social Security

Do people stay married for financial reasons? Does increasing financial viability outside of marriage increase the likelihood of divorce? These questions are important to economists because marriage serves as both a social and a legal contract that facilitates family decision-making.¹ However, research finds that members of divorcing couples tend to be happier after the divorce than before (Gardner and Oswald 2006). Understanding how financial needs affect divorce decisions is difficult because a variety of issues unobserved by researchers play a role in the decision to end a marriage. This paper seeks to answer these questions by implementing a regression discontinuity design to study Social Security’s “ten-year rule,” which entitles the divorcing spouse who is the secondary earner in the marriage to Social Security spousal benefits if the marriage lasted at least ten years. This arbitrary cutoff at ten years creates a sharp increase in the value of exiting a marriage for secondary earners and provides an opportunity to see how a plausibly exogenous increase in financial viability outside of marriage affects divorce decisions.

In economic models of marriage, people choose to be married when the value of being married exceeds the value of being single. Therefore, raising the value of being single for married people should theoretically result in an increase in divorces. However, some earlier research has found that Social Security’s ten-year rule does not affect divorce decisions. Dickert-Conlin and Meghea (2004) use a difference-in-differences strategy, distinguishing between marriages of different lengths by number of years, to study the 1977 implementation of the ten-year rule, which reduced the length of the time spouses must remain married in order to qualify for the spousal benefit from twenty years to ten. They find no evidence that this rule change affected either the propensity among members of the general population to seek a divorce or the timing of getting a divorce. Dickert-Conlin and Meghea conclude that “changing the duration of

¹ The early models of marriage come from Becker (1973, 1974).

marriage requirement is unlikely to encourage divorce.” Goda, Shoven, and Slavov (2007) point out that the ten-year rule should have a larger effect on couples with large disparities between the primary and secondary workers. However, using data from the Panel Study of Income Dynamics (PSID), they find small, statistically insignificant effects of the ten-year rule on these vulnerable couples and conclude that the ten-year rule “does not appear to distort incentives for divorce.”

The current paper builds on these earlier papers in two important ways. First, the current paper focuses on heterogeneous effects of the ten-year rule based on age. Previous research did not focus on this heterogeneity despite the fact that different age ranges would theoretically be affected differently. Since remarriage results in losing spousal benefits from one’s earlier marriage, people have to expect to remain unmarried for the rest of their lives to receive spousal benefits from a previous marriage, which is a much bigger price to pay for younger individuals. Older people are also likely more focused on retirement, since it is nearer for them, meaning the spousal benefit would acquire more importance for them. Since couples with both members under the age of 35 account for approximately 45 percent of divorces, considering age groups separately is critical to understanding the effects of the ten-year rule.

The second advance made in the current paper is that it uses the length of marriage in months, whereas previous research has studied the length of the marriage in years. To examine changes in divorce, one can look at either stock measures or flow measures. The *stock measure* is the total number of divorced people, while the *flow measure* is the divorce rate. When examining a flow measure like divorce rates, knowing the length of marriage in months is crucial, since even a temporary spike in divorce rates can have lasting implications for the stocks of married people. Knowing the length of marriage in months is also important because it allows the researcher

to see how divorce rates are trending in the few months immediately leading up to the ten-year mark of marriages, which allows for better identification of the trend break.

Other research on the link between financial incentives and divorce has found mixed results. Alm and Whittington (1997) use PSID data to study how income tax penalties affect marriage and divorce decisions. They find evidence that marriage decisions respond to tax penalties while divorce decisions do not. Bitler et al. (2004), on the other hand, find that divorce propensities fall after the passage of welfare reforms that increase the value of being married relative to being single. Thus, the current state of the literature is ambiguous about how financial incentives influence divorce decisions.² My paper uses Vital Statistics data on divorces from 1985 to 1995 with the duration of marriage in months to implement a regression discontinuity strategy in order to determine how the ten-year rule affects divorce decisions. The paper also takes advantage of a question added to the American Community Survey (ACS) in 2008 that asks people the year their most recent marriage began. Although the length of the marriage is not measured as finely as with the Vital Statistics data, the ACS allows us to examine how the stock of marriages changes at the ten-year mark. The ACS is also much more recent than the Vital Statistics data and allows for studying two different time periods. Furthermore, because both the Vital Statistics and the American Community Survey are large, I can test for heterogeneous responses and identify even small effects.

The results suggest that divorce rates rise by 2.8 percent as marriages cross the ten-year mark; however, the effects vary dramatically by the ages of the couples. For couples with both members under the age of 35, I find no effect of the ten-year rule on divorce decisions. For couples

² A related literature focuses solely on how marriage decisions respond to economic incentives. For examples, see Brien, Dickert-Conlin, and Weaver (2004), Charles and Luoh (2010), and Grogger and Bronars (2001).

with at least one member at least 55, divorce rates rise by roughly 20 percent once marriages reach the ten-year point. The spike in divorce rates appears to be temporary; however, it has lasting impacts on the probability of remaining married. For people who have ever married, the likelihood of still being married falls by 1.3 percent for the full sample as the marriages cross the ten-year mark. For people younger than 35, the effect is approximately zero. For people 55 and older, crossing the ten-year mark is associated with a 2.4 percent decline in the likelihood of still being married, or an 11.7 percent increase in the likelihood of being divorced.

The effect of the ten-year rule for people over the age of 35, who account for over half of all divorces, is not trivial. People older than 35 experience an increase in the likelihood of being divorced of more than 7 percent at the ten-year mark. Examining marriage stocks suggests that these people remain living together until the ten-year mark and so are not merely separating before the ten-year mark and delaying the date for which they submit divorce paperwork. This indicates that the ten-year rule induces people to stay in marriages they would otherwise leave. Since the majority of secondary earners are female, the ten-year rule likely has the largest effect on them.

I conduct placebo tests that search for discontinuities: One of these tests looks for discontinuities before the ten-year rule was instituted; others look for discontinuities at other milestone years—namely five and fifteen years of marriage. I find no evidence of discontinuities at any of these other points, which suggests that Social Security rules are indeed the driving force behind the discontinuities observed.

The rest of the paper proceeds as follows. The next section discusses spousal benefits under Social Security. Section 2 expands on why we might expect heterogeneity by age. Section 3 discusses the Vital Statistics data and the American Community Survey and explains the

regression discontinuity strategy. Section 4 presents the results of this approach. Section 5 considers the plausibility of alternative stories to Social Security driving the documented discontinuities. Section 6 offers a discussion and concludes.

1 INSTITUTIONAL BACKGROUND

People contribute to Social Security through payroll taxes, and employers match the employee contribution. Upon retiring, workers can receive Social Security benefits if they have accumulated at least ten years of earnings over their work lives. The size of the benefit, or the Primary Insurance Amount (PIA), is computed based on the worker's average indexed monthly earnings. Starting at age 62, people can retire and receive a reduced benefit. If they wait until the full retirement age to retire, they will receive their full PIA. Beginning in 2000 for people aged 62, the full retirement age began to rise incrementally from age 65 to age 66 (Social Security Administration 2013).

Current spouses are eligible for a spousal benefit equal to 50 percent of the primary earner's PIA if the marriage has lasted at least one year. The spousal benefit is also available to former spouses if the marriage lasted ten years before ending in divorce.³ Former spouses from marriages that lasted fewer than ten years are eligible for no spousal benefit. People are no longer eligible for their spousal benefits if they themselves remarry; however, their spouses' remarrying does not affect their eligibility for spousal benefits (Social Security Administration 2013).

³ Spousal benefits are different from survivor benefits in that under the latter, if the primary earner dies, the widow or widower may be entitled to the full PIA amount instead of merely 50 percent of it.

The ten-year rule was part of a Social Security law that was passed in 1977 and went into effect in 1979. The main purpose of the 1977 law was to ensure the financial stability of Social Security; however, it also changed the length of the marriage requirement for spousal benefits from twenty years to ten because marriages were dissolving more quickly than before, which meant too few spouses were qualifying for benefits (Dickert-Conlin and Meghea 2004).

Even former spouses who qualify for Social Security on their own earnings histories can still receive the spousal benefit if half of their former spouses' PIA is more than what they would receive based on their own PIA. In 2006, approximately 8 percent of people receiving Social Security received it through the spousal benefit. Approximately 98 percent of the people receiving the spousal benefit in 2006 were women; however, as more women enter the labor force and earn more, more women are receiving Social Security based entirely on their own earnings record (Goda, Shoven, and Slavov 2007; Social Security Administration 2006). A divorced spouse's receiving a spousal benefit does not affect the other divorced spouse's Social Security payment in any way. In fact, if a person has several marriages that last ten years, all former spouses can claim the spousal benefit under his PIA without affecting his benefit.

2 CONCEPTUAL FRAMEWORK—HETEROGENEITY BY AGE

For a variety of reasons, we may expect there to be important heterogeneity of the effect of the ten-year rule based on age. One reason is that young people may be myopic when it comes to retirement. There are many reports of people not saving enough money for retirement, and research finds that people discount the future hyperbolically when thinking about retirement (Laibson 1997; O'Donoghue and Rabin 1999). Older people are likely more focused on retirement, since it is a more immediate prospect for them.

Studies have also shown that young people are often overly optimistic about their future earnings (Steiner 2013). If lower-earning spouses expect to make more in the future, they may not care much about the spousal benefit, regardless of whether or not they are right about their earnings potential. Similarly, at younger ages, earnings have typically not yet peaked for the higher-earning spouse. Thus, young people may not know the value of the spousal benefit. Older people, however, know both their earnings histories and their spouses' earning histories, meaning there is no ambiguity about whether or not the spousal benefit would be more than what they would otherwise receive from Social Security.

Even if young people are perfectly rational and forward-thinking, we still may see no effect on them because they have plenty of time to marry again and achieve the spousal benefit through another spouse. Since remarrying causes people to lose their spousal benefits, young people who divorce after ten years would have to go through most of their adult lives unmarried in order to claim the spousal benefit from a divorce that occurred in their twenties or early thirties. Not being able to marry again, on the other hand, is a smaller price to pay for older adults.

3 DATA AND EMPIRICAL STRATEGY

3.1 Vital Statistics

The first set of results uses Vital Statistics data from 1985 to 1995. The Vital Statistics data are compiled by the National Center for Health Statistics and contain information from divorce certificates collected at the state level. About half of all states participated in the program. While some states provided a random sample to the National Center for Health Statistics, other states provided data on all divorce certificates. In Section 5, I also use data from

1966 to 1972 to see if the documented discontinuities existed even before the ten-year rule was implemented.

The Vital Statistics data have several advantages. First, they contain data on the month and year of the marriage and divorce, meaning I can calculate the duration of the marriage in months. This allows me to estimate the effect of the ten-year rule on the number of divorces within a very close range of months surrounding the ten-year mark. Even a temporary spike in the number of divorces can have a lasting impact on the stock of marriages. Second, these data are large. For the years 1985 to 1995, the data contain information on 2,008,923 divorces. Of these, 1,818,591, or more than 90 percent, contain the ages of the spouses and the information necessary to compute the duration of the marriage in months. Finally, these data come straight from divorce certificates and are therefore likely very accurate.

Divorces by age are shown in Figure 1 for the time period studied. The age at divorce peaks slightly before 30 for both men and women. Approximately 45 percent of the divorces taking place during the time period studied occur before the age of 35, whereas only about 3 percent of divorces happen when at least one member of the couple is at least 55 years old. Almost 50 percent of the divorces happening within a year of the tenth anniversary are for people younger than 35, while couples with at least one member 55 years of age or older only account for approximately 1.5 percent.

3.2 The American Community Survey

The Vital Statistics divorce certificate collection program ended in 1995, meaning the most recent year of Vital Statistics data is nearly twenty years old. Another issue with the Vital Statistics records is that they are strictly a flow measure, whereas we are also interested in how the stock of marriages changes at the ten-year mark. Therefore, I also use the American

Community Survey, which allows for studying the stocks of marriages and provides data through 2011. Beginning in 2008, the ACS began asking people the year their most recent marriage began. I subtract people's answers to this question from the survey year to calculate the years since their marriage began. Because we are interested in divorce decisions, only married people are included in the sample. I include everyone over the age of 17. As with the Vital Statistics, the ACS also has the advantage of being large: The data contain 1,785,697 observations. This contrasts with the PSID, which also has information on marriage histories but only has data on 16,361 marriages, the vast majority of which are composed of young people.

There are two issues with the ACS. The first is that we only know the length of the marriage in years and not in months. Rounding the data off to whole years means we have to include data further from the ten-year cutoff in order to determine how the likelihood of being married or divorced trends with years since marriage. The second limitation is that the ACS only asks about the most recent marriage. This means that if someone gets a divorce after ten years of marriage and then remarries, that person will not show up in the data as having been divorced after ten years of marriage. Since I show that divorces rise after the ten-year mark, to the extent that the ACS misses divorced persons who remarry, the estimates would be biased toward zero.

3.3 Empirical Strategy

This paper studies Social Security's ten-year rule by implementing a regression discontinuity strategy. With the Vital Statistics data, I estimate the following equation:

$$(1) \quad y_m = f(m) + D_m\beta + \eta_m ,$$

where m indexes duration of the marriage in months, y is the number of divorces happening at a given duration, $f(m)$ is a smooth function representing the duration profile of divorces, D is an indicator variable equal to 1 if the divorce occurs after at least ten years of marriage, and η is an

unobserved error component. I estimate Equation (1) by modeling $f(m)$ as a cubic polynomial. I include 18 months of data before and after the ten-year cutoff. An issue with the Vital Statistics data is that we do not know the entire population of marriages that are at risk of divorce for each marriage duration, which means we cannot compute the divorce rate by duration of marriage.

Similarly, the Vital Statistics data do not include the full universe of divorces, meaning the observed increase in the number of divorces at the ten-year mark of marriages is likely smaller than the increase for the full universe. Therefore, in addition to estimating Equation (1) with the number of divorces as a dependent variable, I also include the log of the number of marriages at a given duration as a dependent variable. Assuming the underlying population counts trend smoothly, the β coefficients from using the logged number of divorces as the dependent variable can be interpreted as estimates of the percentage discontinuities in divorce rates.⁴

When using the ACS data, I will supplement Equation (1) with demographic characteristics and year controls and estimate that

$$(2) \quad y_i = \gamma_t + X_i\alpha + f(m_i) + D_i\beta + \eta_i ,$$

where i indexes the individual, t indexes the year, y is an indicator variable that denotes whether an individual is married or divorced, depending on the specification, X is a set of individual covariates that includes sex, race, education, and a full vector of indicator variables for age, γ is a full set of year indicator variables, and all other variables are defined as before. To keep the results concise, and because the effects of divorces that do and do not begin with separation are similar, I consider divorces and separations together. Because the ACS does not have the years since marriage in months, I include five years of data on either side of the ten-

⁴ This follows Card, Dobkin, and Maestas (2008), who study how hospital admissions respond to Medicare eligibility, and Carpenter and Dobkin (2009), who study how being able to consume alcohol legally affects deaths.

year cutoff to estimate $f(m_i)$. With the ACS data, the unit of observation is the individual, because we can only identify both members of the couple when the couple is still married. The β coefficients can be interpreted as the percentage point change in the likelihood of being married or divorced for people who have ever married.

Throughout the next section, I will estimate Equations (1) and (2) for the full sample as well as for three broad age groups. For the couple-level Vital Statistics data, the three groups will be as follows: 1) couples with both members younger than 35, 2) couples with at least one member 35 or older and both members younger than 55, and 3) couples with at least one member 55 or older. With the individual-level ACS data, the groups will be 1) individuals younger than 35, 2) individuals aged 35 to 54, and 3) individuals 55 and older.⁵

4 RESULTS

4.1 The Flow of Divorces

Figure 2 shows the number of divorces by length of marriage, both for all ages and for the three different age groups using Vital Statistics data. Because the number of divorces occurring for all couples and for couples younger than 35 is so high, examining the discontinuity at the ten-year mark is difficult when there are five years of data on either side of that cutoff; therefore, Figure 3 shows the length of marriage profile with only one year on either side of the

⁵ Experimenting with different age bins reveals that the effect of the 10-year rule rises with age. Although it would be possible to choose finer age bins, these cutoffs were chosen so that each bin still has many observations, as well as to illustrate the fact that there is no effect for younger ages but that the effect of the 10-year rule rises with age.

ten-year line for all couples and for couples younger than 35. As with all of the figures in the paper, quadratic lines are fitted over the data on either side of the ten-year mark.⁶

From Figures 2 and 3, we can see that the number of divorces falls as the length of marriage increases. For all couples, middle-aged couples, and older couples, there appears to be an increase in the number of divorces at the ten-year mark. The profile for young couples appears to be unchanged.

Examining the graphs for all couples in Figures 2 and 3 illustrates the importance of being able to focus narrowly on the months around the ten-year boundary. Without this ability, the discontinuity for all couples would be easy to miss in Figure 2, even though it is more easily seen in Figure 3.

Table 1 displays the estimates from Equation (1). From 1985 to 1995, 77,997 divorces occurred at nine years of marriage. After the ten-year mark, this number increases by approximately 169 divorces per month, or approximately 2,031 per year. This represents a 2.8 percent increase in the number of divorces. The point estimate for the increase in divorces for young couples is an increase of about 37 divorces per month, or a statistically insignificant 1.2 percent. For middle-aged couples, crossing the ten-year mark is associated with an increase of roughly 78 divorces per month, or 1,177 divorces per year, which represents an increase in divorces of 2.8 percent—the same percentage as for the overall sample. Among older couples, there were 3,346 divorces for couples married for nine years. Crossing over the ten-year mark is associated with an increase of 54 divorces per month, or 651 divorces per year. This represents an increase in the number of divorces per year of 20 percent.

⁶ Estimating Equations (1) and (2) with $f(m)$ modeled as separate quadratic functions on either side of the ten-year cutoff yields very similar estimates to modeling $f(m)$ as a cubic.

Figures 2 and 3 and Table 1 show that divorce decisions do respond to the financial incentives associated with Social Security. While the effect is small and insignificant for young couples, it is large for older couples. There are two final things to note. First, the increases documented in this section are measured as increases from the previous 18 months. The ten-year rule could cause divorces to be lower in these months, as some couples who would normally divorce might delay divorcing for Social Security reasons. Although it is still possible to see that divorce rates increase after the ten-year mark, the true impact of the ten-year rule on marriage stocks is difficult to assess from looking at the Vital Statistics data. Second, although it is difficult to extrapolate far from the ten-year mark, it appears from Figure 2 that the increase in divorces occurring at the ten-year point of marriages may be temporary. For both of these reasons, I turn to data on marriage stocks in the next subsection to develop a richer understanding of how marriage stocks change because of the ten-year rule.

4.2 The Stock of Marriages

I now use the ACS to examine how the likelihood of being married or divorced changes at the ten-year mark for couples that have ever been married. The reasons for doing this are twofold: 1) It will better help to quantify the effects of the ten-year rule on the likelihood of being married and 2) since it covers a later period, the ACS allows us to see whether the ten-year rule is still affecting divorce decisions, even as the within-couple difference in earnings is falling over time because of women's gains in the workplace.

Figure 4 shows the fraction of people who are still married at a given year since their most recent marriage, while Figure 5 shows the corresponding fraction for divorces and separations. For people aged 35 to 54 and for people 55 and older, the likelihood of still being married declines over time at a decreasing rate. At ten years since marriage, there is a trend break

in the likelihood of still being married. After this drop-off, the slope of the profile returns to what it was before the ten-year mark. The profile for marriage probabilities for all ages follows a similar pattern. The marriage probabilities of young adults, however, appear not to experience a discontinuity at ten years since marriage.

As would be expected, Figure 5 shows the inverse pattern for the probability of being divorced or separated. At older ages, the probability of being divorced or separated increases at a decreasing rate as years since marriage rise. At ten years since marriage, there appears to be a jump in the probability of being divorced or separated. There appears to be no effect of the ten-year rule on younger people.

Table 2 displays the results from estimating Equation (2) with the ACS. The estimates confirm the stories told by the figures: For young adults, there is no effect of the ten-year rule on the likelihood of being married or divorced. For middle-aged adults who have ever been married, the likelihood of still being married falls by 1.2 percentage points, or approximately 1.5 percent. For ever-married adults aged 55 and higher, the likelihood of still being married falls by 2.1 percentage points, or by more than 2.7 percent. These effects on older ages also translate into declines in the probability of being married at the ten-year mark for the full sample by about one percentage point. In all cases, the percentage point estimates of the increase in the likelihood of being divorced are almost exactly the same in absolute value as they are for the decrease in the likelihood of being married. This is reassuring, since marriages only end with divorce or the death of a spouse, and we would not expect the ten-year rule to affect mortality.

A possible concern with considering marriage rates is that couples may separate before the ten-year mark of marriages but choose not to file for divorce until the ten-year mark so that secondary earners can receive spousal benefits. This would mean that the ten-year rule's main

effect is to shift the timing of paperwork. However, since people in the ACS can report being separated, this is not a concern with the ACS data. Since I classify divorces and separations together, these people would show up as not being married before the ten-year mark.

The results provide evidence that divorces increase immediately after ten years of marriage. Although this increase in divorces may only be temporary, it has lasting impacts on the likelihood of remaining married after ten years of marriage. The results also highlight the importance of accounting for age. As people age, they become more focused on retirement and have fewer remaining years in which to achieve the spousal benefit through another marriage. For these reasons, the effects on older people are much larger than the effects on younger people.

5 ROBUSTNESS

I now run two types of placebo regressions using the Vital Statistics data. The first set of placebo regressions examines divorces at ten years of marriage prior to the ten-year rule being implemented. The reason for doing this is to consider the possibility that there is another unobserved factor, one unrelated to Social Security, that drives divorce decisions at ten years of marriage. The second set of placebo regressions considers the five-year and fifteen-year milestones to see if there is any evidence that marriages tend to dissolve after milestone anniversaries. Large discontinuities before the ten-year rule was implemented or at other milestone years would cast doubt on the notion that the Social Security policy caused the discontinuities documented in the previous section.

5.1 Before the Ten-Year Rule's Implementation

A possible concern is that there has always existed something related to ten years of marriage that causes marriages to end that is completely unrelated to Social Security's ten-year rule. To test for a discontinuity at ten years of marriage before the ten-year rule was implemented, I use data from 1966 to 1972. The reason for refraining from using data from the five years leading up to the passage of the 1977 law is that the law applied to all existing divorces, not just the ones that went through after the law was passed. This means divorce decisions might have changed before the law took effect if people were anticipating the change from a twenty-year to a ten-year requirement.

Graphs of the number of divorces around the ten-year mark are shown in Figure 6. As with the Vital Statistics results, the number of divorces falls as the years since marriage rise for the full sample as well as for couples where both members are younger than 35 and for those where at least one member is older than 55. For middle-aged couples, the number of divorces begins to rise as the years since marriage also rise.⁷ In none of the graphs do there appear to be any discontinuities associated with ten years of marriage.

As before, I estimate Equation (1) with 18 months on either side of the ten-year cutoff. The results, shown in Table 3, indicate no statistically significant discontinuity in the number or rate of divorces occurring after ten years of marriage. The only coefficient that is positive is for people 35 and younger. This suggests that there was not an unobserved factor affecting divorces at the ten-year cutoff before the ten-year rule was implemented.

⁷ This is a consequence of selecting the sample based on age. The number of marriages peaks for people in their early twenties, meaning that among people aged 35 to 54 there are a lot of people at risk for divorcing after ten years of marriage. This increase in the divorce rate among the middle-aged as the number of years married also increases happens smoothly, with no discontinuity.

5.2 Testing for Discontinuities at Other Marriage Milestones

A similar concern is that divorces clump around milestone years and that, therefore, the discontinuity observed at ten years of marriage is not related to Social Security. This would be the case if people wanted to make their marriages last to ten years for psychological or emotional reasons not at all related to Social Security. Note that this would need to be a new trend, since the discontinuity observed at ten years in the most recent data is not present in the data collected before the ten-year rule was implemented (the Vital Statistics data from 1966 to 1972). I also examine possible discontinuities at five and fifteen years of marriage, because if some couples indeed choose to wait until after their marriages achieve certain milestones to divorce, we might expect to see discontinuities at these marriage anniversaries as well.

Figures 7 and 8 show the divorce profiles for years of marriage around five and fifteen years, respectively. Regardless of the ages considered, there appear to be no discontinuities at five or fifteen years. The quadratic line has a difficult time fitting divorces within the first five years because divorces rise rapidly before leveling off; however, the estimation includes only the preceding 18 months before the five-year mark, because by the beginning of that 18-month stretch the rapid increase in the number of divorces has already finished.

Table 3 shows the regression discontinuity estimates. All of the estimates are statistically indistinguishable from zero. There appears to be no evidence that the number of divorces increases immediately after the five or fifteen-year mark of marriage. This provides more evidence that the results observed around ten years of marriage are not merely the result of couples wanting their marriages to last until certain milestone years.

6 DISCUSSION AND CONCLUSION

This paper has studied the effects of Social Security's requirement that spouses be married for at least ten years before they can qualify for spousal benefits upon divorce. Although the paper finds no evidence of an effect on divorce decisions for young people, it finds strong evidence that older couples are affected. Middle-aged couples experience an increase in divorces of 2.8 percent. The effect on older people is more dramatic: Divorces rise by about 20 percent for couples where at least one member is at least 55. The effect on divorce rates appears to be temporary; however, this momentary increase in the flow of divorces has a permanent effect on marriage stocks. Among ever-married middle-aged people, the ten-year rule results in a decline in the likelihood of still being married of approximately 1.5 percent. For older people, the probability of still being married falls by 2.4 percent as marriages cross the ten-year mark.

These large effects for older people likely exist because older people are more focused on retirement and have less time to remarry than younger adults, leading them to wait until their marriages last ten years before they divorce. They also know their earnings histories and can figure out their Social Security benefit from these histories, while younger adults must project their future earnings and are often overly optimistic in this projection.

The results from this paper show that increasing the value of being single through the provisions of Social Security's ten-year rule results in an increase in the likelihood of divorcing. They also indicate that Social Security rules cause some people to stay in marriages they would prefer to leave so that they can receive spousal benefits. Since the vast majority of people receiving the spousal benefit are women, this rule likely has a larger effect on them than on men.

These results have implications that go beyond Social Security. They suggest that financial stability is a reason that many people stay in marriages. While on the one hand this

implies that financial stability may be an important benefit of marriage, it also suggests that some people may stay in unhappy marriages because they lack a financially viable alternative.

References

- Alm, James, and Leslie A. Whittington. 1997. "Income Taxes and the Timing of Marital Decisions." *Journal of Public Economics* 64(2): 219–240.
- Becker, Gary S. 1973. "A Theory of Marriage: Part I." *Journal of Political Economy* 81(4): 813–846.
- . 1974. "A Theory of Marriage: Part II." *Journal of Political Economy* 82(2): S11–S26.
- Bitler, Marianne P., Jonah B. Gelbach, Hilary W. Hoynes, and Madeline Zavodny. 2004. "The Impact of Welfare Reform on Marriage and Divorce." *Demography* 41(2): 213–236.
- Brien, Michael J., Stacy Dickert-Conlin, and David A. Weaver. 2004. "Widows Waiting to Wed? (Re)Marriage and Economic Incentives in Social Security Widow Benefits." *Journal of Human Resources* 39(3): 585–623.
- Card, David, Carlos Dobkin, and Nicole Maestas. 2008. "The Impact of Nearly Universal Insurance Coverage on Health Care Utilization: Evidence from Medicare." *American Economic Review* 98(5): 2242–2258.
- Carpenter, Christopher, and Carlos Dobkin. 2009. "The Effect of Alcohol Consumption on Mortality: Regression Discontinuity Evidence from the Minimum Drinking Age." *American Economic Journal: Applied Economics* 1(1): 164–182.
- Charles, Kerwin Kofi, and Ming Ching Luoh. 2010. "Male Incarceration, the Marriage Market, and Female Outcomes." *Review of Economics and Statistics* 92(3): 614–627.

- Dickert-Conlin, Stacy, and Cristian Meghea. 2004. "The Effect of Social Security on Divorce and Remarriage Behavior." CRR Working Paper No. 2004-09. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Gardner, Jonathan, and Andrew J. Oswald. 2006. "Do Divorcing Couples Become Happier by Breaking Up?" *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 169(2): 319–336.
- Goda, Gopi Shah, John B. Shoven, and Sita Nataraj Slavov. 2007. "Social Security and the Timing of Divorce." NBER Working Paper No. 13382. Cambridge, MA: National Bureau of Economic Research.
- Grogger, Jeff, and Stephen G. Bronars. 2001. "The Effect of Welfare Payments on the Marriage and Fertility Behavior of Unwed Mothers: Results from a Twins Experiment." *Journal of Political Economy* 109(3): 529–545.
- Laibson, David. 1997. "Golden Eggs and Hyperbolic Discounting." *Quarterly Journal of Economics* 112(2): 443–478.
- O'Donoghue, Ted, and Matthew Rabin. 1999. "Doing It Now or Later." *American Economic Review* 89(1): 103–124.
- Social Security Administration. 2006. Tables 5.F1–5.F13. In *Annual Statistical Supplement to the Social Security Bulletin, 2005*. Washington, DC: U.S. Government Printing Office, pp. 5.59–5.70. <http://www.ssa.gov/policy/docs/statcomps/supplement/2005/5f.pdf> (accessed January 13, 2014).
- . 2013. "Social Security (Old-Age, Survivors, and Disability Insurance)." In *Annual Statistical Supplement to the Social Security Bulletin, 2012*. Washington, DC: U.S.

Government Printing Office, pp. 9–19. <http://www.ssa.gov/policy/docs/statcomps/supplement/2012/oasdi.pdf> (accessed January 13, 2014).

Steiner, Sheyna. 2013. *Do You Think You Will Be Rich One Day?* North Palm Beach, FL: Bankrate Inc. <http://www.bankrate.com/finance/financial-literacy/do-you-think-you-will-be-rich-one-day-1.aspx>. (accessed January 13, 2014).

Table 1 Divorces at Ten Years of Marriage

	Divorces at <u>9 years</u>	Discontinuity at 10 years	
		<u>Number of divorces</u>	<u>Log of number of divorces</u>
All couples	77,997	169.238*** (58.411)	0.028*** (0.010)
Both members younger than 35	40,384	37.125 (40.415)	0.012 (0.014)
At least one member older than 35 and both younger than 55	34,267	77.900* (42.623)	0.028* (0.015)
At least one member older than 54	3,346	54.213*** (18.941)	0.200*** (0.068)

NOTE: * significant at the 0.10 level; ** significant at the 0.05 level; *** significant at the 0.01 level. Robust standard errors are shown in parentheses. All regressions control for a cubic in length of marriage in months. The discontinuity in divorces at ten years is per month. Note that the Vital Statistics records include data from about half of all states and are unweighted.

SOURCE: 1985–1995 Vital Statistics data.

Table 2 Changes in Likelihood of Being Married or Divorced at Ten Years since Marriage

	Observations	Average married, at 9 years since marriage	Discontinuity for being married at 10 years	Average divorced, at 9 years since marriage	Discontinuity for being divorced at 10 years
Full sample	1,785,697	0.796	-0.010*** (0.002)	0.187	0.009*** (0.002)
Ages 34 and younger	485,577	0.800	-0.001 (0.003)	0.195	0.001 (0.003)
Ages 35 to 54	1,036,956	0.801	-0.012*** (0.002)	0.188	0.011*** (0.002)
Ages 55 and older	263,164	0.766	-0.021*** (0.004)	0.163	0.019*** (0.004)

NOTE: * significant at the 0.10 level; ** significant at the 0.05 level; *** significant at the 0.01 level. Robust standard errors are shown in parentheses. All regressions include controls for age, education, race, year, and sex, as well as a cubic in years since marriage began.

SOURCE: 2008–2011 American Community Survey data.

Table 3 Robustness

	<u>Years 1968 to 1975</u>			<u>Years 1985 to 1995</u>					
		<u>Discontinuity at 10 years</u>			<u>Discontinuity at 5 years</u>			<u>Discontinuity at 15 years</u>	
	Divorces at 9 years	Number of divorces	Log of number of divorces	Divorces at 4 years	Number of divorces	Log of number of divorces	Divorces at 14 years	Number of divorces	Log of number of divorces
All couples	24,635	47.250 (44.070)	0.024 (0.023)	150,915	-38.324j (84.869)	-0.004 (0.007)	46,508	76.646 (61.081)	0.020 (0.017)
Both members younger than 35	16,784	50.261 (34.165)	0.041 (0.028)	101,203	-13.405 (62.406)	-0.003 (0.008)	10,403	-5.787 (30.665)	-0.016 (0.045)
At least one member older than 35 and both younger than 55	6,917	-3.054 (21.421)	-0.003 (0.036)	44,774	-24.091 (58.647)	-0.007 (0.016)	33,586	88.179 (55.789)	0.032 (0.020)
At least one member older than 55	934	0.043 (7.406)	-0.012 (0.100)	4,938	-0.829 (19.647)	-0.003 (0.049)	2,519	-5.745 (14.323)	-0.029 (0.069)

NOTE: * significant at the 0.10 level; ** significant at the 0.05 level; *** significant at the 0.01 level. Robust standard errors are shown in parentheses. The discontinuity in divorces at five, ten, and fifteen years is per month. Note that the Vital Statistics records include data from about half of all states and are unweighted.

SOURCE: 1968–1995 Vital Statistics data.

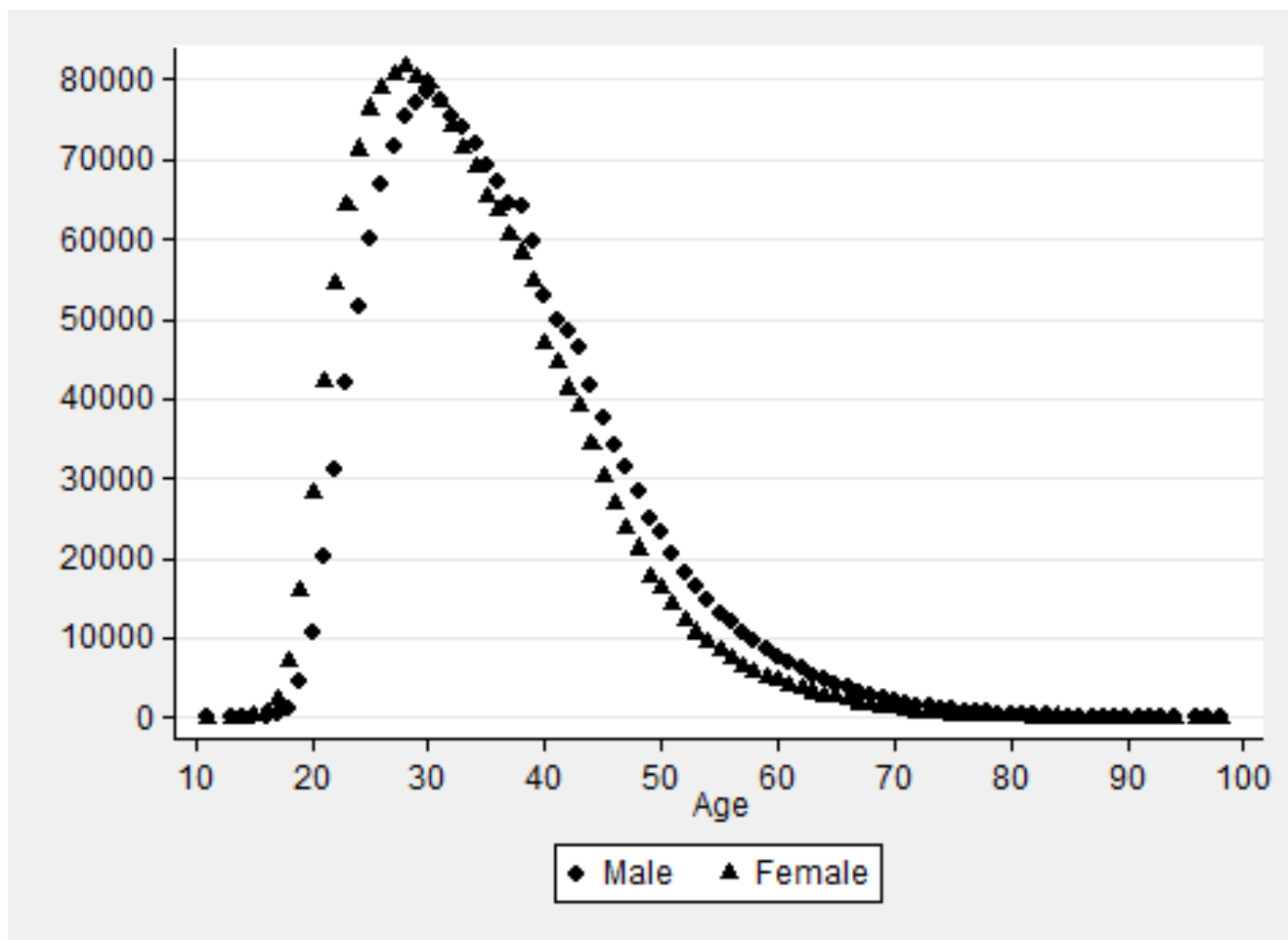


Figure 1 Divorces by Age, from the National Center for Health Statistics, from the 1989 to 1995 Vital Statistics data.

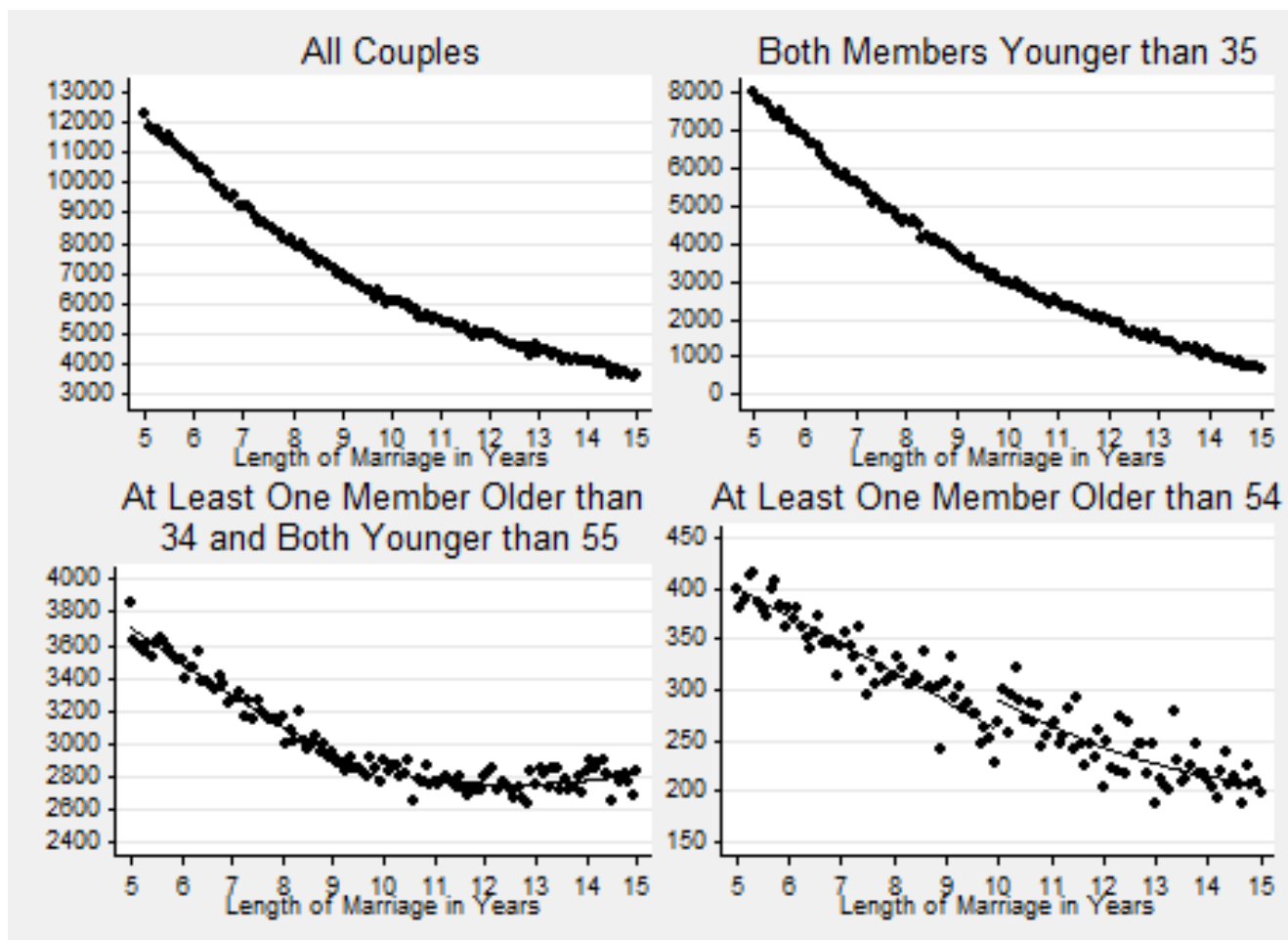


Figure 2 Divorces by Years of Marriage for Five to Fifteen Years, from the 1985 to 1995 Vital Statistics data.

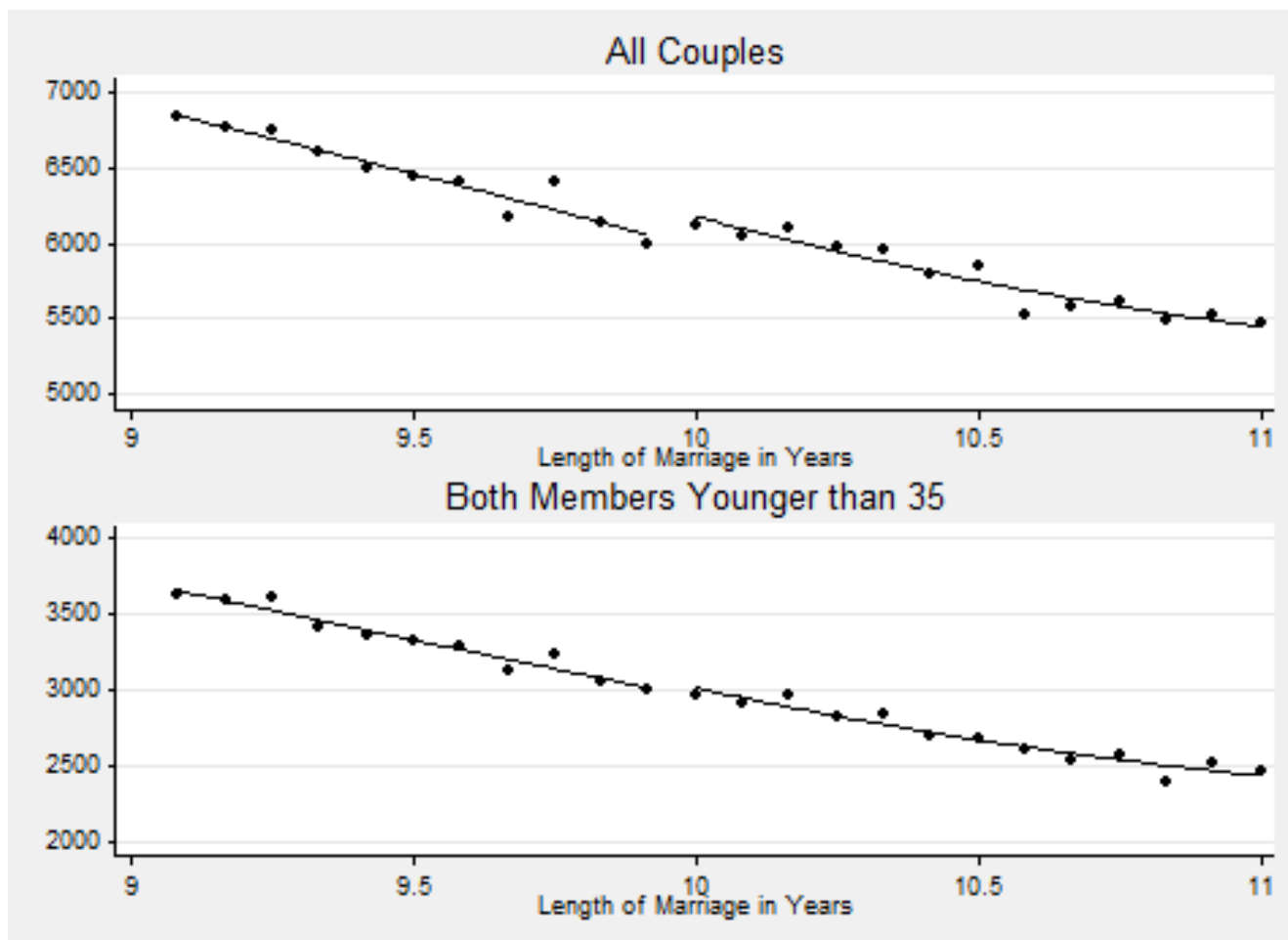


Figure 3 Divorces by Years of Marriage for Nine to Ten Years, from the 1985 to 1995 Vital Statistics data.

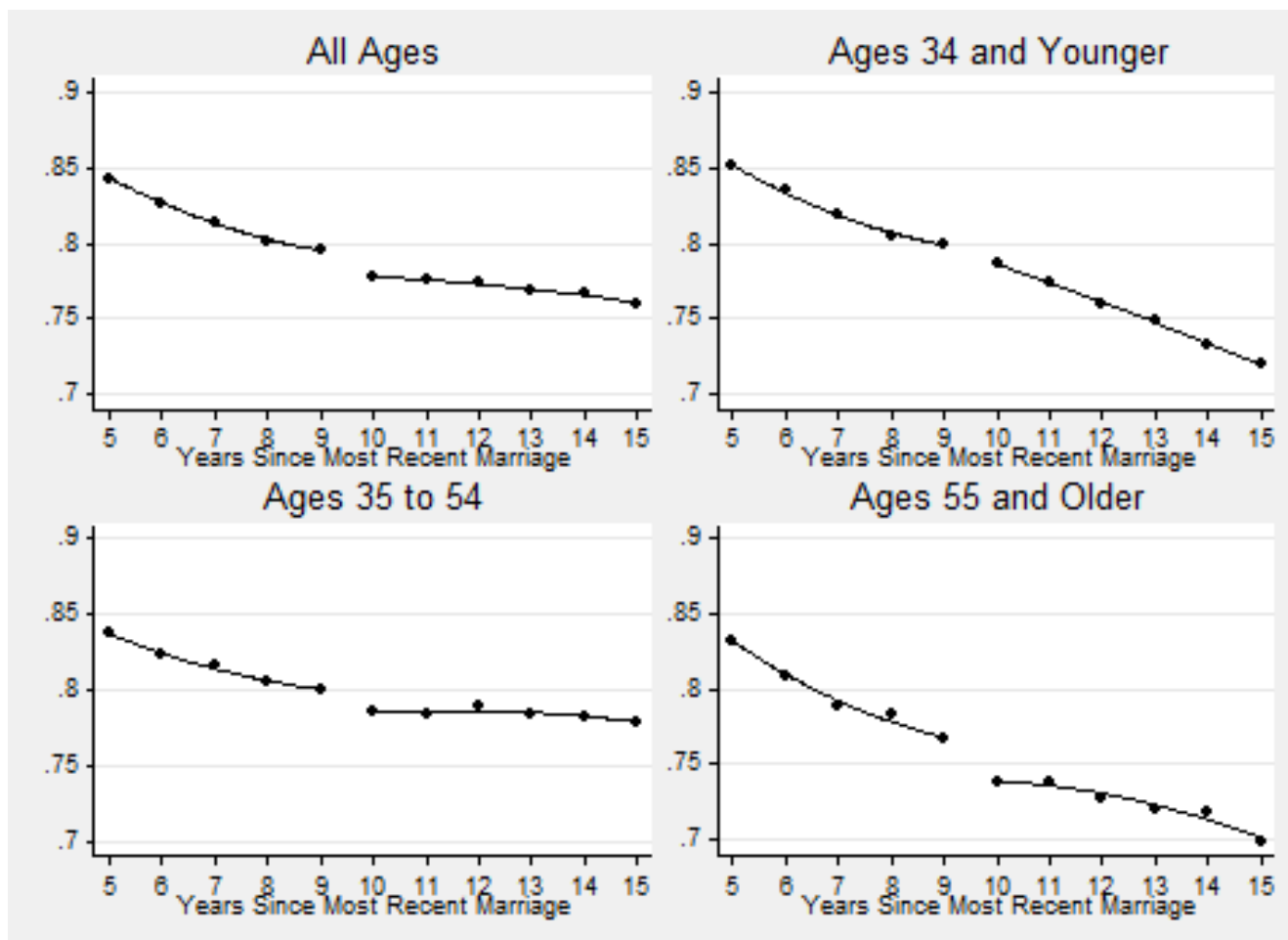


Figure 4 Probability of Remaining Married by Years since Marriage for Five to Fifteen Years, from the 2008 to 2011 American Community Surveys.

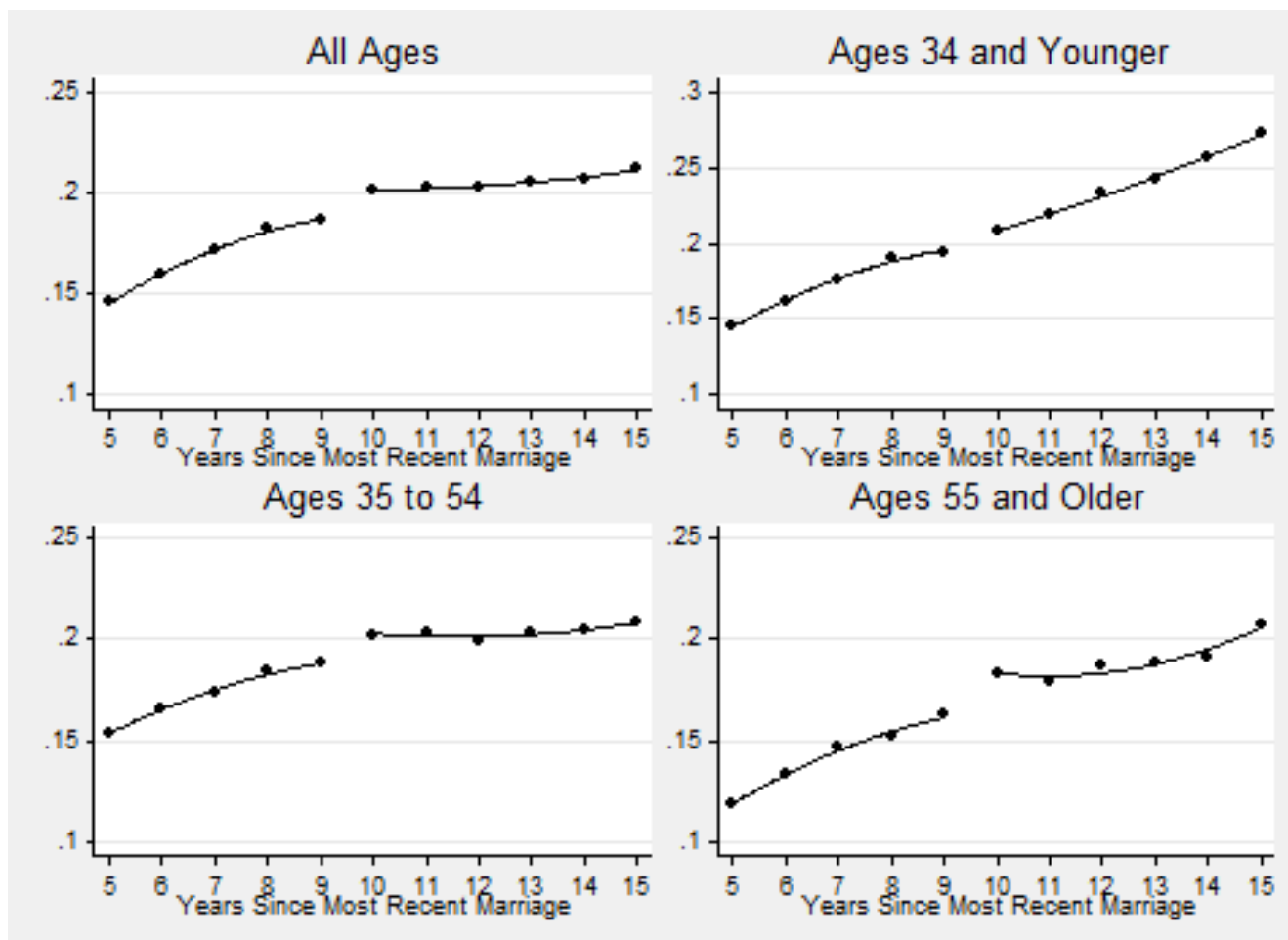


Figure 5 Probability of Being Divorced by Years since Marriage for Five to Fifteen Years, from the 2008 to 2011 American Community Surveys.

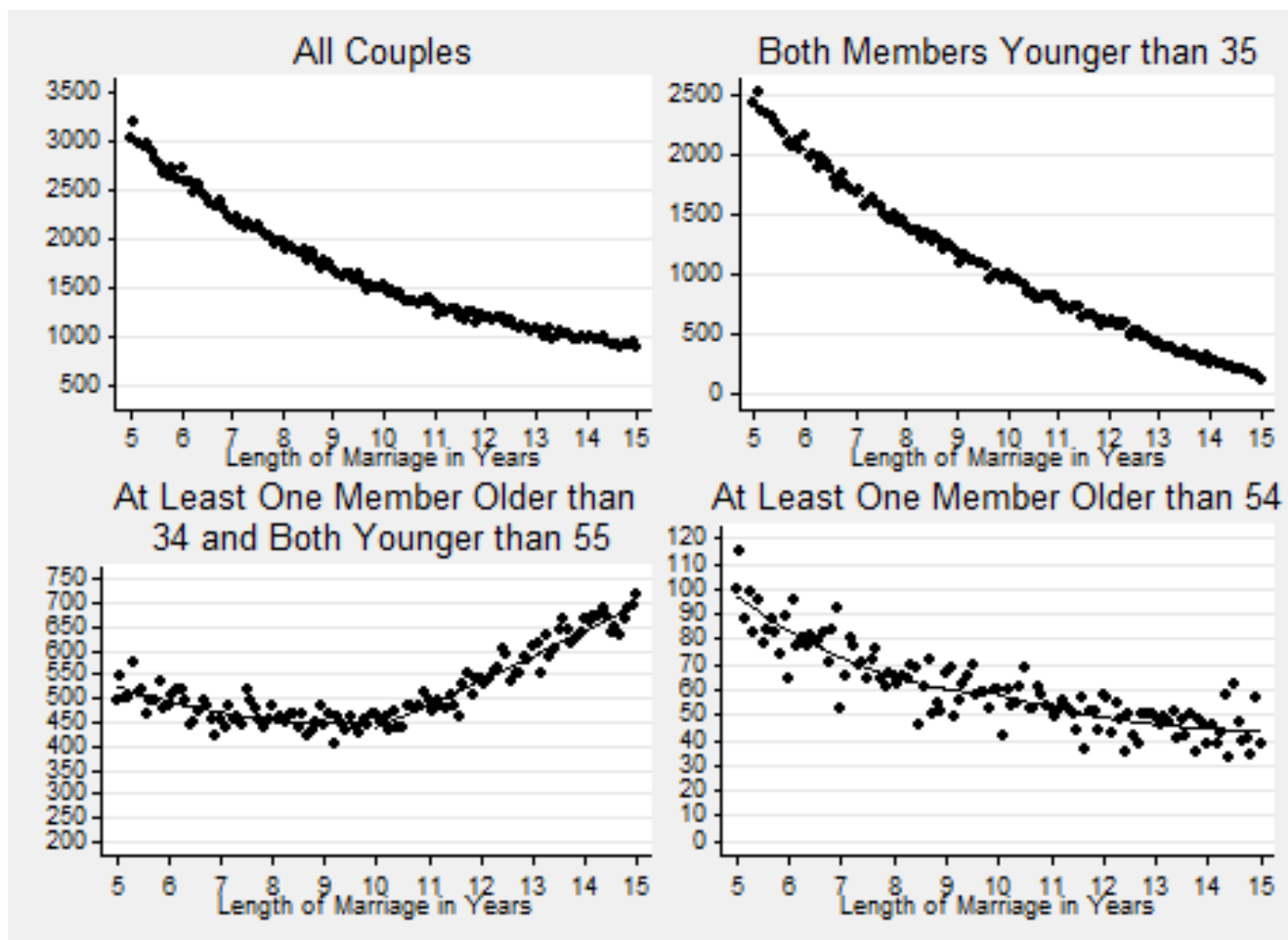


Figure 6 Divorces by Years of Marriage for Five to Fifteen Years, from the 1966 to 1972 Vital Statistics data.

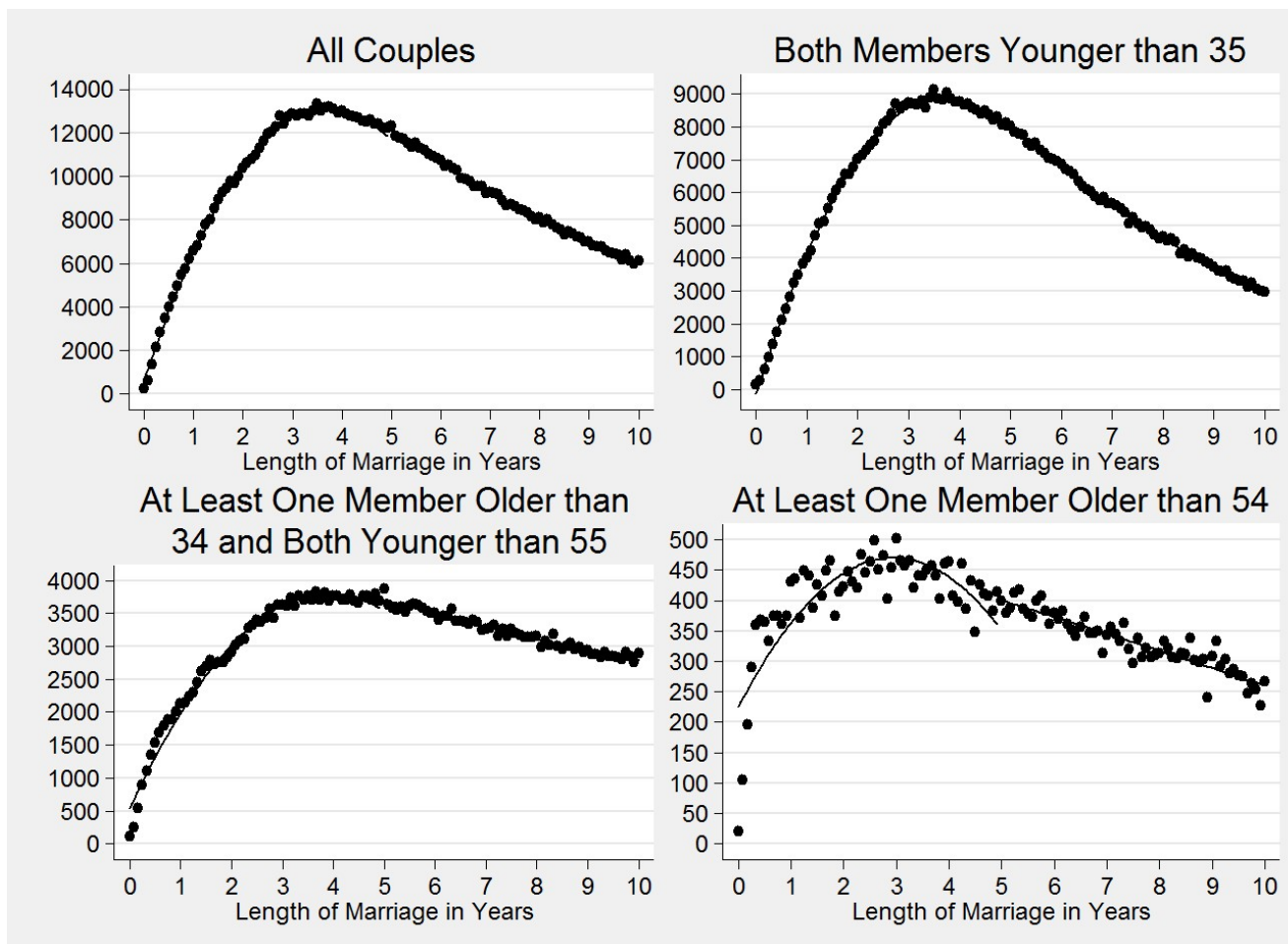


Figure 7 Divorces by Years of Marriage for Zero to Ten Years, from the 1985 to 1995 Vital Statistics data.

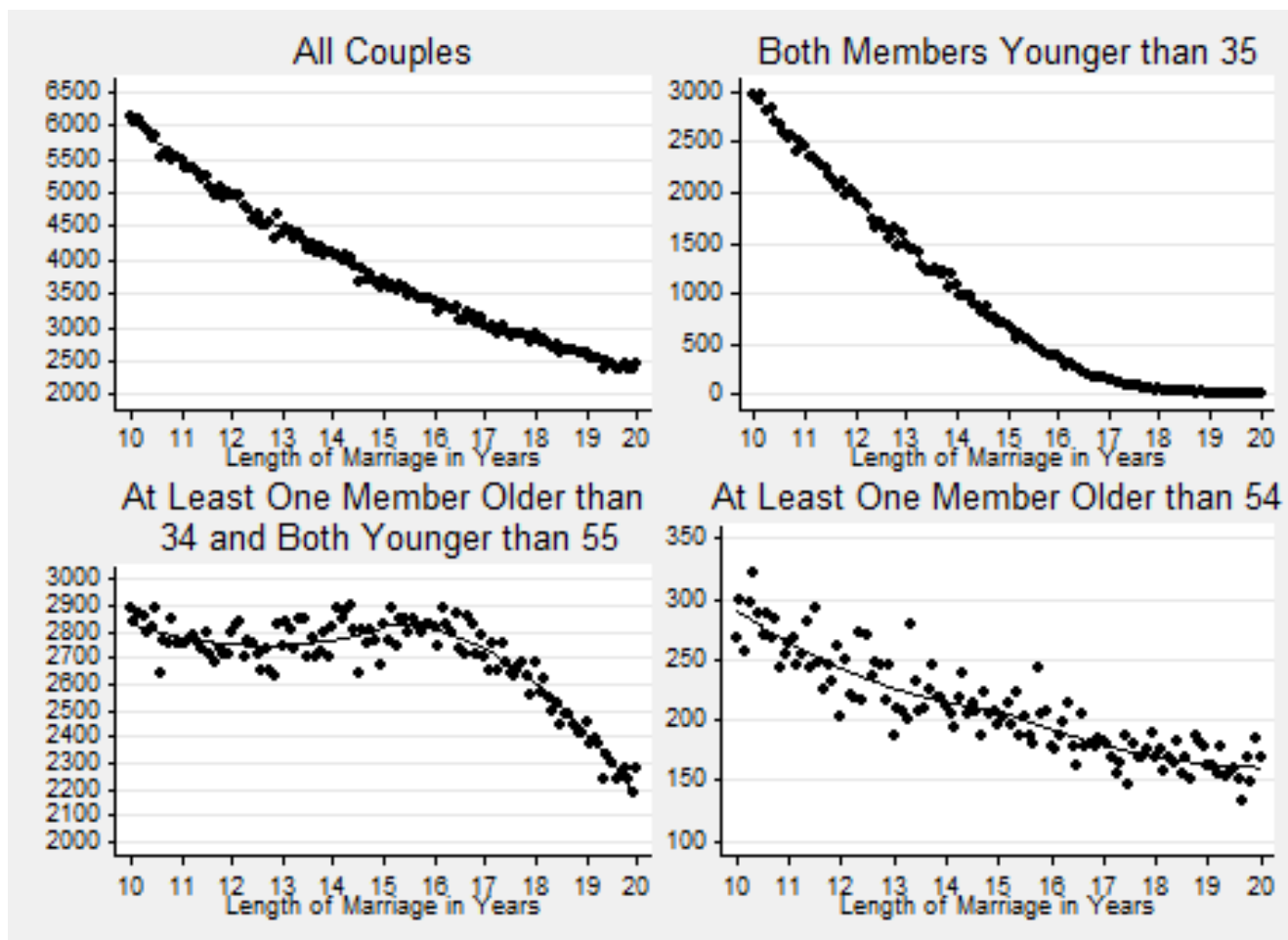


Figure 8 Divorces by Years of Marriage for Ten to Twenty Years, from the 1985 to 1995 Vital Statistics data.