NBER WORKING PAPER SERIES

DID MEDICAID EXPANSION REDUCE MEDICAL DIVORCE?

David Slusky
Donna Ginther

Working Paper 23139
http://www.nber.org/papers/w23139

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
February 2017, Revised January 2018

We thank Rina Na for excellent research assistance. We also thank Emma Sandoe, multiple seminar participants at the University of Kansas, and anonymous reviewers for their helpful comments and suggestions. All remaining errors are our own. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

Did Medicaid Expansion Reduce Medical Divorce?
David Slusky and Donna Ginther
NBER Working Paper No. 23139
February 2017, Revised January 2018
JEL No. I13,J12

ABSTRACT

Medical divorce occurs when couples divorce so that one spouse's medical bills do not deplete the assets of the healthy spouse. We develop a model of medical divorce that demonstrates that divorce is optimal when a couple's joint assets exceed the exempted asset level. We use the Affordable Care Act's Medicaid expansion which removed asset tests to qualify for Medicaid as exogenous variation in the incidence of divorce. We find that the ACA expansion decreased the prevalence of divorce by 11.6% among those ages 50-64 with a college degree. Our results suggest that Medicaid expansion reduced medical divorce.

David Slusky
Department of Economics
University of Kansas
335 Snow Hall
1460 Jayhawk Boulevard
Lawrence, KS 66045
david.slusky@ku.edu

Donna Ginther
Department of Economics
University of Kansas
333 Snow Hall
1460 Jayhawk Boulevard
Lawrence, KS 66045
and NBER
dginther@ku.edu

Introduction

Medical divorce has been discussed as a strategy to preserve the assets of a couple when one spouse gets sick and his or her care results in high medical bills that could potentially bankrupt the couple. During the debate over the Affordable Care Act (ACA), the New York Time's Nicholas Kristof opened a column with the headline, "Until Medical Bills Do Us Part." He told the story of a friend whose husband was diagnosed with early-onset dementia. She faced the prospect of his care draining their entire retirement savings and then winding up a destitute but healthy widow with a long life expectancy. Given this, she considered legally divorcing her husband to shield her assets. He would eventually draw down his assets and be poor enough to qualify for Medicaid, and she would be able to provide her herself in retirement.[1] After the passage of the ACA, states that expanded Medicaid eliminated the asset test for individuals facing a costly long-term illness such as cancer or dementia.[2] Couples living in Medicaid expansion states would not face the dilemma of medical divorce. We examine whether divorce prevalence fell in states that expanded Medicaid and eliminated asset tests, and find significant decreases in divorce among couples with a college education ages 55-64.

Medical divorce has not been studied in the economics literature, but it has been discussed by attorneys and widely reported on in the media. Medical divorce can result from many medical situations. Any medical condition that requires extensive treatment and costly care could make divorce rational. For example, Goldman (2008) relates a story of a woman in Indiana who received a cancer diagnosis and divorced her husband in order to qualify for Medicaid and

[1] Kristof, Nicholas. "Until Medical Bills Do Us Part," *The New York Times,* Aug. 29, 2009. Others have written about this as well. See https://www.forbes.com/sites/feeonlyplanner/2014/08/21/divorce-due-to-medical-bills-sometimes-it-makes-sense/#5e16288d74b8 and http://www.helsell.com/helsell-news/medicaid-divorce-an-overview/.

[2] This asset test was not necessarily eliminated for those seeking long-term nursing home care, and would not apply to the elderly.

receive cancer treatment.[3] In addition, a traumatic brain injury where the injured spouse required nursing care could put a couple into the situation of contemplating medical divorce. In these cases the couple's joint assets are too much for the one spouse to qualify for Medicaid, and in order to receive medical care the couple decides to divorce.

The 2010 Affordable Care Act's Medicaid expansion ostensibly fixed the underlying problem, as it expanded Medicaid to cover all adults under 65 with incomes up to 138% of the poverty line, regardless of assets (Sung, Skopec, and Waidmann 2015). Previously, many states had stringent asset requirements. For example, in Missouri, a permanently disabled individual must have total non-exempt resources[4] under $2000 to qualify.[5] Nine states are community property states where assets and liabilities are split evenly between the spouses. In states that expanded Medicaid, as long as the sick spouse had a low income, the healthy spouse could keep his or her retirement assets intact. However, this fix would only take effect if the couple's state implemented the Medicaid expansion, which the Supreme Court's made optional in National Federation of Independent Business v. Sebelius. Those in non-expansion states would still have an incentive to divorce for medical reasons. One couple in Tennessee (a non-expansion state), even used their situation to lobby their governor to expand Medicaid.[6] Despite these anecdotes,

[3] See: Goldman, Russell. "Woman Divorces to Afford Life-Saving Surgery," *ABC News,* Dec. 5, 2008. http://abcnews.go.com/Health/story?id=6402536&page=1. Other examples of cancer and medical divorce are related in https://www.huffingtonpost.com/hillary-st-pierre/i-considered-a-medicaid-d_b_816668.html and https://www.washingtonpost.com/news/storyline/wp/2014/07/17/marriage-or-medicaid/?utm_term=.6e6b3716a7d4.

[4] Most states do allow the healthy spouse to keep some assets as "exempt resources." Most experts, such as Craig Reaves, past president of the National Academy of Elder Law Attorneys, are of the opinion that "the numbers are just too low for many couples to feel good about this option." https://newoldage.blogs.nytimes.com/2010/06/04/paying-for-the-institutionalized-spouse/.

[5] See https://mydss.mo.gov/healthcare/mo-healthnet-for-people-with-disabilities.

[6] Wilemon, Tom. "Couple married 33 years separate so wife can keep insurance," *The Tennessean*, July 5, 2014.

we know of no estimates as to how prevalent medical divorce is, as many couples who do so do not want to advertise it publicly.

This paper will use the partial Medicaid expansion as plausibly exogenous variation in access to public health insurance that does not require asset drawdown. It will then compare the changes in prevalence of divorce in states that expanded to Medicaid to states that did not expand, before and after implementation. We find that states that expanded Medicaid had an 11.6% reduction in divorce among college-educated individuals aged 50-64. Our estimates also suggest that medical divorce is prevalent among older, high-income couples who have an incentive to do so. The remainder of the paper discusses the literature, data and methods, and results.

Medicaid Expansion, Health Insurance and Divorce

The partial expansion of Medicaid in states provides a plausible source of exogenous variation, and many recent papers have examined its impact on health and economic outcomes. Medicaid expansion increased health care consumption and diagnosis of chronic conditions (Wherry and Miller 2016) and cancer (Soni et al. 2017) and reduced federal disability program participation (Chatterji and Li 2016). Others, however, have found minimal effects on labor force participation, employment status, or hours worked (Leung and Mas 2017; Gooptu et al. 2016; Kaestner et al. 2017). There is some evidence, that those with lower educational attainment are working less in states that expanded Medicaid (Moriya et al. 2016). Finally, there is evidence that Medicaid expansion improved financial stability in households by reducing unpaid bills and medical debt (Hu et al. 2016).

Others have examined the impact of divorce on health insurance. Lavelle and Smock (2012) found approximately 115,000 women annually lose private health insurance after divorce, and more than half of them become uninsured. Couples with spousal health insurance but no other options therefore often stay married to avoid being uninsured (Sohn 2015; Chen 2017). In the work most closely related to ours, Chen (2017) found that Medicare eligibility (at age 65) increases divorce rates. No literature has examined the impact of Medicaid coverage expansions on medical divorce.

Model of Medical Divorce

We develop a simple model to motivate our analysis of medical divorce. Older couples, who have been married for a long period of time, have likely accumulated marriage-specific capital. In the Becker, Landes, and Michael's (BLM) (1977) model of divorce, children are considered "marriage-specific capital," and couples who have lived together longer and have marriage-specific capital are less likely to divorce over time. Given income pooling in the household, we can consider assets such as a house and retirement savings as marriage-specific capital. Income pooling is the appropriate choice here since this is how the government treats the assets of married spouses when it comes to the asset test to qualify for Medicaid.[7] Here we modify the BLM model of the decision to divorce to account for the choices facing older couples where one experiences a health shock requiring expensive care in states that expanded Medicaid and those that did not.

Following Becker (1981), the decision to divorce occurs when the expected utility from being married is less than that of obtaining a divorce. We are assuming that couples pool income

[7] Bargaining models such as Manser and Brown (1980) and McElroy and Horney (1981) offer an alternative to the income pooling model of the household.

and assets within the household. Let the utility of marriage, U_i^M, for an individual *i* be a function of their jointly held assets, V^M. This also holds for spouse *j*. Analogously, let the utility of being single, U_i^D, be a function of the division of the jointly held assets, where spouse *i* receives share π of the assets, and spouse *j* receives share $(1-\pi)$.

$$U_i^M = V^M = U_j^M$$

$$U_i^D = \pi V^M$$

$$U_j^D = (1-\pi)V^M$$

These couples can reside in states that have asset tests for receiving Medicaid (non-expansion states) or states that expanded Medicaid that no longer require asset tests. In addition, some states have community property regulations where the value of jointly held assets is split equally upon divorce (π=.5).[8] In the majority of states, π is determined by an adjudicated settlement known as equitable distribution of property that does not need to be equal. For our purposes, all divorces are the result of mutual consent. Couples choose between remaining married and divorce to maximize utility.

If the utility of marriage is greater than or equal to the utility of divorce for spouse i, $U_i^M \geq U_i^D$, and the same holds true for spouse j, $U_j^M \geq U_j^D$, the couple will remain married. For each spouse, we can rewrite this condition in terms of the value of assets:

$$U_i^M = V^M \geq \pi V^M = U_i^D$$

$$U_j^M = V^M \geq (1-\pi)V^M = U_j^D$$

In other words the value of the jointly held assets from marriage needs to be greater than the value of divided assets in divorce in order for the couple to remain married (3). In this simple

[8] There are nine community property states where assets and medical liabilities are split 50/50 between spouses: Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington and Wisconsin. As shown in Table 3, our results are robust to excluding them.

case, couples will always remain married since the share of marriage-specific capital is always smaller in the case of divorce.

Suppose that one spouse, *i*, gets sick (which reduces utility by S_i,) and requires expensive care. In the absence of asset tests, the cost of that care, valued at C_i, is provided by Medicaid. This added to the utility of marriage:

$$U_i^{M\prime} = V^M - S_i + C_i$$

For the healthy spouse, j,

$$U_j^{M\prime} = V^M$$

Since $V^M - S_i + C_i > \pi V^M - S_i + C_i$ assets remain intact, the sick spouse receives the care they need, and the couple remains married.

In the states that did not expand Medicaid, the healthy spouse is allowed an exemption, E and the remaining assets are spent down so that sick spouse can qualify for Medicaid. The value of marital assets is therefore the maximum amount that can be retained (i.,e., the exemption). In this case, the utility from remaining married becomes $U_i^{M\prime} = -S_i + C_i$ for the sick spouse and $U_j^{M\prime} = E_j$ for the healthy spouse.

Following Becker (1981), the couple would choose to divorce when the additive utility from marriage is less than the utility of divorce:

$$U_{ij}^M \equiv U_i^M + U_j^M \leq U_i^D + U_j^D \equiv U_{ij}^D$$

Substituting in for the value of the assets (and cancelling out S_i), when these marital assets are allocated to long-term care:

$$-S_i + C_i + E_j < \pi V^M - S_i + C_i + (1-\pi)V^M$$

$$E_j < \pi V^M + (1-\pi)V^M$$

$$E_j < V^M$$

As long as the exemption is less than the value of the total marriage assets, the couple has a financial incentive to divorce.

There is also the case when the sick spouse must still spend down his or her entire share of assets, though the healthy spouse is now no longer subject to the exemption threshold. This case would be:

$$-S_i + C_i + E_j < -S_i + C_i + (1-\pi)V^M$$

$$E_j < (1-\pi)V^M$$

Here, the couple still gets divorced as long as the exemption is less than the healthy spouse's post-divorce share.

The maximum Medicaid spousal exemption a state could set in 2017 was $120,900 (Medicaid 2017), and was slightly less in previous years. So a couple in this situation would get medically divorced if their retirement assets were greater than this amount. According to analysis based on the Survey of Consumer Finance, 31% of households aged 55-64 have retirement assets over $100,000 and 20% have retirement assets over $200,000 (GAO 2015).[9] Therefore, it is plausible that a substantial number of individuals would have sufficient assets to consider medical divorce.

Data and Methods

Our research will examine whether divorce incidence differed among older couples in states that did and did not expand Medicaid under the Affordable Care Act. Information on Medicaid expansion status comes from Kaestner et al. (2017) and the Kaiser Family

[9] According to estimates from the Current Population survey, there were 23.9 million households aged 55-64 in 2015.

Foundation.[10] Given the anticipatory nature of medical divorce, we drop a handful of states from our sample: those that had a prior full expansion of Medicaid and those that expanded Medicaid but after the original launch in January 2014.[11] This leaves us with 38 states:

- Traditional expansion states without a full prior expansion: AZ, AR, CA, CO, CT, HI, IL, IA, KY, MD, MN, NV, NJ, NM, ND, OH, OR, RI, WA, WV
- Non-expansion states: AL, FL, GA, ID, KS, MS, MO, NE, NC, OK, SC, SD, TN, TX, UT, VA, WI, WY[12]

This paper's primary data is the Current Population Survey's (CPS) Merged Outgoing Rotation Group for 2000-2016, a consistently estimated survey over the past several decades with a large sample size. [13] This version of the CPS also contains income variables, which will used below in a robustness check. We also supplement this with seasonally unadjusted monthly state unemployment rates come from the Bureau of Labor Statistics' Local Area Unemployment estimates.[14]

We limit the sample to those with a four-year college degree or equivalent (hereafter referred to a as a college degree) and age 50-64. This is because these individuals are more likely have been married for a number of years, have substantial assets, are at greater risk of a degenerative medical condition, and are eligible for the Medicaid expansion. They are also less

[10] See http://kff.org/health-reform/state-indicator/state-activity-around-expanding-medicaid-under-the-affordable-care-act.

[11] Full prior expansion: DE, DC, MA, NY, and VT. Late expanders: AK, IN, LA, MI, MT, NH, PA, and ME. In Table 3, we add back DE, DC, NY, and VT as regular expanders as a robustness check. (We continue to omit MA as its prior expansion was before our "pre" period.)

[12] See Appendix Figure 1 for a color-coded map of states by expansion status.

[13] See http://www.nber.org/morg/annual/.

[14] See https://www.bls.gov/lau/.

likely to be single-mothers, which avoids confounding our results with other modes of Medicaid eligibility.

The empirical method is a straightforward state-month-year difference-in-differences estimation:

$$y_{ismy} = \alpha + \gamma Treated_s + \delta Implemented_{my} + \sigma(Treated_s * Implemented_{my}) + \mathbf{state}_s + \mathbf{year}_y + \mathbf{month}_m + \beta UR_{smy} + \mathbf{X}_{ismy} + \varepsilon_{smy}$$

y is the prevalence of divorce for individual *i*, living in state *s* in month *m* and year *y*. Ideally, we would use divorce incidence by this age group for the given state, month and year. However, these data do not exist. [15] *Treated* equals 1 if a state expanded Medicaid in 2014 and 0 if it did not. The coefficient on *Treated*Implemented* (λ) is our primary difference-in-differences estimate.

Other specifications include additional controls, including **state**, **year**, and **month** fixed effects and the state-month-year level unemployment rate. **X** includes individual level controls, such as age and educational attainment fixed effects and dummies for race and gender. Regressions are weighted using the CPS survey weights. Robust standard errors are clustered at the state level.

We drop the years 2012 and 2013 from our analysis, as it is ambiguous whether these years are treated or not. Individuals knew about the partial Medicaid expansion and whether their states would or would not expand, but the policy had not yet been implemented.

[15] We reached out to the National Center for Health Statistics (NCHS) to inquire about state-level divorce incidence for our age group of interest. Their response was that "the collection of detailed marriage & divorce data was suspended in the mid 1990s due to budget issues….there's no age or other demographic information available from NCHS….[Survey data also] can't provide counts of marriages & divorces in a given year."

Divorce Prevalence Given Medicaid Expansion

Before we address the role of Medicaid expansion, we will first examine the relationship between age and the prevalence of divorce. The BLM (1977) model predicts that those who have been married for longer periods of time are less likely to get divorced. Thus, we would expect older couples to be less likely to divorce since they likely have longer marriage durations. Using the National Longitudinal Survey of Youth (NLSY 79), Aughinbaugh, Robles, and Sun (2013) found that the probability of divorce decreases as educational attainment and age at first marriage increase. Brown and Fen (2012) used data from the American Community Survey and found that the divorce incidence for adults aged 50 or over had more than doubled between 1990 and 2010. However, they found that much of this divorce rate was driven by people in second marriages. In their study, as marriage duration increased, divorce rates declined.

We estimate the prevalence of divorced individuals using the CPS data for the years 2008-2011 (our pre-treatment period) both for those with and without a college degree, finding that divorce increases almost monotonically from age 20 to age 55, and then only declines slightly by age 64.[16] This greater prevalence corresponds to when rates of chronic health conditions are higher. The challenge in interpreting this stylized fact is that many other things are changing as individuals age. One of the contributions of our study is to use the variation in expansion and non-expansion states' in health insurance availability to examine one potential reason that divorce it higher for those over the age of 50.

Next we consider how annual average prevalence of divorce for those 50-64 with at least a college degree in the treated and control states has changed over time. Figure 1 shows that until 2013 the prevalence of divorce followed roughly parallel trends for the control states and

[16] See Appendix Figure 2.

treatment states, with both seeing an increase between two to four percentage points. In 2014-2016 (after the dashed line at 2013) shows the two lines diverging, with an increase in the prevalence of divorce for the control states and a decrease in the treated ones.[17]

[Insert Figure 1 here]

Table 1 then shows the summary statistics and raw difference-in-difference estimates for our outcome of interest and various controls values.

[Insert Table 1 here]

Divorce prevalence dropped significantly in the treated states relatively to the control states ($p<.001$). While two of the difference-in-differences coefficients on the controls are significant (one at the 5% level and one at the 10% level), they can be reasonably explained by a standard Bonferroni multiple hypothesis adjustment.

Table 2 shows our regression results across a variety of specifications.

[Insert Table 2 here]

The estimate found above is extremely robust across difference specifications, including controlling for individual demographic differences, adding state, year, and month fixed effects, and also controlling for the unemployment rate. The estimate in column (4), a 1.6 percentage point increase, is statistically significant ($p<.001$). It represents an 11.6% decrease on the pre-period mean for expansion states of 13.8%. Column (5) adds state-specific time trends. While this results in a substantially less precise estimated, it is still statistically significant ($p=.014$) and is actually larger in magnitude. While it is reassuring that our results are consistent using these specifications, we prefer the cleaner results of column (4) as our primary estimate, especially

[17] Given the concern of potentially different trends in the pre-period, in Appendix Table 1 we regress divorce on a treatment group specific time trend, a general time trend, and varying control specifications, per Akosa Antwi, Moriya, and Simon (2013) and Maclean and Saloner (2017). In none of the regressions do we find a statistically significant difference in these pre-period trends.

given concerns about potentially biases of treatment group-specific time trends (Wolfers 2006; Lindo and Packham 2017).

Table 3 repeats our analysis with alternate specifications, subsamples, and outcome variables.

[Insert Table 3 here]

Column (1) shows consistent results without using the survey weights. Column (2) adds back the dropped prior expansion states (except Massachusetts whose prior expansion was substantially earlier and more comprehensive). The estimated results become slightly larger. Column (3) looks at individuals with earnings of at least $1000/week. While this skews the sample and uses a more endogenous cutoff, the result is still broadly consistent and statistically significant (p=.013). Column (4) omits the nine community property states where assets and medical liabilities are split 50/50, as individuals can shelter less of their assets in those states, and therefore have less of an incentive to divorce. Here the results are also negative and significant.

Columns (5)-(7) then look at the impact of Medicaid expansion on other marriage-related outcomes. As expected, we see an increase in marriage prevalence that is analogous in magnitude to the decrease in divorce prevalence (i.e., we cannot reject that the two are equal in magnitude). We also do not observe any statistically significant change in the prevalence of widowhood or never having been married, neither of which should be should be directly affected by Medicaid expansion.

While this main result may seem large, given the relatively small magnitudes of Medicaid expansion on actual take-up of Medicaid (e.g., in Wherry and Miller 2016), we stress that a couple does not have to actually enroll in the Medicaid Expansion to be treated. All a couple has to do is consider their options (likely while they are still on private insurance), and weigh the

costs and benefits of divorce if there was a significant asset test in their state of residence. Unfortunately, given the paucity of comprehensive data on couples that consider medical divorce and no studies that we are aware of, there is no way to directly compare our results with those of the literature on the more direct effects.

We have estimated the number of individuals who stayed married as a result of the partial Medicaid expansion. In 2015, there were approximately 8 million individuals age 50-64 with at least a college degree in the states that expanded Medicaid on-schedule. A 1.6 percentage point decrease in the divorce rate would have meant that approximately 130,000 fewer individuals (i.e., 65,000 fewer couples) got divorced as a function of the on-schedule Medicaid expansion. While this estimate is larger than we had anticipated, there are no other robust estimates of the magnitude of medical divorce for us to benchmark it against.[18] Thus, our results indicate that medical divorce is a significant contributor to the incidence of divorce among older adults.

Robustness Checks

While Figure 1 suggests that the prevalence of divorce followed parallel trends until the passage of the ACA, we will run placebo regressions following Slusky (2017) to check this assumption. This test uses the same grouping of states as above but compares them using different years of data before and after a "placebo" Medicaid expansion. For example, instead of comparing 2014-2016 to 2008-2011, compare 2010-2012 to 2004-2007. Table 4, Panel A shows the results of these regressions.

[Insert Table 4 here]

[18] In presenting the results of this paper, we have been consistent shocked by the number of individuals who have approached us and reported that medical divorce was recommended to their parents. These anecdotes, combined with the results of this paper, have also led us to believe that medical divorce is far more common than previously reported.

Columns (1)-(5) then compare the prevalence of divorce for earlier in time periods of 3 control years, 2 dropped years ambiguous years, and 3 treated years.[19] None of the coefficients are statistically significant at even the 10% level nor are the point estimates larger in magnitude than our estimated results. Indeed, the placebo point estimates are all an order of magnitude smaller. Additionally, divorce prevalence (shown in the "mean" row) has remained relatively constant for the college educated 50-64 population.

Table 4, Panel B contains the results of estimating our model on four placebo populations for whom we do not expect Medicaid expansion to affect medical divorce. If Medicaid expansion reduces financial distress in households and improves overall health, this would likely reduce divorce rates for everyone in states that expanded Medicaid. As a result, if our estimates are capturing changes in medical divorce, we should only observe a significant impact of Medicaid expansion for those who were older and had both increased rates of illness and higher levels of assets.

Column (1) is the other half of the 50-64 sample used for the main regressions above: those with less than a college degree. These individuals are much less likely to have sufficient retirement savings and other assets that would create incentives for a medical divorce. As expected, we do not find a statistically significant effect here. Column (2) is analogous to column (2) in Table 3: those 50-64 with less than $1000 of earnings per week. Here we also do not see any statistically significant effects. Columns (3) and (4) examine those with at least a college degree but outside our target age range. Those 25-49 are likely too young to have the kind of degenerative health problems that would potentially lead to medical divorce, and likely do not have sufficient retirement assets. Those 65 and over were not eligible for the ACA's

[19] To be more conservative in ensuring we do not have statistically significant placebo results, we use year and month fixed effects separately in the specification for Table 4.

Medicaid expansion which was only designed to cover those too young to qualify for Medicare. In both cases we do not see any statistically significant results.

In Appendix Table 2, we check our results for the subsample of each of the eight rotation groups in the CPS (as opposed to the MORG file which includes only the 4th and 8th), using the basic CPS abstracts from IPUMS (Flood et al. 2017) and find that our results are consistently negative and significant. In Appendix Table 3, we show that our results are negative and significant if we control for home ownership and as expected if we stratify by home ownership (hypothesizing that owners to be more affected by Medicaid expansion). In Appendix Table 4, we estimate the divorce models separately by race. The effects are all of the same magnitude, though not statistically significant for blacks given the small number of blacks with at least a college education. Finally, in Appendix Table 5, we repeat our analysis using the ACS from IPUMS (Ruggles et al. 2017) and find similar results. Overall, these robustness checks suggest that our estimates are identifying changes in the incidence of medical divorce.

Conclusion

Ours is the first paper that we are aware of that examines and quantifies the extent of medical divorce for older couples in any context. We began our analysis by modeling the economic rationale for medical divorce. Our simple model indicates that whenever assets exceed the asset exemption, couples have an economic incentive to divorce. Although vital statistics do not provide estimates of the divorce rate by age, we use the CPS to analyze divorce incidence. The ACA's Medicaid expansion provides an ideal natural experiment to examine whether there might be medical divorce. If medical divorce were truly rare, we should observe no significant differences in divorce in the treatment and control states. Our results indicate that medical divorce is far more prevalent than previously assumed.

We found that the ACA's Medicaid expansion reduced the prevalence of divorce among college-educated individuals ages 50-64 by 1.6 percentage points, which is 11.6% decrease on the pre-expansion mean for the treated states. This suggests that Medicaid without asset limits for individuals significantly reduced the incidence of divorce among older and more highly-educated adults. Consistent with the predictions of our model, our results strongly suggest that medical divorce was reduced in the first years of the Affordable Care Act.

References

Akosa Antwi, Yaa, Asako S. Moriya, and Kosali Simon. 2013. “Effects of Federal Policy to Insure Young Adults: Evidence from the 2010 Affordable Care Act's Dependent-Coverage Mandate.” *American Economic Journal: Economic Policy* 5(4): 1-28.

Aughinbaugh, Alison, Omar Robles, and Hugette Sun. 2013. "Marriage and divorce: patterns by gender, race, and educational attainment." *Monthly Labor Review,* U.S. Bureau of Labor Statistics, October 2013. https://doi.org/10.21916/mlr.2013.32.

Becker, Gary S. 1981. *A Treatise on the Family*. Cambridge: Harvard University Press.

Becker, Gary S., Elisabeth M. Landes, and Robert T. Michael. 1977. “An Economic Analysis of Marital Instability.” *Journal of Political Economy* 85(6): 1141-87.

Brown, Susan L., and I-Fen Lin. 2012. “The Gray Divorce Revolution: Rising Divorce Among Middle-Aged and Older Adults, 1990–2010.” *The Journals of Gerontology: Series B* 67(6): 731-41. https://doi.org/10.1093/geronb/gbs089.

Chatterji, Pinka, and Yue Li. 2016. “Early Effects of the 2010 Affordable Care Act Medicaid Expansions on Federal Disability Program Participation.” National Bureau of Economic Research Working Paper 22531.

Chen, Tianxu. 2017. “Health Insurance Coverage and Marriage Behavior: Is There Evidence of Marriage-Lock?” *Mimeo* available at http://tianxuchen.weebly.com/uploads/2/2/8/1/22817854/marriage_lock_tianxu_chen.pdf.

Flood, Sarah, Miriam King, Steven Ruggles, and J. Robert Warren. “Integrated Public Use Microdata Series, Current Population Survey: Version 5.0. CPS.” Minneapolis, MN: University of Minnesota. https://doi.org/10.18128/D030.V5.0.

Goldman, Russell. 2008. “Woman Divorces to Afford Life-Saving Surgery.” *ABC News,* Dec. 5, 2008. http://abcnews.go.com/Health/story?id=6402536&page=1.

Gooptu, Angshuman, Asako S. Moriya, Kosali I. Simon, and Benjamin D. Sommers. 2016. “Medicaid Expansion Did Not Result in Significant Employment Changes or Job Reductions in 2014.” *Health Affairs* 35(1): 111-18.

Hu, Luojia, Robert Kaestner, Bhashkar Mzumber, Sarah Miller, and Ashley Wong. 2016. “The Effect of the Patient Protection and Affordable Care Act Medicaid Expansions on Financial Well-being.” National Bureau of Economic Research Working Paper 22170.

Kaestner, Robert, Bowen Garrett, Anuj Gangopadhyaya, and Caitlyn Fleming. 2017. “Effects of ACA Medicaid Expansion on Health Insurance Coverage and Labor Supply.” *Journal of Policy Analysis and Management* 36(3): 608–42.

Lavelle, Bridget, and Pamela J. Smock. 2012. “Divorce and Women’s Risk of Health Insurance Loss.” *Journal of Health and Social Behavior* 53(4): 413–31.

Leung, Pauline, and Alexandre Mas. 2017. “Employment Effects of the ACA Medicaid Expansions.” *Industrial Relations*, forthcoming.

Lindo, Jason M., and Analisa Packham. 2017. “How Much Can Expanding Access to Long-Acting Reversible Contraceptives Reduce Teen Birth Rates?” *American Economic Journal: Economic Policy* 9(3): 348-76.

Maclean, Johanna Catherine, and Brendan Saloner. 2017. “The Effect of Public Insurance Expansions on Substance Use Disorder Treatment: Evidence from the Affordable Care Act.” National Bureau of Economic Research Working Paper 23342.

Manser, Marilyn, and Murray Brown. 1980. "Marriage and Household Decision-Making: A Bargaining Analysis." *International Economic Review* (21)1: 31-44.

McElroy, Marjorie B., and Mary Jean Horney. 1981. “Nash-Bargained Household Decisions: Toward a Generalization of the Theory of Demand.” *International Economic Review* 22(2): 333-49.

Medicaid. 2017. “2017 SSI and Spousal Impoverishment Standards.” https://www.medicaid.gov/medicaid/eligibility/downloads/spousal-impoverishment/2017-ssi-and-spousal-impoverishment-standards.pdf.

Moriya, Asako S., Thomas M. Selden, and Kosali I. Simon. 2016. “Little Change Seen In Part-Time Employment as A Result of the Affordable Care Act.” *Health Affairs* 35(1): 119-23.

Ruggles, Steven, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. 2017. “Integrated Public Use Microdata Series: Version 7.0 ACS.” Minneapolis: University of Minnesota. https://doi.org/10.18128/D010.V7.0.

Slusky, David J.G. 2017. “Significant Placebo Results in Difference-in-Differences Analysis: The Case of the ACA’s Parental Mandate.” *Eastern Economic Journal* 43(4):580-603.

Sohn, Heeju. 2015. “Health Insurance and Risk of Divorce: Does Having Your Own Insurance Matter?” *Journal of Marriage and Family* 77(4): 982-95.

Soni, Aparna, Kosali Simon, John Cawley, and Lindsay Sabik. 2017. “Effect of Medicaid Expansions of 2014 on Overall and Early-Stage Cancer Diagnoses.” *American Journal of Public Health,* forthcoming.

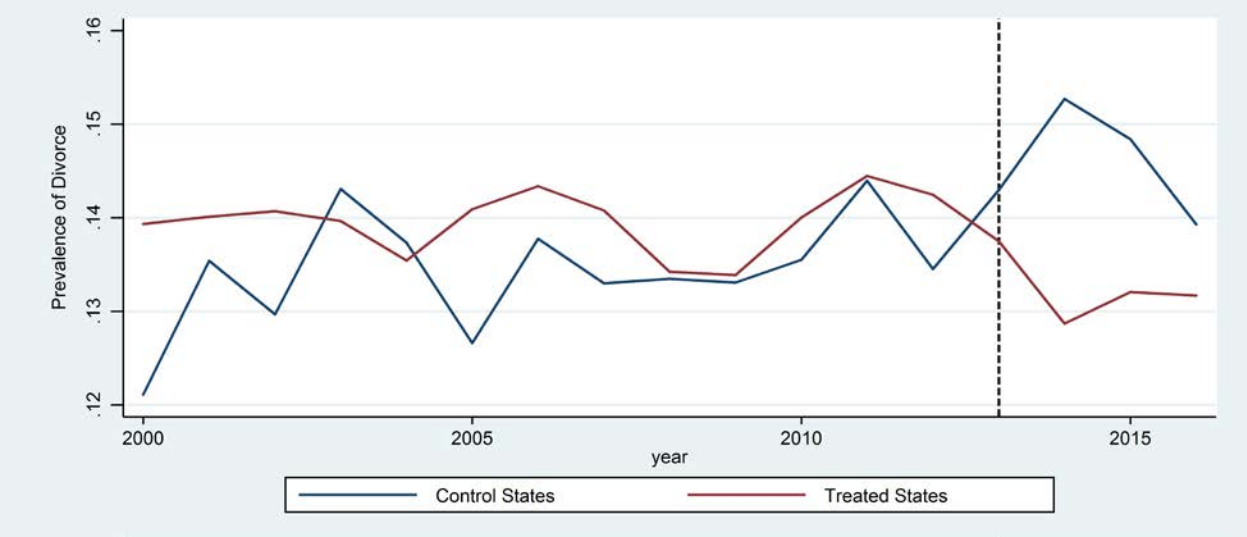
Sung, Jane, Laura Skopec, and Timothy A. Waidmann. 2015. “Monitoring the Impact of Health Reform on Americans Ages 50–64.” AARP Public Policy Institute.

U.S. Government Accountability Office (GAO). 2015. “Retirement Security: Most Households Approaching Retirement Have Low Savings.” GOA-15-419. http://www.gao.gov/assets/680/670153.pdf.

Wherry, Laura R., and Sarah Miller. 2016. “Early Coverage, Access, Utilization, and Health Effects Associated with the Affordable Care Act Medicaid Expansion: A Quasi-Experimental Study.” *Annals of Internal Medicine* 164(12): 795-803.

Wolfers, Justin. 2006. “Did Unilateral Divorce Laws Raise Divorce Rates? A Reconciliation and New Results.” *American Economic Review* 96(5): 1802-20.

Figure 1: Prevalence of divorce in treatment and control states



Notes: The vertical dashed line is at 2013, the last pre-expansion year.

Table 1: Summary Statistics

	Control States		Treated States		
	2008-2011	2014-2016	2008-2011	2014-2016	
Divorced	0.137	0.147	0.138	0.131	-0.0174***
					(0.00357)
Married	0.746	0.729	0.723	0.727	0.0213***
					(0.00602)
Widowed	0.0289	0.0298	0.0280	0.0274	-0.00151
					(0.00237)
Never Married	0.0756	0.0804	0.0961	0.101	0.000604
					(0.00419
Age	56.58	56.72	56.54	56.72	0.0378
	(4.221)	(4.310)	(4.228)	(4.292)	(0.0683)
Female	0.495	0.518	0.492	0.507	-0.00804*
					(0.00472)
Black	0.0908	0.104	0.0540	0.0641	-0.00342
					(0.00680)
Unemployment Rate	8.111	5.161	8.907	5.724	-0.233
	(2.227)	(0.960)	(2.334)	(1.190)	(0.439)
College Degree	0.620	0.639	0.616	0.618	-0.0170**
					(0.00805)
Master's Degree	0.276	0.265	0.276	0.275	0.00990
					(0.00763)
Professional Degree	0.0543	0.0434	0.0548	0.0497	0.00575
					(0.00355)
Doctorate	0.0503	0.0532	0.0539	0.0581	0.00136
					(0.00268)
N	30,114	24,745	43,888	31,663	

Notes: Weighted means (and standard deviations for non-dummy variables) for treated and control states, before and after Medicaid expansion. Difference in difference coefficients are calculated from weighted OLS, with robust standard errors clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Regression Results

	(1) Divorced	(2) Divorced	(3) Divorced	(4) Divorced	(5) Divorced
Treated* Implemented	-0.0174***	-0.0162***	-0.0160***	-0.0160***	-0.0270**
	(0.00357)	(0.00359)	(0.00364)	(0.00359)	(0.0110)
Observations	130,410	130,410	130,410	130,410	130,410
R-squared	0.000	0.012	0.015	0.015	0.016
Mean	0.138	0.138	0.138	0.138	0.138
Demographic Controls		X	X	X	X
Unemployment Rate		X	X	X	X
State Fixed Effects			X	X	X
Year Fixed Effects			X		
Month Fixed Effects			X		
Year-Month Fixed Effects				X	X
State-Specific Time Trends					X

Note: Dependent variable is a divorce dummy for 50-64. 2008-2011 and 2014-2016, with at least a college degree. Demographic controls include age and educational attainment fixed effects and dummies for race and gender. Robust standard errors in parenthesis clustered at state level. Weighted. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Additional Result and Specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Outcome variable	Divorced	Divorced	Divorced	Divorced	Married	Widowed	Never Married
Notes	No weights	Including Early Expanders	High Income	Dropping 50/50 states			
Treated* Implemented	-0.0150***	-0.0163***	-0.00845**	-0.0150***	0.0189***	-0.000802	0.000735
	(0.00419)	(0.00343)	(0.00340)	(0.00486)	(0.00550)	(0.00201)	(0.00420)
Observations	130,410	147,678	268,221	92,643	130,410	130,410	130,410
R-squared	0.014	0.015	0.010	0.017	0.028	0.016	0.009
Mean	0.137	0.136	0.160	0.130	0.723	0.0280	0.0961

Note: Dependent variable is a relationship status dummy as indicted for 50-64. 2008-2011 and 2014-2016. All regressions include individual level controls, the monthly state unemployment rate, and state, year-month fixed effects. Column (2) adds back DE, DC, NY, and VT. Columns (1)-(2) and (4)-(7) are for those with at least a college degree. Column (3) is for those with weekly income of at least $1000. Robust standard errors in parenthesis clustered at state level. Columns (2)-(7) are weighted. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Placebo Results

Panel A: Placebo Time Periods (All for those 50-64 with a college degree)

	(1)	(2)	(3)	(4)	(5)
Control Years	2004-2007	2003-2006	2002-2005	2001-2004	2000-2003
Treated Years	2010-2012	2009-2011	2008-2010	2007-2009	2006-2008
Treated* Implemented	-0.00116	-0.00113	-0.00137	0.00208	-0.00116
	(0.00438)	(0.00477)	(0.00633)	(0.00661)	(0.00711)
Observations	124,292	121,217	117,978	113,066	106,540
R-squared	0.014	0.015	0.016	0.017	0.017
Mean	0.140	0.140	0.139	0.139	0.140

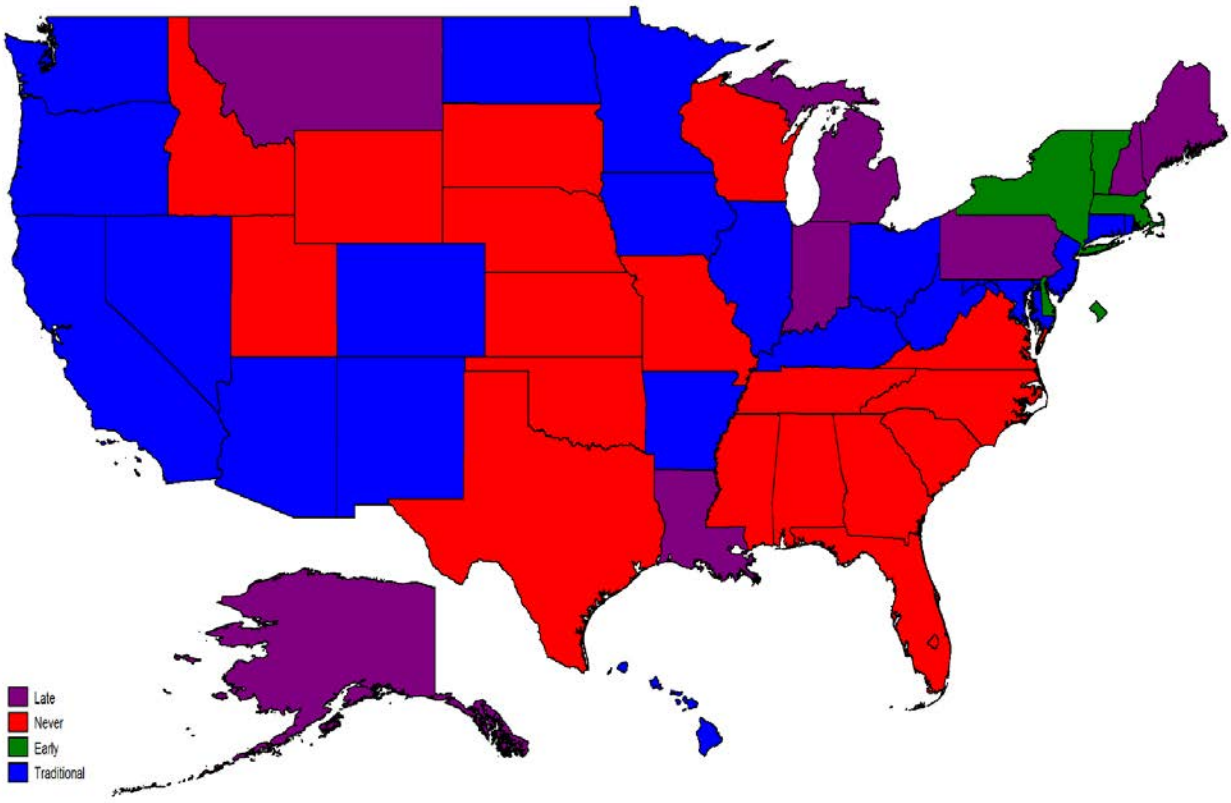
Panel B: Placebo Subsamples

	(1) Low Education	(2) Low Income	(3) Age 25-49	(4) Age 65+
Treated* Implemented	-0.00327	-0.00751	-0.00202	0.00438
	(0.00428)	(0.00627)	(0.00455)	(0.00611)
Observations	293,121	150,929	233,033	74,890
R-squared	0.008	0.016	0.027	0.025
Mean	0.175	0.170	0.0649	0.109

Note: Dependent variable is a divorce dummy. All regressions include individual level controls, the monthly state unemployment rate, and state, year, and month fixed effects. Robust standard errors in parenthesis clustered at state level. In Panel B, Column (1) is for those 50-64 with educational attainment less than a college degree. Column (2) is for those 50-64 with weekly earnings less than $1000. Columns (3) and (4) are for those with at least a college degree. Weighted. *** p<0.01, ** p<0.05, * p<0.1.

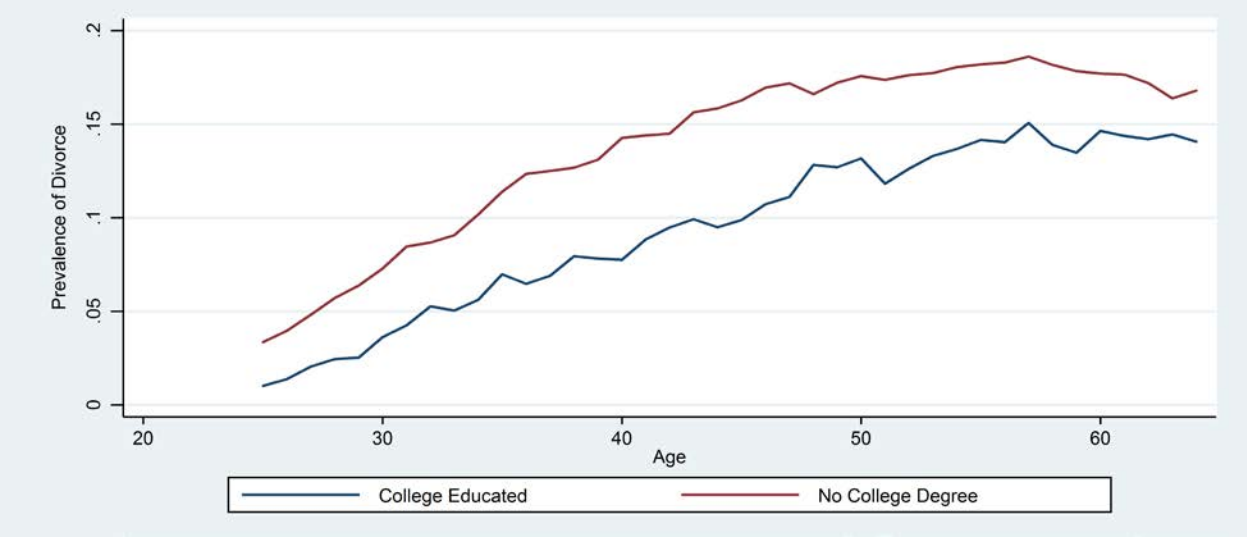
Online Appendix

Appendix Figure 1: States that expanded Medicaid by timing of expansion



Notes: Our treatment group is the traditional states that expanded Medicaid in January of 2014. Our control group consists of the never expanded. Early and Late expanders are dropped from the analysis.

Appendix Figure 2: Prevalence of divorce by age by education



Notes: Weighted average divorce prevalence for each age and educational group for the years 2008-2011.

Appendix Table 1: Checking for Pre-Trends

	(1)	(2)	(3)
Treated Group Monthly Linear Time Trend	3.52e-05	4.95e-05	-4.55e-05
	(7.67e-05)	(7.93e-05)	(7.53e-05)
Observations	195,208	195,208	195,208
R-squared	0.000	0.012	0.015
Demographic Controls		X	X
Unemployment Rate		X	X
State Fixed Effects			X

Note: Dependent variable is a divorce dummy. 2000-2011. Robust standard errors in parenthesis clustered at state level. Regressions also include a common monthly linear time trend. Weighted. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 2: Results by Rotation Group

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rotation Group	1	2	3	4	5	6	7	8
Treated* Implemented	-0.0155**	-0.0151**	-0.0138**	-0.0134**	-0.0157***	-0.0153***	-0.0167***	-0.0189***
	(0.00654)	(0.00728)	(0.00513)	(0.00507)	(0.00474)	(0.00364)	(0.00352)	(0.00366)
Observations	62,712	64,436	64,641	64,661	64,012	64,844	65,155	65,749
R-squared	0.017	0.017	0.016	0.017	0.016	0.017	0.016	0.016
Mean	0.142	0.142	0.141	0.140	0.137	0.135	0.137	0.136

Note: Dependent variable is a divorce dummy for 50-64. All regressions include individual level controls, the monthly state unemployment rate, and state and year-month fixed effects. Robust standard errors in parenthesis clustered at state level. Weighted. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 3: Results by Home Ownership

	(1) Controlling for home ownership	(2) Homeowner	(3) Renter
Treated* Implemented	-0.0142***	-0.0154***	0.00588
	(0.00399)	(0.00342)	(0.0167)
Observations	130,410	115,323	15,087
R-squared	0.042	0.015	0.034
Demographic Control	X	X	X
Unemployment Rate	X	X	X
State Fixed Effects	X	X	X
Year-Month Fixed Effects	X	X	X
Mean	0.138	0.118	0.282

Note: Dependent variable is a divorce dummy for 50-64. All regressions include individual level controls, the monthly state unemployment rate, and state, year-month fixed effects. Robust standard errors in parenthesis clustered at state level. Weighted. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 4: Results by Race

	(1) All	(2) White & Black	(3) White	(4) Black
Treated * Implemented	-0.0164*** (0.00352)	-0.0177*** (0.00377)	-0.0184*** (0.00389)	-0.0171 (0.0212)
Observations	130,410	119,510	111,345	8,165
R-squared	0.013	0.013	0.013	0.040
Demographic Control	X	X	X	X
Unemployment Rate	X	X	X	X
State Fixed Effects	X	X	X	X
Year-Month Fixed Effects	X	X	X	X
Mean	0.138	0.145	0.142	0.201

Note: Dependent variable is a divorce dummy for 50-64. All regressions include individual level controls, the monthly state unemployment rate, and state, year-month fixed effects. Robust standard errors in parenthesis clustered at state level. Weighted. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 5: Results Using the ACS

	(1)	(2)	(3)	(4)	(5)	(6)
Data set	CPS	ACS	ACS	ACS	ACS	ACS
Outcome	Divorced	Divorced	Divorced	Divorced	Divorced	Married
Treated* Implemented	-0.0206***	-0.00468**	-0.00383**	-0.00356**	-0.00356**	0.00626**
	(0.00435)	(0.00175)	(0.00162)	(0.00168)	(0.00168)	(0.00264)
Observations	93,840	3,662,901	3,662,901	3,662,901	3,662,901	3,662,901
R-squared	0.015					
Demographic Controls	X		X	X	X	X
State Fixed Effects	X			X	X	X
Year Fixed Effects	X				X	X
Mean	0.140	0.147	0.147	0.147	0.147	0.719

Note: Dependent variable is a divorce or married dummy for 50-64, as indicted. 2009-2011 and 2014-2015, with at least a college degree. Demographic controls include age and educational attainment fixed effects and dummies for race and gender. Robust standard errors in parenthesis clustered at state level. Weighted. ACS refers to the 5-year microdata. *** p<0.01, ** p<0.05, * p<0.1.