Divorce, remarriage and old age poverty

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1 Introduction

Divorce ranks as one of the top two most stressful events an individual can go through in his lifetime, second only to the death of a spouse. It is consistently ranked above imprisonment, personal injury or illness, dismissal for work and even death of a close family member in the Holmes and Rahe Stress Scale (Holmes and Rahe, 1967), which rates that 43 stressful events that can contribute to illness.

Several papers have studied the economic and psychological costs of marital disolution. These studies typically conclude that the short- and medium-term costs of divorce are significant and asymmetric across spouses (Holden and Smock, 1991). Women appear to bear the brunt of the cost, while men are only minimally affected. Several hypothesis have been put forward to explain these gender differences, from the asymmetric cost of caring for children after divorce, to the effect of specialization during marriage or that lack of adequate insurance post separation.

In this paper we focus on the long-term consequences of divorce. In particular, we study how divorce affects women's post-retirement outcomes, including labor force participation, pension income, savings, and health. We also examine the evolution of these outcomes over the last 4 decades. By concentrating on the last part of the lifecycle, we are able to determine whether divorce should be viewed as a transitional or permanent shock, and its associated degree of persistence. We choose to focus on women because the economic consequences of divorced are more negative for them than they are for men. Moreover, together with widows, divorced women comprise the largest share of the group of elderly individuals living below the poverty line.

This paper builds on the literature that has documented the socioeconomic impact of divorce (Couch et al. (2011), Duncan and Hoffman (1985), Holden and Smock (1991), Jacknowitz and Soeni (2003), Morgan (1989), Tamborini et al. (2012), Zissimopoulos et al. (2008)). Some of these papers have used samples of older women to compare the wellbeing and socioeconomic status of those "currently married" versus those who are widows or "currently divorced". This literature concludes that non-married women -i.e., those divorced, widowed or never married- are worse off than their married counterparts. Moreover, the outcomes for older divorced women have not changed much in the last 40 decades.

Classifying women according to their marital status in old age can masks interesting trends and lead to biased conclusions regarding the consequences of divorce (Zissimopoulos et al. (2008)). First, the proportion and the characteristics of women becoming divorce has changed considerably in the last 4 decades. The divorce rate rose sharply after the introduction of unilateral divorce in the 70's but subsequently declined (Wolfers, 2008). Second the probability of remarriage has declined substantially over the same period. Both trends are likely to generate selection effects that complicate the interpretation of results obtaining from the comparison of the "currently married" versus "currently divorced".

A few papers have used longitudinal data to control for selection into either divorce or remarriage (Duncan and Hoffman (1985), Zissimopoulos et al. (2008)). These papers have provided more accurate estimates of the consequences of divorce. However, a more structural approach is needed in order obtain a deeper understanding of the interaction of the divorce, remarriage, and labor supply decisions at older ages.

In this paper we develop a structural model of remarriage, labor supply and savings decisions which we calibrate to fit the behavior of women from the 1940-1949 cohort. These women reached middle age after 1980. Thus, those who divorced in their 40s or later did so after the transitional period that accompanied the gradual introduction of unilateral divorce in the US. We then use the model to check whether changes in the characteristics of divorcees and the probability of remarriage can account for the old-age outcomes of the cohort that reached middle age in the 70's. Finally, the model allows us to predict the economic welbeing and labor force participation trends for women who are currently in middle age and have not yet reached retirement age.

2 Empirical Analysis

In this section we use several datasets to illustrate the main facts regarding the characteristics of divorcees, the probability of remarriage and old-age outcomes that we will explain with the model.

A. Divorce and Remarriage Probabilities

We use the 1996 and 2009 retrospective marital status from the Survey of Income and Program Participation (SIPP) to document the evolution of the divorce and remarriage probabilities over the last 4 decades.

Tables 1 to 4 show the proportion of women in different cohorts who had divorced or remarried at different ages. The color scale indicates the time period when divorces in each cell were taking place. Red cells refer to divorces that were taking place before the introduction of unilateral divorce. Grey cells refer to divorces that were taking place in the transitional period during which unilateral divorce was introduced in the US (1970-1980). Finally, blue cells indicate that divorces took place after the introduction of unilateral divorce. Our focus is on middle-aged divorces, shown in tables 3 and 4. The first two tables are provided for comparison.

Tables 1 and 2 show that the probability of divorcing before age 30 and that of divorcing between ages 30 and 39 increased considerably across the cohorts considered. The probability of divorcing before age 30 was 4 timer larger for women from the 1950-59 cohort, compared to the 1910-19 cohort. The probability of divorcing between ages 30 and 39 was twice as high for the 1950-59 than the 1910-19 cohort. Simultaneously, the probability of remarrying conditional of having divorced before age 30 and between ages 30 and 39 declined. A point worth noting is that these probabilities seem to follow increasing time trends, rather than jump discontinuously around

the time of introduction of unilateral divorce. This is consistent with Wolfers' (2006) observation that the introduction of unilateral divorce explains only a small fraction of the increasing trends in divorces in the US over the period.

Figure 1: Probability of divorcing before and up to age 29 for different cohorts

				last divorced at age <=29			
Cohort	Birth years	N	Age (min, max)	N	Prob divorce	Probability remarriage	Avg year divorce
10	1910-1919	2,347	77-84	103	4.39	93.20	1939
9	1920-1929	3,426	67-76	178	5.20	93.82	1948
8	1930-1939	3,753	57-66	276	7.35	85.87	1959
7	1940-1949	5,175	60-69	514	9.93	86.77	1971
6	1950-1959	7,163	50-59	912	12.732	76.97	1979
5	1960-1969	7,304	40-49	873	11.952	75.95	1989

NOTE. - Series constructed using data from the 1996 and 2009 waves of the SIPP.

Figure 2: Probability of divorcing between ages 30 and 39 for different cohorts

				last divorced at age 30-39			
Cohort	Birth years	N	Age (min, max)	N	Prob divorce	Probability remarriage	Avg year divorce
10	1910-1919	2,347	77-84	121	5.16	82.64	1949
9	1920-1929	3,426	67-76	160	4.67	79.38	1960
8	1930-1939	3,753	57-66	322	8.58	57.76	1971
7	1940-1949	5,175	60-69	546	10.55	56.78	1980
6	1950-1959	7,163	50-59	828	11.56	51.57	1989
5	1960-1969	7,304	40-49	1003	13.73	32.40	1999

NOTE. - Series constructed using data from the 1996 and 2009 waves of the SIPP.

Focusing now on middle aged women, table 3 shows that the probability of divorcing between ages 40 to 49 increased by a factor of 4 between the 1910-19 and the 191940-49 cohort, while the probability of remarriage almost halved. Similar results are shown in table 4 for divorces occurring between the ages of 50 and 59, and subsequent remarriages.

The large changes in divorce and remarriage probabilities underscore the possibility of selection on both margins. In the model we control for observables of divorcees, and explicitly model selection into remarriage, which is determined simultaneously with labor supply and savings decisions.

B. Old Age Poverty

Figure 5 shows the proportion of women living below the poverty line as a function of age for different cohorts. The data come from the 1980, 1990, 2000 and 2010 Censuses. Several points

Figure 3: Probability of divorcing between ages 40 and 49 for different cohorts

				last divorced at age 40-49			
Cohort	Birth years	N	Age (min, max)	N	Prob divorce	Probability remarriage	Avg year divorce
10	1910-1919	2,347	77-84	56	2.39	53.57	1960
9	1920-1929	3,426	67-76	171	4.99	44.44	1969
8	1930-1939	3,753	57-66	284	7.57	32.75	1979
7	1940-1949	5,175	60-69	419	8.10	32.46	1990
6	1950-1959	7,163	50-59	714	9.97	17.23	1999
5	1960-1969	7,304	40-49				

NOTE. - Series constructed using data from the 1996 and 2009 waves of the SIPP.

Figure 4: Probability of divorcing between ages 50 and 59 for different cohorts

				last divorced at age 50-59			
Cohort	Birth years	N	Age (min, max)	N	Prob divorce	Probability remarriage	Avg year divorce
10	1910-1919	2,347	77-84	38	1.62	34.21	1970
9	1920-1929	3,426	67-76	109	3.18	23.85	1979
8	1930-1939	3,753	57-66	170	4.53	11.76	1988
7	1940-1949	5,175	60-69	251	4.85	10.36	1999
6	1950-1959	7,163	50-59				
5	1960-1969	7,304	40-49				

NOTE. - Series constructed using data from the 1996 and 2009 waves of the SIPP.

points are noteworthy: first, the proportion of women below the poverty line increases over the retirement years. During these years, many women become divorce, and even more become widows. Previous studies have singled out marital dissolution as a poverty risk factor for older women. Second, the proportion of women below the poverty line at all ages decreases considerably between 1990 and 2000. This is likely as a result of the welfare reform of the late 1990s (add reference). Thirds, the series for widows and divorcees intersect in the mid 60s in all 4 graphs. This trend indicates that the relative outcomes of widows depend on the age at widowhood. Women who become widows relatively early are likely to be a lower socioeconomic stratum. Moreover, husbands who die early have less time to accumulate assets and accrue pension plans that they can bequeath to their wives upon their death. Hence, even after conditioning on both spouses' education, early widows are likely to be worse off than those who become widows well into old age. Finally, the series for widows and divorcees track each other relatively closely, although the last two graphs show a slight divergence, i.e., divorcees become more likely to be poor than widows in the last two samples.

Figure 5: Probability of being below the poverty line as a function of age.

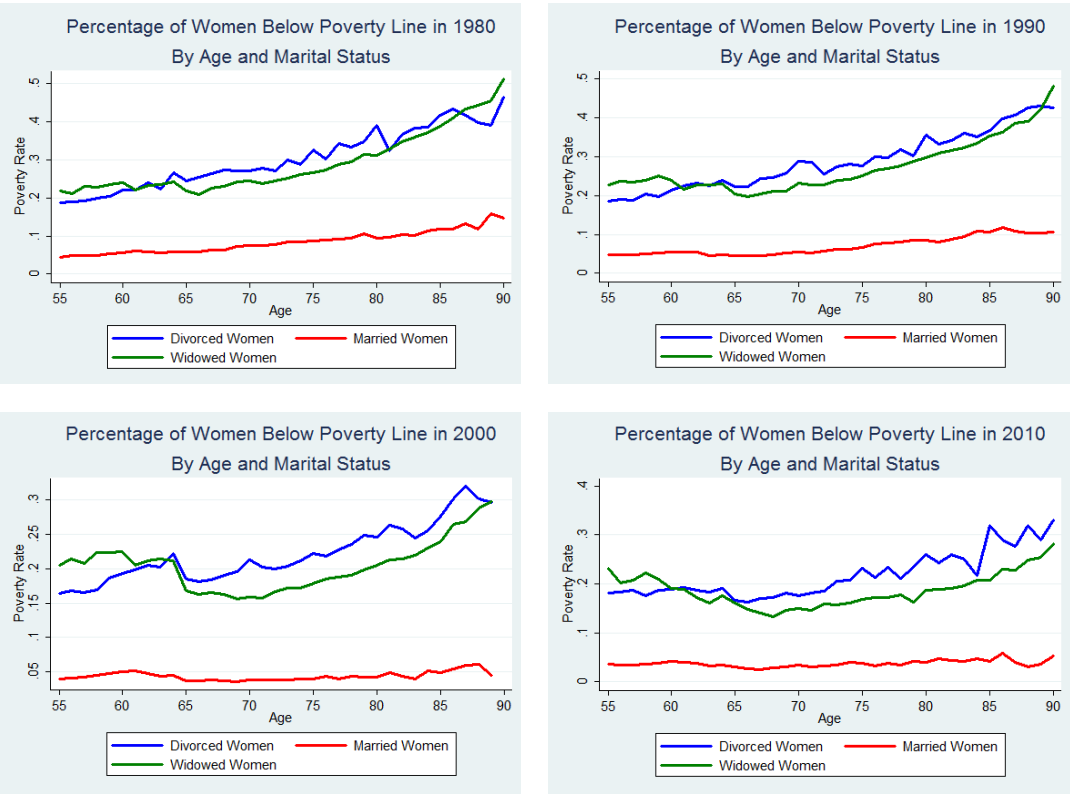
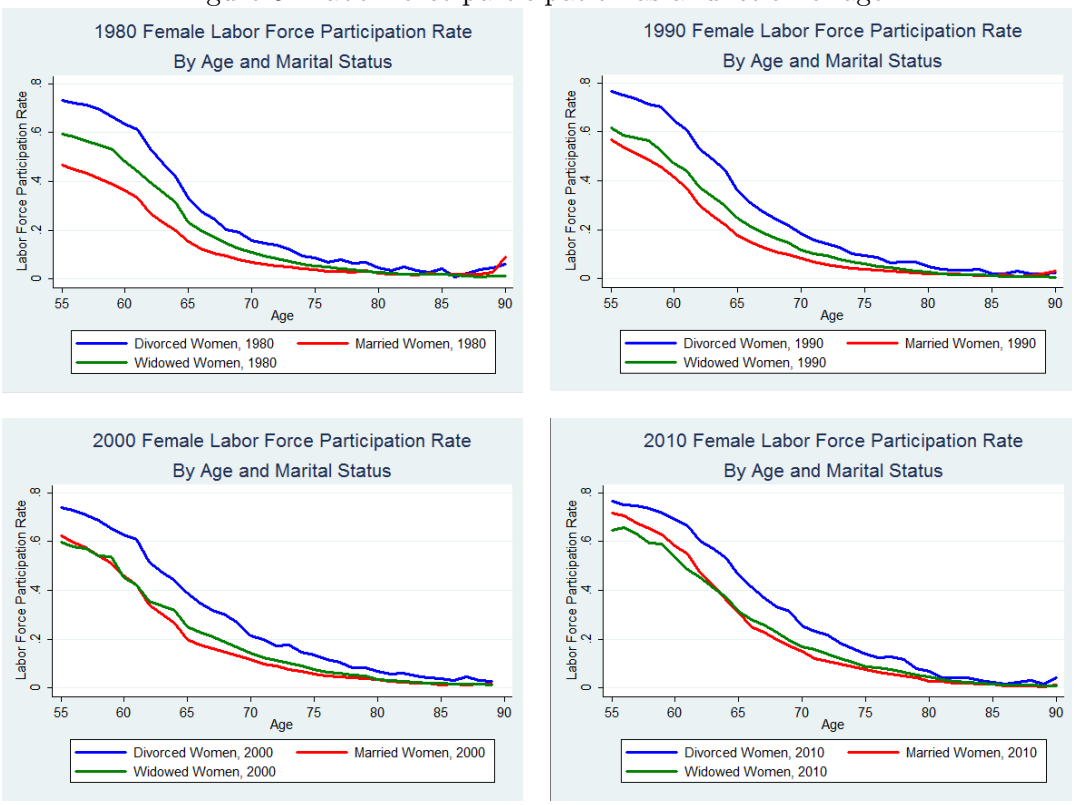


Figure 6: Labor force participation as a function of age.



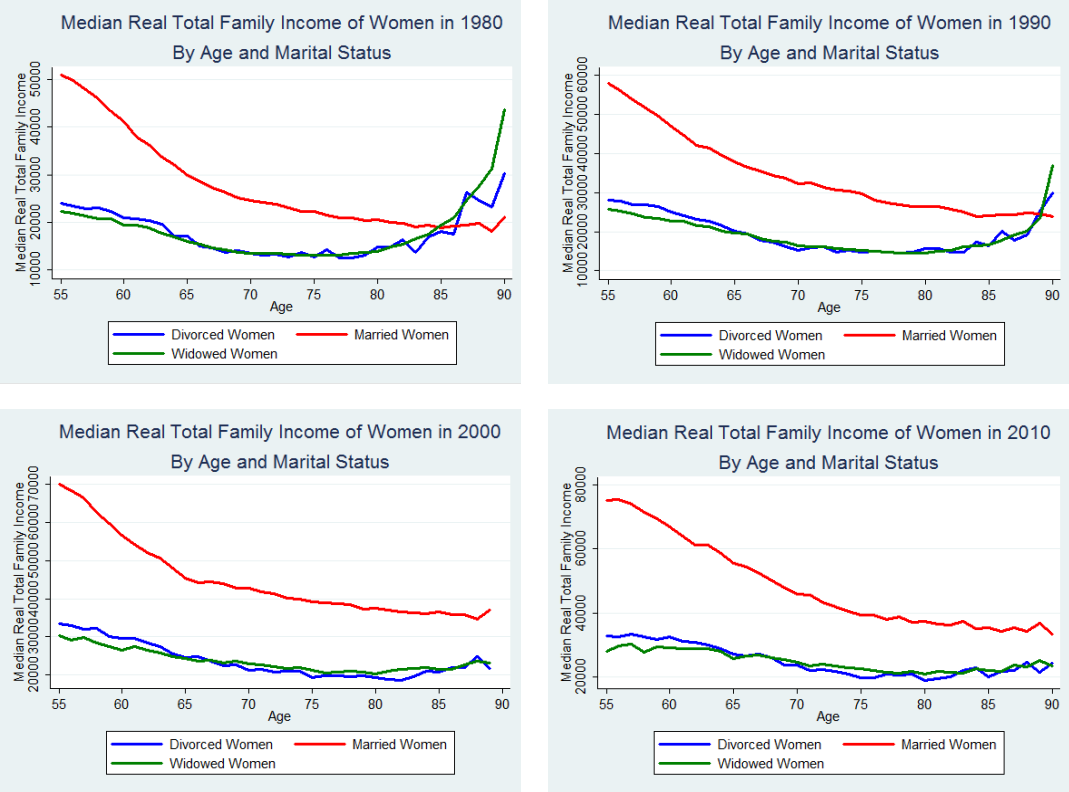
C. Labor Force Participation

Figure 5 shows the labor force participation rate, as a function of age, for different cohorts. Participation declines rapidly over the retirement years, and few women remain employed beyond age 75. What is striking are the differences across marital statuses and how these evolve over time. The first two series show that divorced women are more likely than widows to be employed at every age in 1980 and 1990. At the same time, widows are more likely than married women to be employed at every age. By 2000, however, widows have become indistinguishable from married women, while divorcees' participation rates remain the highest. These figures suggest that divorced women need to work until later ages, possibly because of lower income levels from social security of other sources. They are even more suggestive than the graphs in figure 5 of a wellbeing gap between divorcees and widows, with the latter being better off. In other words, widows appear to be better shielded against the effects of marital dissolution than divorcees.

D. Income

Median family income is plotted in figure 7 as a function of age for the 4 different censuses. We make

Figure 7: Family income as a function of age.

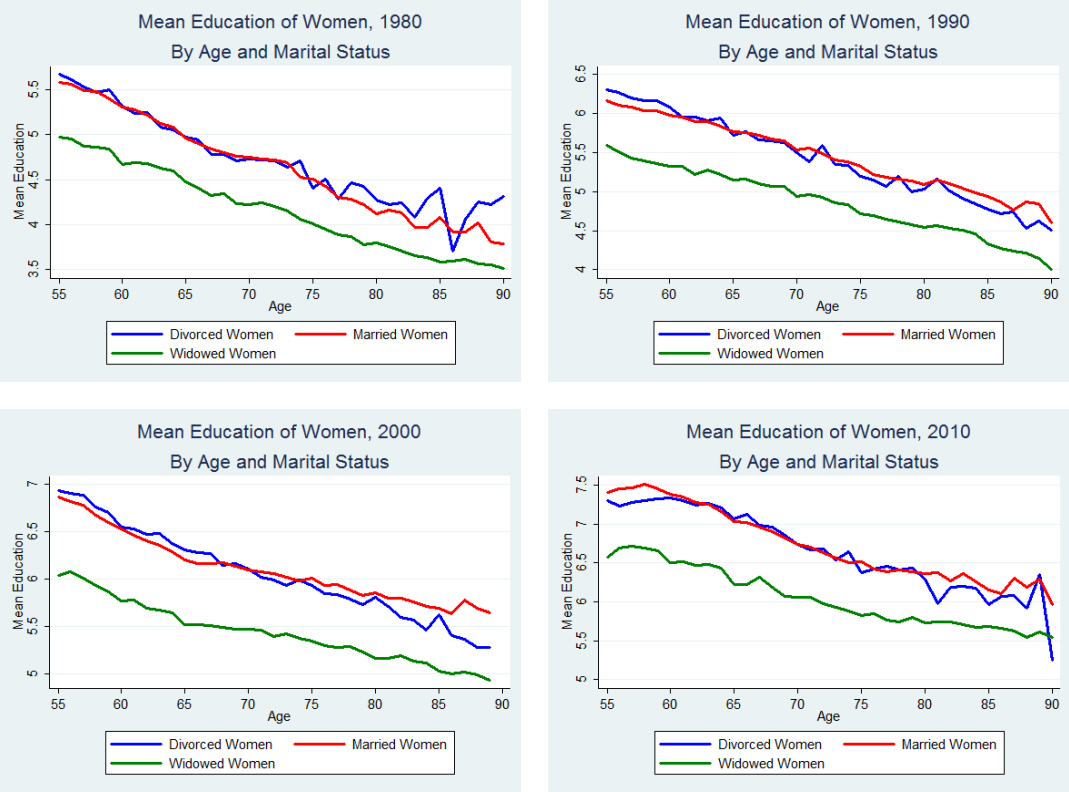


no attempt to control for family size at this stage. It is worth noting, however, that the income of women in married households is approximately twice as high as that of households headed by widows or divorcees. To the extent that economies of scale are present, this suggests once more than married women are better off than non-married ones. The income of widows and divorces women is very similar in all years. The results, couples with those presented in figure 6 regarding labor force participation, indicate that divorce women are much more likely to need to delay retirement in order to maintain the same level of income as widows, who are able to retire earlier.

E. Education

To investigate the extent of selection into divorce, we plot the average education level as a function of age in figure 8. The graphs show the age-education gradient that is well-known for women. More interestingly, the educational level of divorced and married women is essentially the same, whereas widows are less educated, on average. The education wedge between married and widows becomes smaller with age, as more women transit from the "married" into the "widow" category. The results indicate that divorced women are most comparable to married women, but their post-retirement

Figure 8: Family income as a function of age.



outcomes are equal or worse than those of widows, whose educational level is considerably lower. We do not find strong evidence of changes in the relative characteristics over time, suggesting that selection on education has stayed relatively constant for the different cohorts we will consider.

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