Do Men Recover from Divorce Better than Women? ——By Remarriage or by Bankruptcy?

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Abstract: This paper will present the analysis and results of the two possible ways post-divorced people adopt to realize recovery in economic status to explain the reason why post-divorced men have a better condition than women. We use PSID (Panel Study of Income Dynamics) data from 1993 to 2007 to testify our assumptions. We find that non-remarried men are better off than women and are more likely to remarry and benefit from remarriage than women after divorce, which strengthens the discrepancy in economic status between sexes. However, post-divorced men and women behave more similarly with regard to the possibility of filing for bankruptcy than before.

1. Introduction

Women are usually considered as the underprivileged and therefore their more worse off economic conditions after divorce than men are regarded natural. While changed expectations and the huge increase in women labors in the workforce may leave wives less dependent on their spouses and readier to fend for themselves after divorce, to everyone's surprise, researchers still found that divorced women suffered from the same economic difficulties, especially sharp drops in income, as the women in the past several decades, like 1970s.

At the same time, the nonbusiness bankruptcy filings rate have risen a lot from 3‰ in 1994 to 5.3% in 2004. And the divorce rate is declining, from 4.6‰ in 1994 to 3.3‰ in 2013 (National Vital Statistics System), as well as marriage rate. During this period, the ratio of bankruptcy filings for men to women is approximately 48/52. Economic interdependence seems to be related to changes in divorce rates.

Data from NVSS shows that having no children at the end of the first marriage is associated with a higher likelihood of entering a new cohabitation. Also, the probability of remarriage is dependent on women's age, which is higher for women under age 25 at divorce. Consequently, women's post-marital status is highly related to their children, if they have, and childcare undoubtedly has an impact on their economic status. Besides, financial strain could influence people's marital status conversely (Sullivan, Warren& Westbrook, 1995, 2000). The probability of remarriage is positively correlated with their family income, thus allowing for a polarized condition to happen, which poses a threat to women's improvement of independence as we expected.

Bankruptcy may do the same. Several studies show a positive relationship between divorce rate and bankruptcy (Duncan & Hoffman, 1985). However, Fay, Hurst and White (2002) asserted that the divorce effect on bankruptcy was not obvious while financial benefits had more influence. But their research was based on data from 1984 to 1995 and focused on financial benefits. It is possible that the indirect influence of divorce has been neutralized. Moreover, Edmiston and Kelly (2005) reported that "a 1-percentage-point increase in divorce would lead to 7.8 additional bankruptcies per 1,000 households each year" (p.78).

What reactions do the post-divorced people choose and what are the effects? Is there any sexual difference? To find out reasons behind the disproportionate decreasing of income between

post-divorce men and women, all these questions need answers.

2. Data and Framework

In 1996, the Panel Study of Income Dynamics (PSID) asked respondents whether they had ever filed for bankruptcy and, if so, in what year(s). Later, it collected answers of the first question in 1997, 2002 and 2007. Our data set is a combined cross-section, time-series sample of PSID households from 1993 to 2007. We run logit regressions explaining whether sexual difference causes disproportional economic change in human life after divorce.

The independent and dependent variables test two hypotheses:

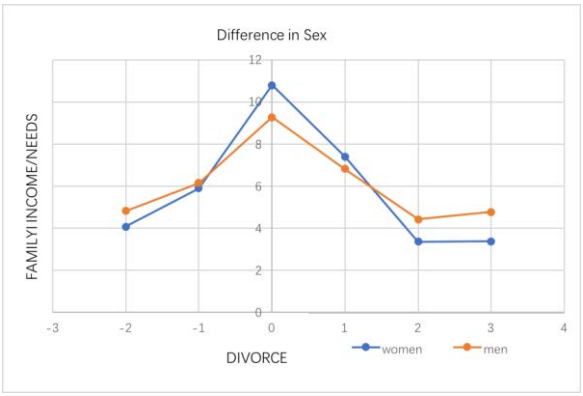
(1) whether post-divorce men are more likely to remarry and benefit more from it;

(2) whether men gain an edge in recovering from divorce by filing for bankruptcy.

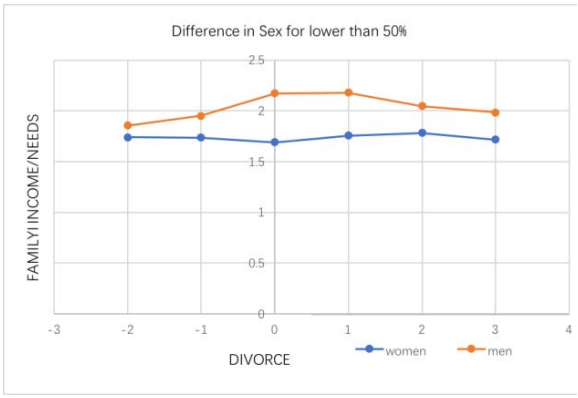
2.1. Descriptive Analysis

We first consider whether disproportional drop in income between post-divorce men and women exists. In the previous work, almost all the studies agree on that divorce leads to a sharp drop in women's income and women are much financially worse off than men afterwards (Sullivan et al., 2000).

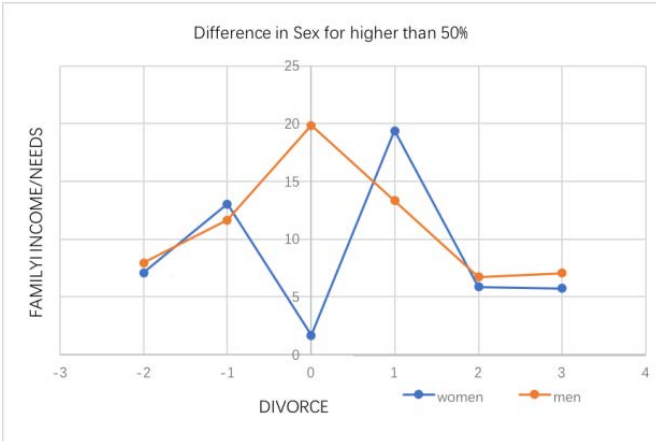
In our finding, income flows surrounding a divorce or separation (graph A.1). Suppose that economic status is measured by family income, adjusted for family composition; call this measurement family income/needs (abbreviated as FIN). Obviously, women suffer from sharper fluctuation around divorce than men. It is natural to see a decrease in both curves, while a little strange to observe a sharp increase in divorce year. However, it changes when we divide them into two groups by family income. As for those whose family income is lower than median (i.e. $42712), fluctuation does not seem big. In contrast, for the richer group, we can see women suffer a lot on the divorce year but recovers quickly in the next year, while men, instead, have a slight increase in FIN. This testifies our initial claim and also indicates that richer people suffer more from divorce to some extent.



graph A.1



graph A.2

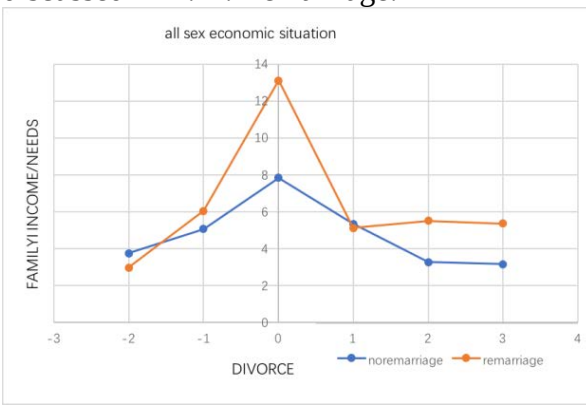


graph A.3

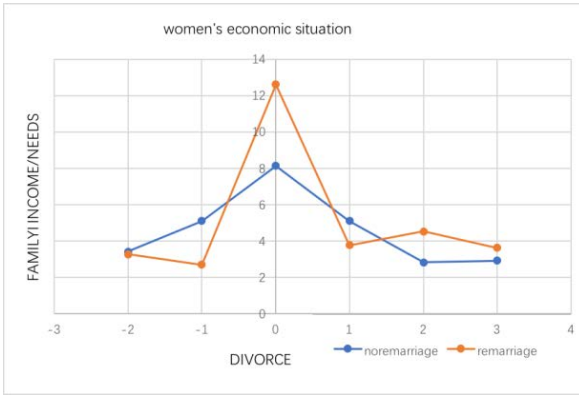
Then, why could this disproportion occur? Apart from the traditional social roles of women, the ways they adopt to get rid of divorce shock are also crucial in explaining their different post-divorce conditions.

Some researchers found the remarriage helps individuals recover from economic shocks caused by divorce (Duncan & Hoffman, 1985). Besides, bankruptcy is also set to give debtors a new start, which in fact is almost an equivalent choice for debtors filing for either chapter 7 or chapter 13 (Fay et al., 2002). As two exits from divorce shock, remarriage and bankruptcy are likely to be adopted by post-divorce individuals. Thus, the sexual discrepancy in choice may as well explain the disproportion.

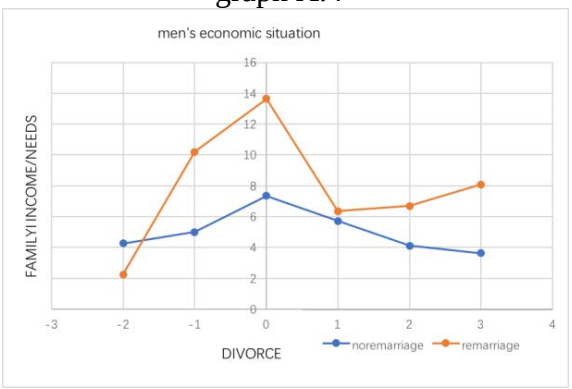
To start with, we briefly examine the effect of remarriage. *Remarried* group has an evident bounce in its curve while *non-remarried* counterpart does not (graph A.4). We can also split the effect and see exclusively in one sex. Whether to remarry is also an important post-divorce key to financial rehabilitation (Sullivan et al., 2000), so that those non-remarried group of people may be more financially robust. What's more, it is more likely for this *remarried* group to have a sharper decrease in FIN (graph A.5). We could still find this remarried group recover quickly two years later. For men, the decrease of FIN after divorce is not as severe as that for women (graph A.6). And the *remarried* group's decrease in FIN quickly decelerates and even return to increase until ending up with a more favorable situation than *non-remarried* group. Above all, remarriage indeed helps individuals recover from divorcing but acts more like a life-saving straw rather than a lifeboat. The exploration to find out the degree of difficulty faced by women and men who want to remarry will be discussed in II. B. Remarriage.



graph A.4



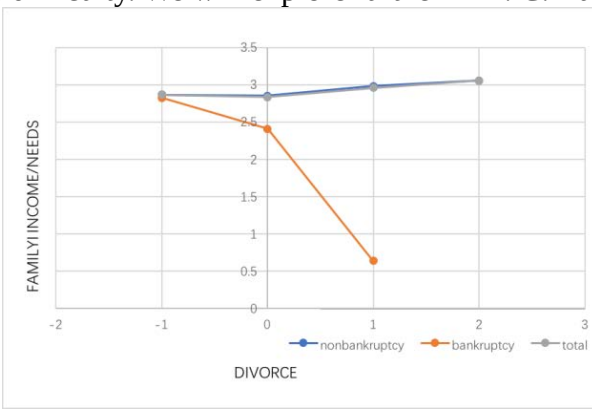
graph A.5



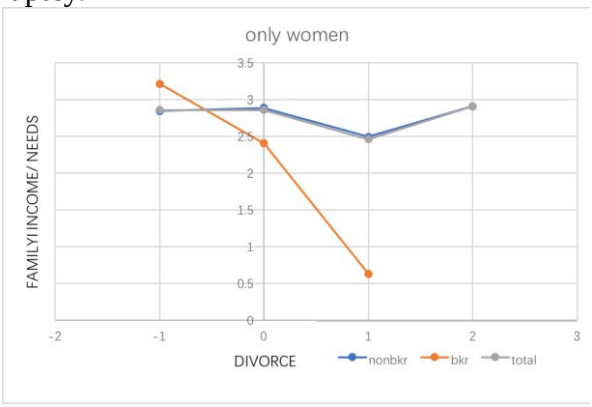
graph A.6

Considering bankruptcy, post-divorce individuals may find it arresting that its financial benefits could prevent themselves from worsening off, which is a strong motivation for them to file for bankruptcy (Fay et al., 2002). Therefore, it is more preferable for those experiencing economic shocks to file for bankruptcy (graph A.7). The decrease in FIN may be not so much a result as a fuse that leads to one's bankruptcy filings. Importantly, this phenomenon mainly represents women's decision (graph A.8) because of the lack of observations of men who match the condition (graph A.9). In addition, graph A.10 demonstrate that both men and women decrease their

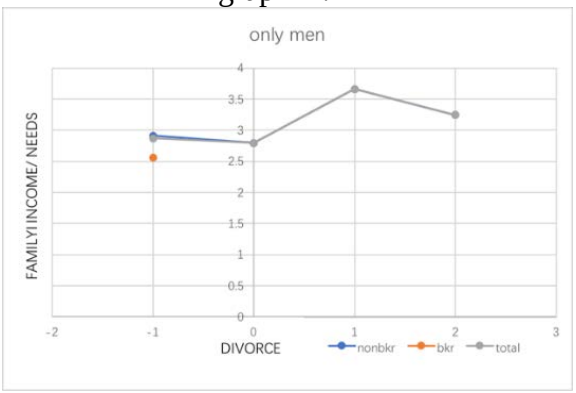
possibility of filing for bankruptcy after divorce. This may due to the inconsistency between our sample and nationwide data. What is of equal possibility is that they find another way to get rid of the difficulty. We will explore further in II. C. Bankruptcy.



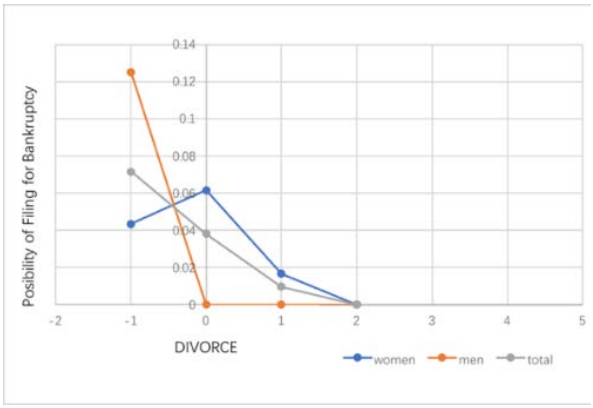
graph A.7



graph A.8



graph A.9



graph A.10

2.2. Remarriage

Consider the first hypothesis that post-divorce men are more likely to remarry and benefit from remarriage more than women. This means post-divorce men are more likely to choose remarriage as a tool to alleviate economic difficulty and consequently gain more benefit than women. After all, it is common nowadays that divorced women face more obstacles to reach remarriage.

To first explore the possibility of remarriage, we set our first model (hereinafter called *remarriage-possibility model*, abbreviated as *RP model*) as follow. For the dependent variable *remarriage*, we include both separated and divorced individuals as our sample target (Duncan & Hoffman, 1985). To be specific, only those who have been separated or divorced with their spouses are the ones who can remarry. And the one who remarried afterwards is assigned 1, otherwise 0. Of course, we set variable *sex* as our main independent variable. Besides, an individual's age, race, years of education, employment status, business, economic condition and family size will matter a lot. What's more, we also include the youngest kids' age because kids' willingness to accept a new parent definitely swings their biological parents' decision to remarriage. Also, demographical locations could influence people's bankruptcy decisions because if there were large portion of citizens in a specific state filing for bankruptcy, then people in that state would feel more common to file for bankruptcy. We add quadratic form of some control variables that may present potential nonlinearities in the effect on the remarriage decision. According to our *RP model*, we expect that the sex is positively and significantly related to the possibility of remarriage, which means men have more probability to achieve remarriage.

Furthermore, we keep several essential variables from the *RP model* in our second model (hereinafter referred as *remarriage-benefit model*, abbreviated as *RB model*), aiming to find out the sexual difference in benefit from remarriage. And *FIN* is used as the dependent variable in *RB model* to measure individuals' economic status (Duncan & Hoffman, 1985). We also establish an *rm_year*, the interaction item of remarriage and year, to help quantify the increment rather than

simply stock, and run our model regarding one sex each time. Ideally, we would see the rm_year is positively related to FIN. Additionally, we will replace the *rm_year* with *rm_sex*, the interaction item of remarriage and sex, to examine the sexual difference for both remarried and non-remarried people. As a result, if *sex* is positively and significantly related to FIN, then we could draw a conclusion that men suffer less from divorce or separation, which is consistent with our descriptive analysis. And we could also tell whether remarriage strengthens the sexual polarization by evaluating the sign of the coefficient of *rm_sex*, positive meaning strengthening and vice versa.

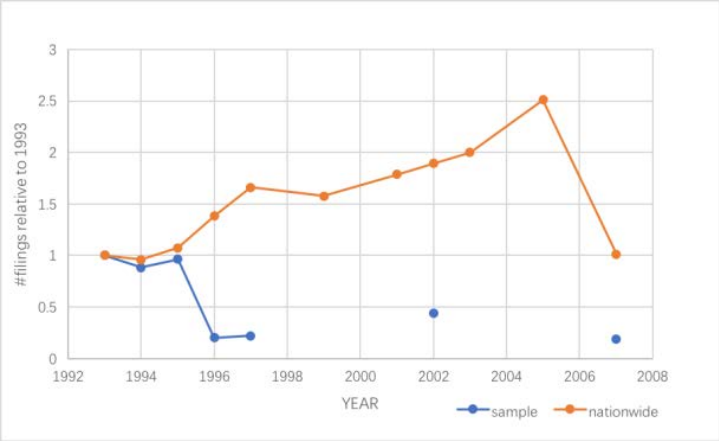
2.3. Bankruptcy

Another hypothesis is that men gain an edge in recovering from divorce by filing for bankruptcy. This hypothesis supposes that people do not stay in plight but save themselves by filing for bankruptcy. In addition, this also supposes that men are more likely to be saved through this method. We would like to test this *bankruptcy model* of rehabilitation against *remarriage model*.

To get bankruptcy decisions, we obtain bankruptcy year by individual from 1993-1996 as well as the rough records of people having ever filed for bankruptcy in 1999, 2002 and 2007. We assign a variable called *futurebkr* to indicate whether they would file for bankruptcy in the next year when the individual takes the survey. We also control race, debt, home or rent, child's age and FIN etc. in our *bankruptcy model*. Why we include race is because the relative importance of transfer income varied significantly by race (Duncan & Hoffman, 1985). And in order to separate the effect of renting or owning a house, we use two dummy variables to represent them. In available data, the individual who owns or is buying home and individuals who are mobile home owners who rent lots are included in *home*=1. Those who live in a rent house or neither buy nor rent a house are included in *home*=0. It is the same logic to *rent*.

If it is the case, a strict interpretation of the *bankruptcy model* implies that the sum of the coefficients of *sex* and of *divsep_sex* (i.e. the interaction term of divorce and sex) represent the sexual difference in the probability of filing for bankruptcy for divorced people, hopefully being positive. And the coefficient of *divsep_sex* indicates the sexual difference between divorced and non-divorced groups in filing for bankruptcy. If this coefficient is positive, then divorce truly acts as an incentive for men to file for bankruptcy. The coefficient of *divsep* (i.e. divorce and separation) indicates the change in possibility of filing for bankruptcy when women divorce.

However, lack of detailed bankruptcy record may prevent cleanly distinguishing from the two theories. As discussed above, one measure of *futurebkr* relies on bankruptcy data which is only collected at five-year increments. It can be reflected visually in the following table II-1 and graph C.1. This graph shows the change of filing numbers from our sample data has an affinity with the nationwide data before 1996 but differs later. The inconsistency with national census may lead to misinterpretation of the relationship.



graph C.1

table II-1

Year	PSID sample	All U.S. households
1993	144	812,898
1994	127	780,455
1995	139	874,642
1996	29	1,125,006
1997	32	1,350,118
1999	*	1,281,581
2001	*	1,452,030
2002	63	1,539,111
2003	*	1,625,208
2005	*	2,039,214
2007	27	822,590

3. Results

Table III-1 gives summary statistics. We process observations from 1993 to 2007 and we have 572285 individuals included.

Table III-1 Variable Description For The Psid Bankruptcy Sample

Variable	Observations	Mean	Standard deviation	Min	Max
ID	572285	1304772	2200121	41	9808170
Sex	291,188	.4819635	.5	0	1
Race(all)	453000	1.498	.725	1	7
White	253,844	1	0	1	1
Negro	186,784	2	0	2	2
Puerto Rican, Mexican	8,455	3	0	3	3
Other (Oriental, Pilipino)	3,590	7	0	7	7
State	252,619	31.717	21.735	0	99
Years of education	157,751	12.435	2.679	1	17
Age	243,542	30.48318	20.60638	1	106
Year	572,285	1998.937	4.576994	1993	2007
Home	307,742	.584	.493	0	1
Rent	307,742	.371	.483	0	1
Business	222,885	.117	.321	0	1
Child age	222,885	4.553	5.262	0	17
Family size	252,619	3.533	1.667	1	13
Unemployment	158,846	.056	.23	0	1
Remarriage	43324	.027	.161	0	1
Family income/needs	250,381	8.964836	26.50257	0	1330.141
Divorce and separation	315,714	.013	.112	0	1
divsep_sex	291,188	.005481	.0738307	0	1
rm_sex	43324	.013	.113	0	1
rm_year	43324	.11	.806	0	10
Debt	243,704	2648.196	21437.91	0	2000000
Adjusted debt	243,704	2.648196	21.43791	0	2000
Future bankruptcy	9524	.044	.205	0	1

Regression for sub-model RP in Table III-2 gives the results of an OLS regression that explains whether men are more likely to remarry as a function of sex, child's age, FIN, age and other variables. The coefficient of sex_{it} is positive and highly statistically significant ($p < 0.001$), which

provides strong support for the hypothesis that men are quite more likely to remarry. Besides, the coefficient of age squared are negative and significant ($p < 0.001$), which indicates that individual's possibility of remarriage increases and then decreases as he or she grows older. As for the FIN^2 and child age^2, they are also significant ($p < 0.001$) but positive, thus having the opposite trend to age.

Two OLS regressions for sub-model RB-men and for sub-model RB-women give the results explaining the effect of remarriage as a function of year, *rm_year* (the interaction term of remarriage and year) and other variables. The coefficient of *year* in RB-men regression is positive and significant ($p < 0.05$), which indicates that the men's economic status better off every year. And the coefficient of *rm_year* for men is positive but insignificant ($p > 0.1$), which shows that men benefit from remarriage to some extent. However, the two coefficients for women are different from that of men. The *year* is insignificantly and positively while *rm_year* is negatively related to FIN_{it}, implying women cannot benefit from remarriage. By contrasting the two regressions, we can conclude that remarriage is more favorable to men.

The last regression in RB model, RB-all, gives the results of a OLS regression that explains the sexual difference of remarriage as a function of *sex*, *re_sex* and other variables. The coefficient of *sex* is positive and significant ($p <0.001$), representing that non-remarried men are better off than women, which accords with our assumption. What's more, the positive and insignificant coefficient of *rm_sex* implies that remarriage strengthens the difference in economic status between sexes and remarriage is conducive to men.

In conclusion, remarriage is more conducive to men and even harmful for women (insignificantly).

Table III-2 Relults Explaining Whether Individuals Benefit From Remarriage

	RP model		**RB model**					
			RB-men		**RB-women**		**RB-all**	
variables	**remarriage**		**Family income/needs**					
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Sex	0.012***	0.002	-	-	-	-	0.699***	0.070
Race	-0.008***	0.002	-0.398***	0.121	-0.533***	0.047	-0.491***	0.053
State	0.000	0.000	-0.009*	0.005	-0.005**	0.002	-0.007***	0.002
Years of education	0.000	0.000	0.504***	0.032	0.377***	0.012	0.427***	0.014
Age	0.017***	0.003	0.805***	0.200	0.138*	0.077	0.402***	0.086
Age^2	-0.012***	0.001	-0.360***	0.100	-0.161***	0.034	-0.237***	0.040
Year	0.000	0.000	0.061**	0.030	0.018	0.011	0.032**	0.013
Home	0.003	0.005	2.100***	0.339	1.394***	0.132	1.623***	0.149
Rent	0.010**	0.004	0.403	0.342	0.209	0.133	0.279*	0.151
Business	0.002	0.003	1.556***	0.228	1.521***	0.102	1.556***	0.109
Child Age	0.003***	0.001	-0.344***	0.055	-0.253***	0.021	-0.271***	0.024
$(\text{Child Age})^2$	0.000***	0.000	0.022***	0.004	0.016***	0.001	0.017***	0.002
Family size	-0.001	0.001	-	-			-	-
Unemployment	0.002	0.005	-1.089***	0.333	-0.678***	0.140	-0.838***	0.153
Family income/needs	0.001***	0.000	-	-	-	-	-	-
$(\text{Family income/needs})^2$	0.000***	0.000	-	-	-	-	-	-
Remarriage	-	-	0.334	0.866	0.689	0.459	0.539*	0.290
rm_year	-	-	0.102	0.149	-0.031	0.077	-	-
rm_sex	-	-	-	-	-	-	0.350	0.410
Constant	0.030***	0.008	-3.040***	0.602	-1.253***	0.232	-2.201***	0.265

Regressions in Table III-3 give the results of whether people file for bankruptcy to alleviate their financial burden after divorce. We separately fixed id and state in two parts to testify the viability of our model. In the ID-fixed part, the first is an OLS regression as a function of *divsep, divsep_sex, sex* and other variables. The coefficient of *divsep_sex* is negative but insignificant, indicating that the difference in filing for bankruptcy between post-divorced men and women narrows in contrast to non-divorced counterparts. Furthermore, post-divorced men are less likely to file for bankruptcy than women, which is indicated by the sum of the two coefficients (i.e. that of *divsep_sex* and of *sex*) that is negative and also insignificant. We found similar results in State-fixed part. Besides, in our model, almost all the regressions' results show that *debt* is significantly and positively related to the possibility of filing for bankruptcy and *Puerto Rican and Mexican* are more likely to file for bankruptcy. Our individual level *unemployment* variable is also consistent with Fay et al.（2002）'s finding about that County unemployment rate is negatively but insignificantly related to bankruptcy rate is. Our RE and FE regressions are of similar consequence, thus giving us equal reason to use either regressions.

Table III-3 Results Explaining Whether Bankruptcy Is A Tool

Variables	ID Fixed		
	OLS	**Logit, RE**	**Logit, FE**
	Future bankruptcy		
Sex	0.00218	0.0621	0
	(0.42)	(0.29)	(.)
White	0	0	0
	(.)	(.)	(.)
Negro	-0.00551	-0.270	0
	(-0.98)	(-1.11)	(.)
Puerto Rican, Mexican	0.0603*	1.483*	0
	(2.14)	(2.28)	(.)
Other (Oriental, Pilipino)	0.0848	1.293	0
	(1.52)	(1.13)	(.)
Years of education	0.000281	0.0104	0.0920
	(0.20)	(0.17)	(0.09)
Age	-0.000754	0.0935	-2.919**
	(-0.76)	(1.48)	(-3.09)
Age²	-0.00000287	-0.00187*	0.0100
	(-0.24)	(-2.08)	(0.80)
Home	0.000985	0.153	-0.804
	(0.06)	(0.24)	(-0.58)
Rent	0.00993	0.441	0.509
	(0.64)	(0.72)	(0.42)
Business	-0.00181	0.354	-1.367
	(-0.25)	(1.36)	(-1.71)
Child age	-0.00131	0.0101	-0.0406
	(-0.68)	(0.12)	(-0.10)
(Child age) ²	0.00000187	-0.00561	0.00239
	(0.02)	(-0.92)	(0.09)
Family size	-0.00396*	-0.179*	-0.319
	(-2.08)	(-2.09)	(-0.82)
Unemployment	-0.00409	-0.115	-0.852
	(-0.36)	(-0.26)	(-0.97)
Family income/needs	-0.00420*	-0.144	0.194
	(-2.53)	(-1.46)	(0.65)
(Family income/needs) ²	0.0000754	0.000575	-0.0135
	(1.36)	(0.08)	(-0.82)
divsep	0.0115	0.130	0.345
	(0.57)	(0.20)	(0.32)
divsep_sex	-0.0455	0	-14.71
	(-1.19)	(.)	(-0.01)
Debt	0.000477**	0.0113**	0.100
	(3.02)	(2.74)	(1.95)
Year		Fixed	
State		——	
N	3789	3765	391

t statistics in parentheses="* p<0.05 ** p<0.01 *** p<0.001"

4. Conclusions

In this paper, we estimate two models of the post-divorce decisions to recover themselves, remarriage and nonbusiness bankruptcy, using new data from the PSID.

We find that men are more likely to remarry after divorce-around 0.7% higher- and this helps them to recover better than women but not significantly. On the contrary, fewer post-divorced men file for bankruptcy and the sexual difference of filing for bankruptcy narrows when people divorce. Besides, remarriage gradually becomes an option for more divorced individuals as year goes by. On the other hand, we find little support for the alternate hypothesis that households file for bankruptcy to alleviate their difficulty after divorce. But people truly get help from their family; that is, the larger family size, the fewer filings for bankruptcy. With regard to race, Puerto Rican and Mexican are more likely to file for bankruptcy.

An important limitation of our study is that it is based on a relatively small portion of bankruptcy filings in contrast to the whole country, and it is surveyed by five years after 1999.

To recap, more post-divorced men partly depend on remarriage to recuperate and hardly rely on filing for bankruptcy.

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