Safety nets, intrahousehold bargaining and economic empowerment: Israel's mandatory pension reform and divorce rates

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The Question: Can Pension Savings Affect Divorce Rates?

- Pension Savings $\uparrow \Rightarrow$ Divorce $\uparrow$

1. Pensions - my own savings under my name $\rightarrow$ economic independence
   - better outside options, greater bargaining power
2. Pensions - safety net $\rightarrow$ less need for marriage as risk sharing device

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1. Pensions - increase in lifetime income $\rightarrow$ may stabilize marriage
2. Pensions - economic benefit $\rightarrow$ greater economic status within household
    - For males, greater economic status can stabilize a marriage - Bertrand et al. 2015

How do Economic Policies Affect Divorce/Marriage?

- Divorce/Marriage timing as a strategy to gain income/benefits
  - Survivor payments to spouses (Persson 2017; Dillender 2016); Medical coverage (Slusky & Ginther WP 2017); Taxes (Dickert-Conlin 1999)
- Economic environment and divorce
  - Income shocks/Business cycles/Housing prices - Hankins & Hoekstra 2011; Schaller 2013; Farnham et al. 2011
- Policies/environments affecting intrahouseholds bargaining and dynamics
  - Divorce liabilities (property division, alimony) (Voena 2015; Schaubert 2018); Asset accumulation (Lafortune & Low 2017)
  - Unilateral divorce (Friedberg 1998; Wolfers 2006, Stevenson & Wolfers 2006)

Economic Policies and Divorce/Marriage - Our Paper

- How does an economic policy affect divorce due to changes in the bargaining position of each spouse?
  - Welfare reforms - Bitler et al. 2004; Low et al. 2018
- Our paper: greater independence for women, as opposed to decreases in independence
- Our paper: not just focusing on changes in economic benefits for women but also for men and able to differentiate the two

Israel's Mandatory Pension Reform

- Went into effect Jan. 1, 2008
  - Officially drafted in Nov. 2007; Feb. 2007 - still not clear whether and when will take effect
- Applies to all non-independent workers with more than 6 months tenure at their workplace
- Gradual implementation in terms of worker/employer contributions
  - Jan. 2008 - Employer 1.66%, Employee 0.83% (2.5% in total)
  - Jan. 2014 - Employer 12%, Employee 5.5% (17.5% in total)
  - savings are tax exempt
- 2007 - 60% of the workforce set aside pension savings (from salary)
  - 2008 - 50% of the workforce without pensions in 2007 began saving, in comparison to 17% in 2007 (Brender 2011)

Preview of Results

- DID Analysis: We find evidence that increased pension savings changes the probability of divorce but this varies differnetially based on the gender of who receives the pension and depends on household income levels
  - Women receive pension $\rightarrow$ probability of divorce increases among higher-income households
  - Men receive pension $\rightarrow$ probability of divorce decreases
- Identification threat - composition of those not receiving pensions changes substantially over the years
  - Attempt to overcome: matching

Data

- Restricted data from the Israeli Central Bureau of Statistics
- Take Jewish population age 35-55 in either 2001 or 2007 from Israel's 1995 full census (20% of population)
  - Match to population registries from 2001, 2007 and 2014 - individuals, their marital status, and their current spouses
  - Track whether couples in 2001/2007 divorced by 2007/2014
  - Match each individual in the couple to tax data that tells us whether individual had pension savings in 2006 or 2007 (pension status data only begins in 2006)
- Final dataset: 227,000 couples with a base year of either 2001 or 2007, indicator for whether they divorced and indicators for whether the male/female had pension savings prior to reform
  - We limit to couples with females having 8 or less children - wish to exclude the ultra-orthodox population
- Analysis focuses on couples that both participate in the labor force and at least one of them has pension savings during base year - 56% of couples in dataset

Couple Categorization

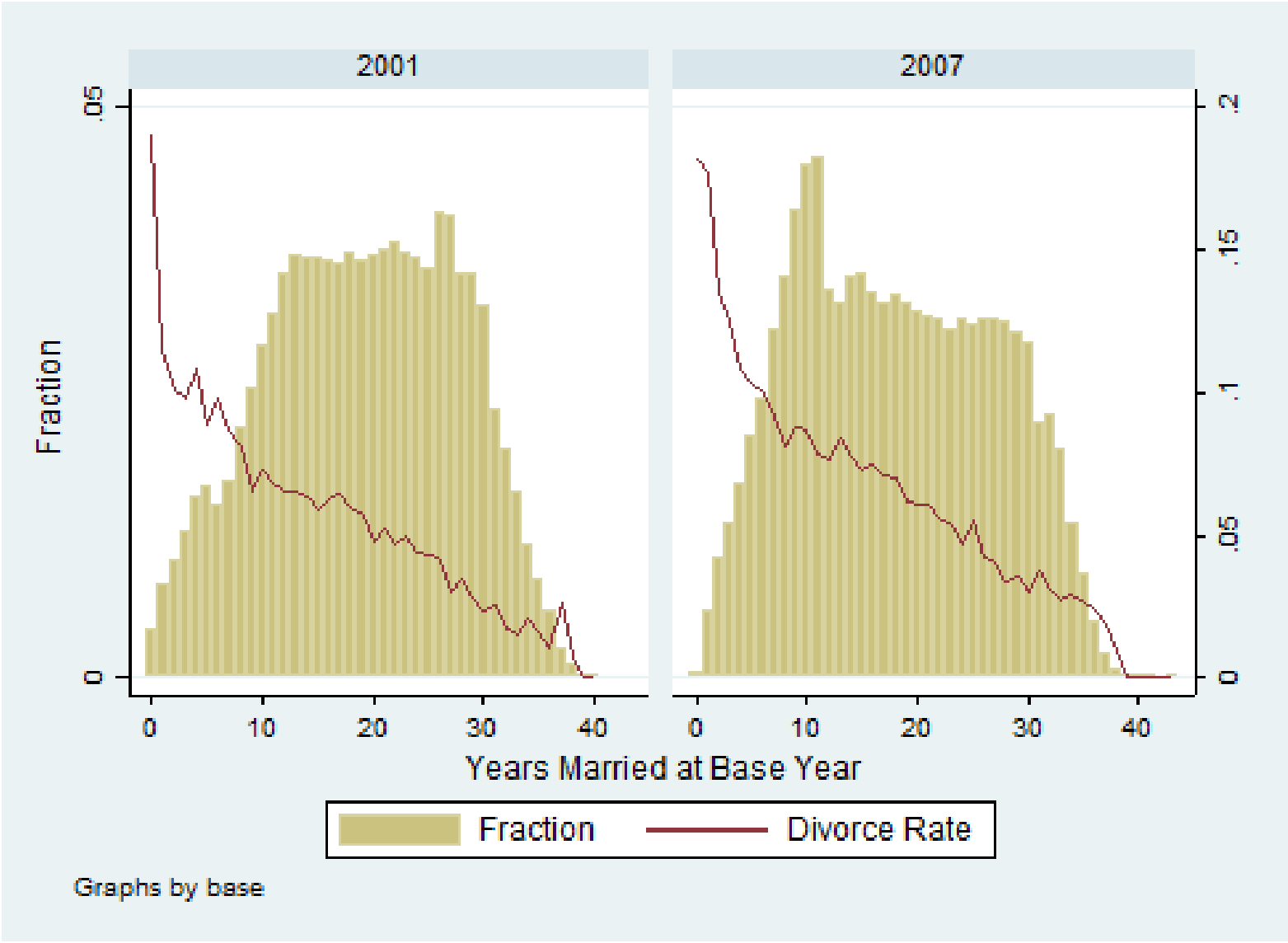
- Couples categorized based on pension receipt status during base year

1. Control couples - both had pension savings during base year
2. Treated couples type I - wife does not have pension savings during base year
3. Treated couples type II - husband does not have pension savings during base year

Summary Statistics

	Entire Sample	Both Couples Employed in Base Year, Wife No Pension	Both Couples Employed in Base Year, Husband No Pension	Both Couples Employed in Base Year, Both Have Pension
Divorce	0.057	0.062	0.076	0.041
	(0.232)	(0.241)	(0.265)	(0.199)
Wife Got Pension	0.076	0.182	0.000	0.000
	(0.266)	(0.385)		
Husband Got Pension	0.057	0.000	0.142	0.000
	(0.232)		(0.349)	
Wife Labor Force Participation	0.782	1.000	0.983	0.985
	(0.413)		(0.128)	(0.122)
Husband Labor Force Participation	0.763	0.985	1.000	0.983
	(0.425)	(0.120)	0.000	(0.129)
Male Annual Income (2001 NIS)	112521.8	159265.3	76952.4	178533.1
	(145272.4)	(141665.1)	(93437.4)	(151684.5)
Female Annual Income (2001 NIS)	58621.6	36734.1	85317.7	94580.6
	(69572.8)	(45841.8)	(68126.5)	(74797.4)
Age of Oldest Child (Female)	17.987	15.217	15.583	18.760
	(8.674)	(9.038)	(9.237)	(7.419)
Age of Youngest Childe (Female)	9.730	7.415	7.718	10.586
	(9.043)	(9.347)	(9.257)	(8.147)
Years Married	18.621	15.245	16.136	19.980
	(8.733)	(9.037)	(9.130)	(7.191)
Number of Children	2.93	2.61	2.72	2.91
	(1.34)	(1.25)	(1.25)	(1.16)
Female Age	42.96	40.50	41.61	43.66
	(7.26)	(7.62)	(7.11)	(6.49)
Male Age	46.34	43.91	44.93	46.60
	(7.52)	(7.35)	(7.73)	(6.57)
Age Difference	3.38	3.41	3.32	2.95
	(3.84)	(3.84)	(3.86)	(3.11)
Number of Couples (Obs.)	227,567	32,251	28,549	67,091

Divorce Hazard & Years Married



Empirical Strategy - DID Framework

- Pre-Treatment: Couples from base year of 2001 - divorce outcomes as of 2007
- Post-Treatment: Couples from base year of 2007 - divorce outcomes as of 2014
- Treated Couples: one of them changes pension savings status following reform

Difference-in-Differences

$$\begin{aligned} Divorce_{iy} &= \alpha_0 + \alpha_1 Treated * PostReform_{iy} + \alpha_2 BaseYear_y \\ &\quad + \alpha_3 Treated_{iy} + \alpha_4 X_{iy} + \varepsilon_{iys} \end{aligned}$$

Couple i in base year y
X_{iy} - age of female's youngest/oldest children, number of children (female), age difference, years married (quadratic), male/female income (2001 NIS), cohort fixed effects (by gender)

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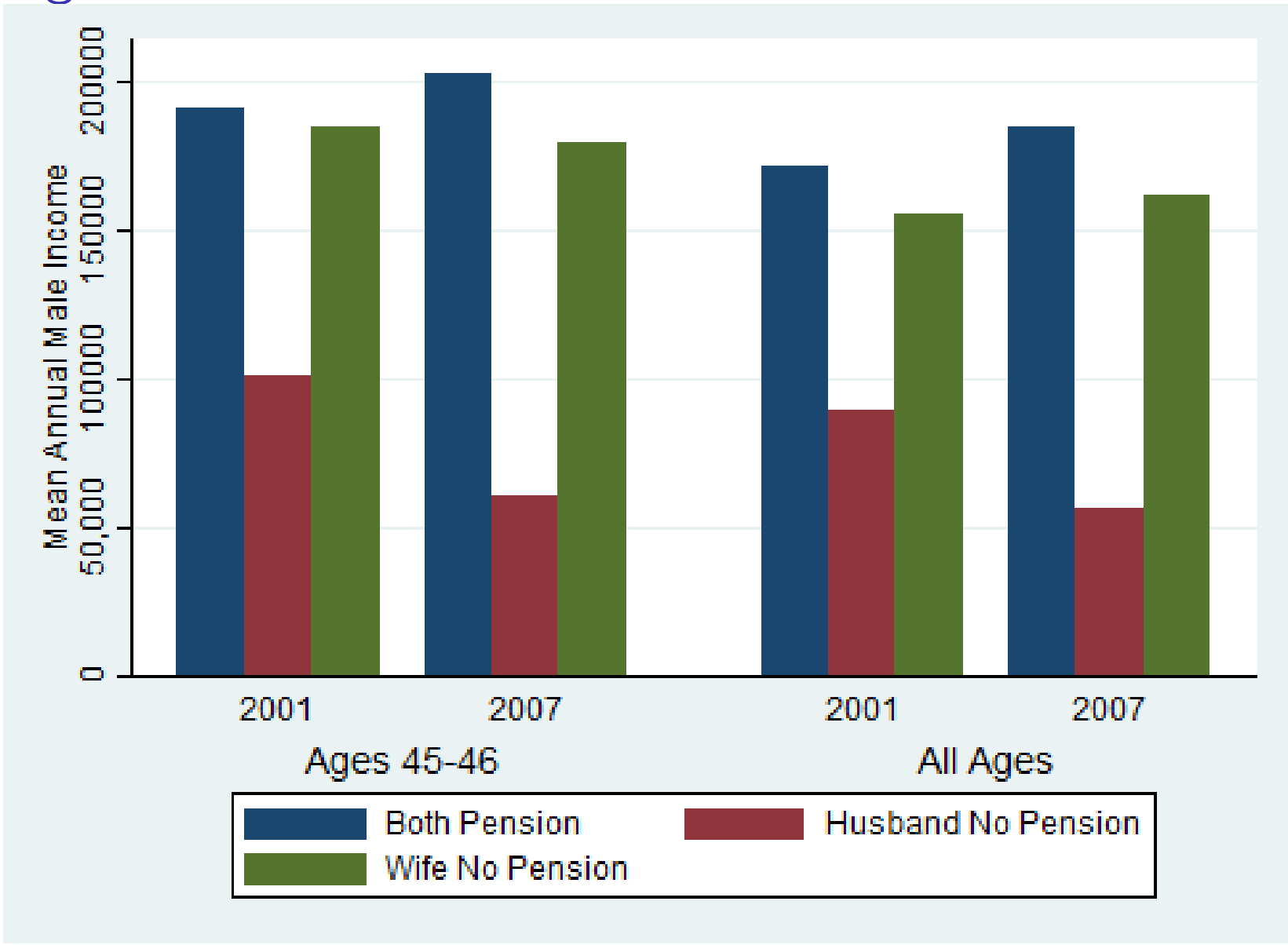
α_1 - Intent-To-Treat (ITT) Estimate - average change for the *overall* population of couples of certain type following pension reform

DID Results

	No Income Restriction		Male Ann. Income < 130K		Male Ann. Income > 200K		Household Ann. Income < 200K		Household Ann. Income > 200K	
					Treatment - Wife Had No Pension in Base Year					
Treated Couple*2007 Couple	0.00138	0.00139	-0.00939*	-0.00865	0.0126*	0.0122*	-0.00709	-0.00739	0.0119**	0.0124**
	(0.00376)	(0.00376)	(0.00546)	(0.00546)	(0.00727)	(0.00726)	(0.00505)	(0.00505)	(0.00600)	(0.00599)
Number of Observations	86,020	86,020	40,262	40,262	25,097	25,097	39,108	39,108	46,912	46,912
R-squared	0.008	0.011	0.011	0.015	0.013	0.007	0.010	0.014	0.012	0.007
Mean of Dependent Variable	0.0467	0.0467	0.0524	0.0524	0.0406	0.0406	0.0520	0.0520	0.0422	0.0422
					Treatment - Husband Had No Pension in Base Year					
Treated Couple*2007 Couple	-0.00195	-0.00294	-0.00889*	-0.0137**	-0.0283*	-0.0285*	-0.00826	-0.0128**	0.00720	0.00545
	(0.00457)	(0.00456)	(0.00531)	(0.00532)	(0.0159)	(0.0159)	(0.00559)	(0.00561)	(0.00961)	(0.00957)
Number of Observations	84,876	84,876	44,802	44,802	21,916	21,916	39,960	39,960	44,916	44,916
R-squared	0.009	0.014	0.012	0.018	0.008	0.013	0.011	0.018	0.008	0.013
Mean of Dependent Variable	0.0511	0.0511	0.0588	0.0588	0.0408	0.0408	0.0588	0.0588	0.0442	0.0442
					Treatment - One Spouse Had No Pension in Base Year					
Treated Wife*2007 Couple	0.00136	0.00174	-0.00880	-0.00727	0.0120*	0.0122*	-0.00653	-0.00599	0.0114*	0.0127**
	(0.00376)	(0.00376)	(0.00545)	(0.00545)	(0.00727)	(0.00725)	(0.00505)	(0.00504)	(0.00599)	(0.00598)
Treated Husband*2007 Couple	-0.00192	-0.00275	-0.00844	-0.0121**	-0.0290*	-0.0292*	-0.00787	-0.0112**	0.00725	0.00559
	(0.00457)	(0.00456)	(0.00531)	(0.00531)	(0.0158)	(0.0158)	(0.00558)	(0.00559)	(0.00960)	(0.00956)
Number of Observations	103,995	103,995	55,371	55,371	26,393	26,393	52,701	52,701	51,294	51,294
R-squared	0.010	0.014	0.012	0.018	0.009	0.014	0.017	0.011	0.008	0.013
Mean of Dependent Variable	0.0516	0.0516	0.0596	0.0596	0.0416	0.0416	0.0588	0.0588	0.0442	0.0442
Cohort Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls		✓		✓		✓		✓		✓

Identification Threat: Composition of Pension Receivers Changes Over Time



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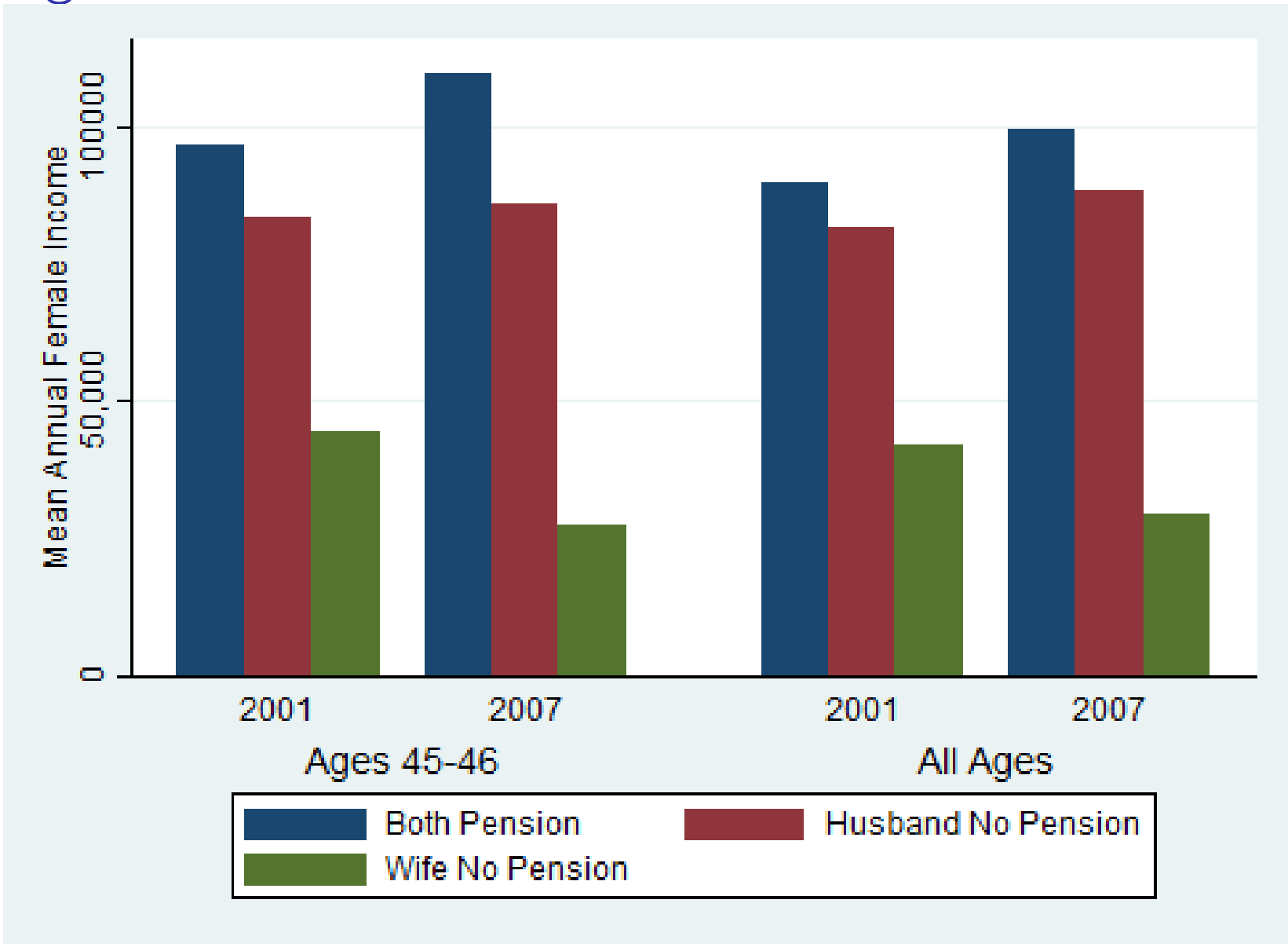
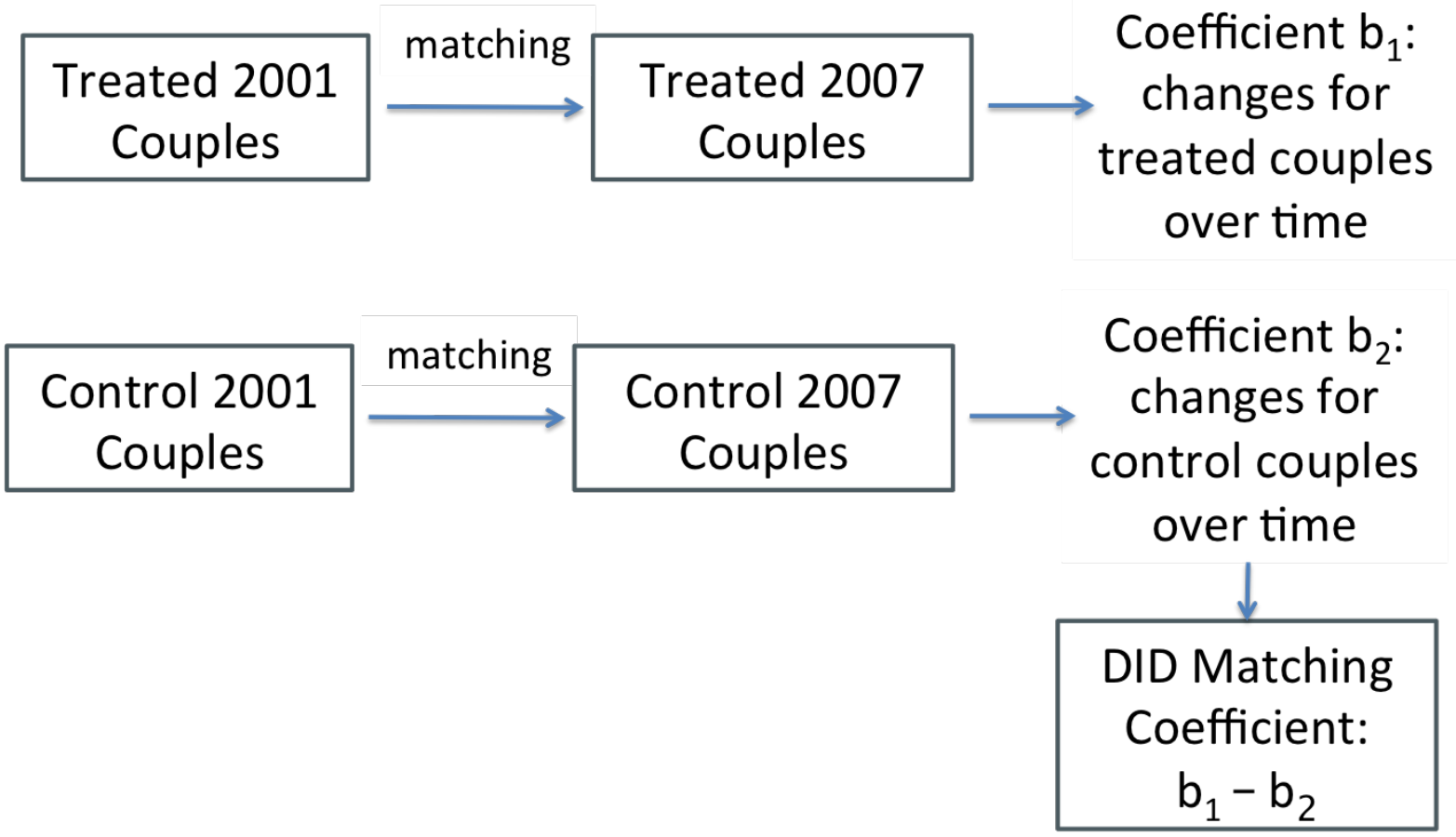


Propensity Score Matching

- Nearest neighbor matching (4) followed by subtracting estimates from each other for a DID estimate



Matching - between couples from different base years

Alleviates to some extent compositional changes in pension savings status over the years

Sample	No Income Restriction	Male Ann. Income < 120K	Male Ann. Income < 220K	Male Ann. Income > 120K	Male Ann. Income > 220K
Treated Couples - Wife	0.0184	0.0185	0.0189	0.0244	0.0249
	(0.0125, 0.0243)	(0.0093, 0.0278)	(0.0123, 0.0255)	(0.0166, 0.0322)	(0.0124, 0.0374)
	N=19,119	N=9695	N=15,407	N=9,424	N=3,712
Treated Couples - Husband	0.0109	0.0123	0.0126	0.0089	-0.0254
	(0.0033, 0.0185)	(0.0045, 0.0202)	(0.0050, 0.0202)	(-0.0134, 0.0313)	(-0.0693, 0.0185)
	N=17,975	N=14,700	N=16,944	N=3,275	N=1,031
Control Couples	0.0177	0.0248	0.0198	0.0129	0.0127
	(0.0149, 0.0205)	(0.0200, 0.0296)	(0.0165, 0.0231)	(0.0094, 0.0163)	(0.0077, 0.0177)
	N=66,901	N=26,640	N=49,732	N=40,262	N=17,169
DID: Treat - Control Wife	0.0007	-0.0063	-0.0009	0.0115	0.0122
	(-0.0058, 0.0072)	(-0.0167, 0.0041)	(-0.0083, 0.0065)	(0.0030, 0.0200)	(-0.0013,0.0256)
DID: Treat - Control Husband	-0.0068	-0.0125	-0.0072	-0.0039	-0.0381
	(-0.0149, 0.0013)	(-0.0217, -0.0033)	(-0.0155, 0.0010)	(-0.0266, 0.0187)	(-0.0823, 0.0061)

Concluding Remarks

- Greater pension savings for women $\rightarrow$ likelihood of divorce $\uparrow$ - for high-income couples
- Greater pension savings for men $\rightarrow$ likelihood of divorce $\downarrow$ - more among low-income couples
- Importance of economic idependence for women and economic status within hh for men