Title: Marriage timing and joint home purchase
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Abstract
This paper evaluates the extent to which the purchase of a jointly-owned home is a catalyst for marriage among Swedish cohabiting couples. Joint home ownership may provide an indicator for commitment and relationship, economic and residential stability. Data for this analysis come from the Swedish Housing and Life Course Cohort Study (N = 1,987 couples; 2,849 cohabiting spells). I measure the joint home purchase event with an indicator for purchase in the past 6 months (lag) or the following 6 months (lead). Additionally, I consider time-varying characteristics of housing, including rental versus owned properties and indicators for which partner holds the rental contract or ownership rights. Preliminary results suggest an elevated risk of marriage in the twelve month period surrounding a joint home purchase. Additionally, living in an owned property (vs. rented) at any time during a cohabitation is positively associated with marriage.

Extended Abstract

Major changes have occurred in the way families are organized in the United States and Europe over the past 30 years. Increasingly marriage is preceded by cohabitation and occurs at later ages. Both cohabiting and married couples face a higher risk of union dissolution. Fewer children are born, and these children are more likely to be born to cohabiting parents or parents not romantically involved rather than to married parents (Lesthaeghe and van de Kaa 1986). Collectively these trends are often referred to as the Second Demographic Transition and they are accompanied by broad shifts in values toward individualism and gender egalitarianism. Despite these dramatic changes, marriage continues to thrive as the preferred type of long-term union. Even in the Nordic countries where cohabitation is common, legally recognized and a socially acceptable union for bearing children, the vast majority of people across socioeconomic and demographic characteristics aspire to marriage and do eventually marry (Tucker 2000; Goldstein and Kenney 2001; Bernhardt 2004; Wiik 2008). Family scholars are only beginning to develop an understanding of what people are trying to achieve through marriage and we continue to develop theories about what life-course phenomena trigger the marriage decision for couples within a Second Demographic Transition context.

Attitudinal data and longitudinal research conducted with cohabiting couples in the United States and Europe suggest that marriage is associated with particular economic conditions and there is an expectation of meeting certain economic prerequisites before couples will marry (Bernhardt 2004; Duvander 1999; Edin and Kefalas 2005; Holland 2008; Waite and Gallagher 2000). An essential component of economic stability is the accumulation and maintenance of assets. In the United States, asset building is associated with a "Middle Class Ideal," whereby, in tandem with marriage, couples expect to jointly acquire "symbols of success," such as a home (Edin and Kefalas 2005). Evidence for an expectation of an owner-occupied, independent home is also found in Anglo-Saxon, Southern European and in some Western European countries (Mulder 2006). Indeed, studies in both the United States and Europe find that married couples experience the highest rates of transition into owner-occupied homes (Lauster and Fransson 2006). Joint home ownership may be a proxy for the level of commitment within a couple and thus may be linked to other life-course processes associated with high relationship commitment, such as marriage or childbearing. Furthermore, home ownership is associated with economic and residential stability, often considered prerequisites for family building. Expectations of joint asset

building for economic stability suggest strong incentives and norms that acquisition of joint assets should be conditioned on marriage.

This paper evaluates the extent to which the purchase of a jointly-owned home is a catalyst for marriage among Swedish cohabiting couples. I test whether there is an elevated risk of marriage in the 6 months prior to and following joint home purchase. I also consider time-varying characteristics of a couple's housing, including first-hand rentals versus second-hand rentals or owned properties[1], and which partner holds the rental contract or ownership rights. If the purchase of a jointly-owned home is indeed a trigger for marriage, I expect an elevated risk of marriage in the 12-month window surrounding the purchase of a home. Additionally I expect that periods when the couple is living in more stable housing should be associated with a higher risk of marriage. I expect that home ownership will be associated with the highest rates of marriage, as it is likely an indicator of more assets (having resources for a down payment, higher income tests for bank loans, etc). First-hand rental contracts should be associated with higher rates of marriage when compared with second-hand rental contracts, although likely a lower risk than ownership. Finally, I expect that having a jointly held rental or ownership contract should also be associated with higher rates of marriage as compared with periods when rental or ownership contracts are held by either the respondent or partner.

It is possible that there is also a reverse causal relationship, whereby marriage increases the risk of home purchase. Marriage may increase the security of joint investments in common assets. Additionally, it is often be bureaucratically easier for married couples to jointly purchase a home. Indeed, policy and legal constraints in nearly all Western countries support a standard which privileges marriage with regard to the acquisition and joint ownership of assets (Waaldijk 2005). Even in Sweden, where cohabiting couples are granted the same rights and responsibilities as married couples in nearly all areas of life, regulations regarding joint assets privilege marriage (Ytterberg and Waaldijk 2005). However, if marriage causes the joint purchase of a home it is unlikely that the effects would be anticipatory: the additional security of joint investments and the favorable policy context would only occur one the marriage was formalized. Any effects of high quality, stable housing or a joint investment previous to or concurrent with marriage are more likely to indicate housing's effect on marriage, rather than the reverse relationship.

A final possibility is that marriage and home purchase are part of the same transition to stability. In such a case, characteristics of the couple, such as economic status, relationship quality or commitment, may simultaneously increase the risk of both marriage and home purchase. To evaluate this potential link, it is important to disentangle these characteristics and other life course processes that may jointly determine both events and thus may confound the relationship of interest (Lillard and Panis 2003). These confounders may include demographic processes, such as childbearing, and socio-economic events, such as the completion of education, employment and earnings trajectories.

Data for this analysis come from the Swedish Housing and Life Course Cohort Study (HOLK) (Ström and Brandén 2009; Ström, Brandén and Thomson 2008). HOLK is the first survey in Sweden to include both detailed housing histories and rich life-history data. The survey consists of a random sample of all individuals born in Sweden in 1956, 1964 and 1974. The

[1] First-hand rentals in Sweden are a very stable form of housing. First-hand rental contracts are long-term leases and contract holders have a "right to rent" the property. Rents are controlled by the government and renters cannot be easily evicted from the property. Second-hand leases are shorter-term, less-stable and in some cases riskier, as they are illegal if not approved by the building association or rental authority.

survey includes information on 2,242 individuals and had a response rate of 62%. The survey data, collected through postal questionnaires, are matched to extensive register data for the period 1972-2005. The HOLK data include housing biographies for up to 11 residences, with information on type of dwelling, dwelling size and quality, and ownership. The survey also includes detailed partnership biographies, including year and month of cohabitation, marriage and separation for all partnerships lasting six months or more. These data are matched to respondent and partner register data records on birth, civil status changes, occupation, income, government transfers, education and residential moves.

Sweden is a particularly appropriate context for studying the relationship between marriage and home acquisition. Despite high rates of premarital cohabitation and non-marital births, marriage continues to be a central institution of family life in Sweden. The vast majority of Swedes will eventually marry: in 2001 83% and 75% of 50-year-old Swedish women and men, respectively, had been married at least once (Bernhardt 2004). Since the late 1990s, there is evidence of increasing marriage rates, particularly among women over the age of 28 (Ohlsson 2009). It is common for young adults to form independent households before marriage. Men and women leave home at an early age and in 2003, 61% of men and 55% of women between the ages of 18 and 34 lived independently, alone or in couples (Statistics Sweden 2008; Mandic 2007). With respect to housing context, the Swedish housing market is flexible, homeownership is common and mortgages are relatively easy to obtain (Mulder 2006).

I build longitudinal, monthly duration records for each unmarried individual over the age of 20 who has never been married and is living in a cohabiting union. I limit the analysis to cohabitors because almost no marriages occur without prior cohabitation in the Swedish context. Furthermore, as to not confound the process of leaving the parental home and marriage, I only follow cohabitations from the age of 20. Cases with cohabitations that begin before age 20 are left truncated; truncation does not affect the measure of cohabitation duration, but the case does not contribute observations until the respondent's 20th birthday. Finally, I have eliminated a small number of cohabitation spells where respondents did not report a spell start date. Analysis records include the duration of cohabiting unions, timing of childbearing, duration of all education spells, annual earnings and income, and demographic characteristics.

In order to distinguish whether joint home purchase acts as a catalyst for marriage or if the relationship between home purchase and marriage is jointly demined by the couple's underlying relationship characteristics, stage in the life course and/or socio-economic status, I intend to use continuous simultaneous hazards models (Lillard 1993). This will allow me to jointly model the risk of home purchase and marriage, allowing for the potential interdependence of each process. However, for preliminary analyses, I consider a simpler, single-direction model, estimating continuous-time proportional hazards models predicting the risk of marriage. First I consider how the joint home purchase event and characteristics of current housing are associated with the timing of marriage (Table 3, Models 1, 2 and 3). I build subsequent models, incorporating demographic characteristics (Model 4: gender, cohort and age), education and economic trajectories (in progress, not presented: completion of schooling, highest grade completed and yearly earnings and other sources of income), and young adult life course processes (in progress, not presented: timing of leaving the family home and childbearing).

Preliminary results suggest that in the twelve month period surrounding the joint purchase of a home, the risk of marriage is elevated by a factor of 1.35, taking account of limited demographic characteristics and housing characteristics. I also find that particular types of housing are more strongly linked to marriage. When living in an owned home, there is a 1.27 higher risk of marriage relative to when a couples has a first-hand rental contract. During person-months when a rental contract or ownership rights are held jointly, couples are 1.66 more likely to

marry as compared to periods when the right is held by the respondent only. Interestingly, there is also an elevated risk of marriage during person-months when couples live in properties held by the partner versus properties held by the respondent (1.41 higher risk). It is possible that the decision by a respondent to reside in a property contracted or owned by their partner may indicate a higher level of commitment or trust in the relationship, thus resulting in an elevated marriage risk. Two additional characteristics appear to be associated with an increased risk of marriage: those who fail to report either own vs. rent status or who is the owner or contractee; and those who are cohabiting, but do not report having left the parental home. Each of these groups constitute less that <2% of at-risk analysis time, respectively. Analyses currently in progress, including education and economic trajectories, socioeconomic status and young adult life course processes, may help to better understand the characteristics or processes underlying the higher marriage risk for individuals with these housing characteristics.

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Table 1: Analytic Sample	
Cohabiting Spells	N
Total	3,149
Never cohabit	218
Marry before age 20	44
No cohabitations after age 20	30
Missing cohabitation start date	8
Sample (cohabiting spells)	2,849
Individuals (Clustering)	1,987
Person- months observed	195,664
Marriages	1,101
Source: HOLK. Author's Calculations	

Table 2a: Sample Descriptive Statistics: Fixed Covariates		
	%	N
Spell (Unmarried Cohabitation) Duration (Months)		
Mean	71	
25th-percentile	25	
50th-percentile	49	
75th-percentile	95	
Marriage		
% of Cohabiting Spells ending in marriage	38.7	1,101
Sex of Respondent (% of cohabiting spells)		
Male	42.3	1,206
Female	57.7	1,643
Cohort of Respondent (% of cohabiting spells)		
1956	36.0	1,026
1964	32.9	938
1974	31.1	885
Sample (cohabiting spells)		2,849
Individuals (Clustering)		1,987
Person- months observed		195,664
Marriages		1,101
Source: HOLK. Author's Calculations		

Table 2b: Sample Descriptive Statistics: Time-varying Covariates			
		%*	N*
Purchase Joint Home in 6+/- Months[a]		7.2	14,137
Type of Housing[b]			
Own (vs. Rent)			
	Rent 1st Hand	38.6	75,446
	Rent 2nd Hand	2.6	5,027
	Own	52.9	103,528
	Other Housing	2.5	4,961
	Missing Disp, Ownr/Cntrct	1.8	3,503
	Previous to First Housing	1.6	3,199
Owner/Contractee			
	Self	24.4	47,741
	Partner	16.7	32,759
	Joint	50.7	99,246
	Other	2.2	4,256
	Other Housing	2.5	4,961
	Missing Disp, Ownr/Cntrct	1.8	3,502
	Previous to First Housing	1.6	3,199
Age of Respondent			
	20 to <25	24.7	48,408
	25 to <30	30.5	59,592
	30 to <35	18.0	35,252
	35+	26.8	52,412
Sample (cohabiting spells)			2,849
Individuals (Clustering)			1,987
Person- months observed			195,664
Marriages			1,101

Source: HOLK. Author's Calculations

* Percent/N of analysis time (months).

[a] Relationship between housing event (joint home purchase) and marriage; 12-month observation window around joint home purchase (time-varying).

[b] Baseline relationship between housing type and marriage.

Table 3: Models Predicting the Risk of Marriage (Cox Hazards Regression)				
	Model 1	Model 2	Model 3	Model 4
	Joint Purchase Event	Housing	M1 + M2	M3 + Demographics
Purchase Joint Home in 6+/- Months[a]	1.62 ***	-	1.41 ***	1.35 **
	(0.15)		*(0.14)*	*(0.13)*
Type of Housing[b]				
Own (vs. Rent)				
Rent 1st Hand	-	-	-	-
Rent 2nd Hand	-	0.82	0.81	0.86
		(0.20)	*(0.20)*	*(0.22)*
Own	-	1.26 ***	1.22 **	1.27 ***
		(0.09)	*(0.09)*	*(0.09)*
Owner/Contractee				
Self	-		-	-
Partner	-	1.35 **	1.35 **	1.41 ***
		(0.14)	*(0.14)*	*(0.15)*
Joint	-	1.72 ***	1.65 ***	1.66 ***
		(0.14)	*(0.14)*	*(0.14)*
Other	-	1.32	1.31	1.35
		(0.37)	*(0.36)*	*(0.40)*
Other Housing	-	0.69	0.68	0.69
		(0.21)	*(0.20)*	*(0.20)*
Missing Disp, Ownr/Cntrct	-	2.75 ***	2.71 ***	2.56 ***
		(0.51)	*(0.50)*	*(0.48)*
Previous to First Housing	-	1.86 **	1.85 **	1.92 **
		(0.42)	*(0.42)*	*(0.43)*
Female	-	-	-	1.05
				(0.06)
Birth Cohort				
1956	-	-	-	-
1964	-	-	-	0.80 ***
				(0.05)
1974	-	-	-	0.52 ***
				(0.04)
Age				
20 to <25	-	-	-	-
25 to < 30	-	-	-	1.57 ***
				(0.13)
30 to <35	-	-	-	1.49 ***
				(0.15)
35+	-	-	-	0.49 ***
				(0.07)
Person- months observed	195,664	195,664	195,664	195,664
Sample (cohabiting spells)	2,849	2,849	2,849	2,849
Individuals (Clustering)	1,987	1,987	1,987	1,987
Marriages	1,101	1,101	1,101	1,101

Table 3: *Continued*				
	Model 1	Model 2	Model 3	Model 4
	Joint Purchase Event	Housing	M1 + M2	M3 + Demographics
ll (null)	-7892.634	-7892.634	-7892.634	-7892.634
ll (model)	-7880.608	-7849.534	-7843.719	-7751.288
df	1	8	9	15
AIC	15763.22	15715.07	15705.44	15532.58
BIC	15773.4	15796.54	15797.09	15685.34
*** p<0.001 ** p<0.01 * p<0.05 $^{+}$ p<0.1				
Source: HOLK. Author's Calculations.				
Standard errors in parentheses. All standard errors corrected for clustering of cohabiting spells in individual respondents.				
[a] Relationship between housing event (joint home purchase) and marriage; 12-month observation window around joint home purchase (time-varying).				
[b] Baseline relationship between housing type and marriage.				