Adolescent Activities and Young Adult Union Formation

The goal of this paper is to understand if and how activities affect partnering. That is, do activities function as a sort of capital in marriage markets? Using the school-based activity clusters and non-school activities, I begin answering my second main research question of how activities affect union formation. I assess this by considering three underlying questions: whether activities affect *any* union formation in young adulthood, if activities influence the timing and type of first residential union, and how activities are related to union type (marriage or cohabitation vs. being single) in the late 20s and early 30s.

Background

In the current individualized marriage regime, relationships are formed not for functional reasons or as lifelong commitments, but as mechanisms of self-fulfillment to be maintained only as long as both partners are satisfied with the benefits derived therein (Giddens 1991). Further, as demographers have shown, marriage is no longer a necessary component for achieving one's family-related goals (Lesthaeghe and Neidert 2006; Lesthaeghe and Moors 2000, Raley 2001; van de Kaa 1987). Giddens (1992) has argued that relationship partners will be sought who fulfill one's personal, social, and intimate desires. As such, the individual characteristics once most highly valued in marriage markets (namely wealth and status in men and physical attractiveness in women) may no longer hold as much value. Women are no longer economically dependent on men while men may no longer be satisfied with an attractive woman with few non-domestic skills. There are several reasons to believe activities are gaining in importance as matching criteria in marriage markets, especially if they signify not only sources of shared interest, but also indicators of other valued types of capital (social, cultural, or even Darwinian fitness).

In this paper I attempt to understand the role of adolescent activities for later union formation. Analyses proceed as follows: first, I assess the bivariate relationships between activities and whether or not young adults have ever formed a residential union (married or cohabited) at the Add Health Wave 4 interview. Next, I use logistic regression models to determine if the bivariate relationships remain in multivariate models. I use Cox proportional hazard models and competing risks regression models to assess how activity participation affects timing of first union formation and the incidence of marriage in the presence of cohabitation as a competing risk (Fine and Gray 1999). Finally, multinomial logistic regression models are used to assess effects of activities on current relationship status (rather than the first residential union). This paper will thus answer the following questions: do activities predict whether or not one forms a residential union, do activities affect the timing of partnerships, and finally, does activity type affect partnership type.

Analyses

To begin to understand if and how adolescent activities affect union formation, I look first at associations between activities and whether or not young adults have ever formed a residential union by the Wave 4 interview.[1] Indeed, as Table 6.1 shows, roughly half of all respondents have married and over two-thirds have cohabited by the Wave 4 interview. Significantly more females than males have married (54% compared to 46%, $\chi^2 = 61.12$, $p<.001$) but there are no differences between males' and cohabitation rates.

[1] Recall that the average age at the wave 4 interview is 28.5 and the average age of first marriage at this time was 26 for females and 28 for males (US Census Bureau 2001). Eighty-three percent of females are 27 or older and 53% of males in the sample are 29 or older; thus, it is expected that many will have experienced a marriage by the interview, and most will likely have had at least one cohabiting relationship.

Bivariate Analyses

Table 6.1 shows the percent of males and females who have ever married or cohabited by activity clusters. Significant differences between participants and non-participants (whose values are roughly equal to the mean) are denoted with an asterisk. Looking first at males, we see that males who were in performing arts and school involvement activities have significantly lower marriage rates than males not in these activities (both roughly 38%). Males in athletic sports, school involvement activities, music, and prosocial and other activities have significantly lower cohabitation rates than males not in these activities. For males, no types of participation are associated with higher than average union formation rates, though several activities are associated with lower union formation rates.

Associations for females are shown in columns 4 and 5 of Table 6.1. Here we see that girls in prosocial, performing arts, and other school-based activities have higher marriage rates than non-participants (approximately 57% for performing arts and other activities and 58% for prosocial activities, compared to 54% on average). For cohabitation, girls who participated in academic, music, prosocial, or other activities had significantly lower cohabitation rates than non-participants. Girls who played jock sports (volleyball, basketball, and softball) had slightly, though not significantly, higher rates of cohabitation (73% compared to 70% on average).

Table 6.1: Weighted Average Union Formation Rates Across Activity Clusters

	Males			**Females**		
	ever marry	*ever cohab*		*ever marry*	*ever cohab*	
Overall	**45.64**	**69.33**		**54.08**	**71.60**	
Academic	40.72	67.26		56.36	65.01	*
Athletic	44.72	66.32	*	53.25	71.98	
Jock	45.33	71.20		54.09	73.85	

Other	45.87		65.94	*	56.99	*	68.63	*
Music	41.23		63.75	*	53.42		66.10	*
Performing Arts	38.96	*	65.80		57.16	*	70.63	
School Involvement	39.64	*	64.27	*	54.40		70.94	
Cheerleading	--		--		54.05		74.59	
Prosocial	47.90		64.77	*	57.72	*	63.86	*

N=11,416

* differences significant at p<.05 (compared to non-participants)

Table 6.2 presents weighted averages for males and females who have ever married (cohabited) across the total number of school activities and several non-school activities. Males who had ever married by the Wave 4 interview participated in fewer school-based activities overall than others (2.00 compared to the average of 2.18) and spent on average almost 2 hours fewer than other males hours per week watching television, movies, or playing video games (24.11 compared to 25.90). Males who had married by Wave 4 interacted with male and female friends in adolescence significantly more than never married males. Results show ever married males worked significantly more hours as adolescents than never married males (9.17 compared to 7.01). For several types of activities (time spent with male friends, female friends and hours spent working), differences between those who have ever cohabited and the sample average are smaller in magnitude.

For females, having ever married by the Wave 4 interview is associated with watching significantly fewer hours of television per week during adolescents and spending about 1 more hour per week working than females generally. Additionally, those who have ever married spent significantly more hours per week working than those who have never married. Cohabitation is also associated with spending more time working and with male friends in adolescence, but spending more time with female friends is also associated with cohabitation.

Table 6.2: Weighted Average Adolescent Activity Measures Across Union Types

	Males			Females		
	sample average	*ever marry*	*ever cohab*	*sample average*	*ever marry*	*ever cohab*
Total # Activities	2.18	2.00 *	2.14	2.45	2.49	2.43
TV/Videos	25.90	24.11 *	26.26	20.12	18.74 *	20.17
Male Friends	2.83	2.93 *	2.89 *	2.12	2.34 *	2.25 *
Female Friends	1.88	2.08 *	1.99 *	3.11	3.15	3.21 *
Hours Work	7.01	9.17 *	7.48 *	5.98	7.06 *	6.39 *

N=11,416

** mean differences significant at p<.05 (compared to never married/cohab)

In sum, bivariate results suggest that several types of activity clusters for males have negative associations with movement into marriage and cohabitation (athletic, music, prosocial, school involvement, and other activities for cohabitation and performing arts and school involvement for marriage). A different pattern of relationships holds for females; when significant, activities are on the whole positively related to ever marrying (performing arts, prosocial, and other activities) and negatively related to cohabitation (academic, music, and other clubs). In particular, prosocial and other activities have the most bivariate associations with union formation and music and performing arts have associations with union formation for both males and females. There are no significant relationships between jock sports and union formation for either males or females.

Multivariate Analyses of Union Formation

Given several significant bivariate relationships, I next assess these relationships in multivariate models to determine if these relationships hold in the presence of key sociodemographic measures. Table 6.3 presents odds ratios and confidence intervals from

logistic regression models of activities on relationship formation in a multivariate context. Each column presents the results from a single model that includes all activities and controls for age, race, immigrant status, family structure during adolescence, and highest parent education. Each of these measures has significant associations with union formation and is shown in Table 5.7 to have significant associations with activity participation. *Age* is included as Add Health is a multi-cohort study approximately half the sample has not reached the normative age for first marriage by the Wave 4 interview; beyond this, marital timing has significant effects on marital stability (White 1990). I include *race* and *immigrant status* as both have significant effects on the likelihood of both marriage and cohabitation (Brown, Van Hook, and Glick 2008; Bumpass and Lu 2000; Chandra, et al. 2005; Landale and Oropesa 2007; Oropesa and Landale 2004). *Family structure* is included because adult children from different family of origin structures have different marriage and cohabitation experiences of their own (Amato 1996; Bumpass and Sweet 1989). *Parent education* and *family income* (logged) are included as measures of family social class. Prior work has shown significant effects of family socioeconomic status on both the type of first residential union formed and when the transition to these relationships occur (Bumpass and Lu 2000; Meier and Allen 2008; Smock 2000; South 1991; Thornton, Axinn, and Teachman 1995).

Table 6.3 shows only the results for activities; full model results are shown in appendix table A6.1. Activities are entered as indicator variables; odds greater than (less than) 1 show positive (negative) effects of participation on relationship formation. Number of activities is entered untransformed, such that the odds ratios show increases or decreases in odds of marriage and cohabitation for one additional/fewer activity. Finally, time spent watching television and playing video games, activities with male and female friends, and hours of work are standardized

to ease interpretation; odds ratios greater than 1 show positive relationships between spending more than average time in the activities and relationship formation, while odds ratios less than one show negative relationships.

Models 1 and 2 of Table 6.3 present results for having ever married or cohabited for males. Men who played jock sports in high school have 33% higher odds of marriage than men who did not play football, basketball, or baseball and men who were in prosocial clubs in adolescence had 42% greater odds of marriage than other men. For men, participating in more activities is associated with lower odds of marriage; each additional activity decreases the odds of marriage by 6%. Males who spent more time with female friends in adolescence and males who worked more hours than average have greater odds of marriage. Last, participating in performing arts and school involvement activities both have positive effects on the likelihood of marriage independently (.79 and .82, respectively, controlling for key demographic factors), but these effects are reduced to non-significance when all activities are included in the models presented.

Turning to cohabitation for males (model 2 of Table 6.3), it appears that adolescent school-based activities have no significant effects on the likelihood of cohabitation by the late 20s and early 30s. The significant negative effect of participating in school involvement clubs loses significance once all other activities are included in the model. Recall that participating in athletic sports, music activities, and school involvement clubs each had significant bivariate associations with cohabitation; it appears that these relationships are spurious in the face of socio-demographic characteristics. Spending more time than average with female friends (OR = 1.22) and working in adolescence (OR = 1.12) have significant positive effects on the odds of cohabitation for males, and participating in prosocial clubs decreases the odds of cohabitation by nearly a quarter (OR = .76).

Table 6.3: Weighted Logistic Regression Models of Marriage and Cohabitation

	Males		Females	
	(1)	*(2)*	*(3)*	*(4)*
	ever married	*ever cohab*	*ever married*	*ever cohab*
Academic	1.12	1.08	1.09	0.74 *
	(0.82-1.53)	(0.77-1.50)	(0.82-1.45)	(0.57-0.95)
Athletic	1.00	0.84	0.95	1.05
	(0.84-1.20)	(0.67-1.06)	(0.75-1.21)	(0.83-1.32)
Jock	1.33 **	1.19	1.06	1.15 [a]
	(1.12-1.58)	(0.98-1.44)	(0.86-1.32)	(0.90-1.47)
Other	1.07	0.91	1.08	0.81 [a]
	(0.86-1.32)	(0.72-1.15)	(0.85-1.39)	(0.64-1.02)
Music	1.15	0.90	1.05	0.88
	(0.90-1.48)	(0.67-1.22)	(0.82-1.34)	(0.65-1.17)
Performing Arts	0.79 [a]	0.84	1.20 [a]	0.95
	(0.61-1.02)	(0.67-1.07)	(0.99-1.45)	(0.78-1.14)
School Involvement	0.82 [a]	0.81 [a]	1.00	0.97
	(0.62-1.09)	(0.64-1.03)	(0.79-1.28)	(0.77-1.22)
Cheerleading	--	--	1.14	1.02
			(0.90-1.44)	(0.78-1.33)
Prosocial	1.42 ***	0.76 **	1.62 ***	0.59 ***
	(1.20-1.67)	(0.64-0.91)	(1.39-1.90)	(0.49-0.71)
Number of Activities	0.94 *	1.02	0.98 [a]	1.04
	(0.90-0.99)	(0.97-1.07)	(0.90-1.08)	(0.95-1.13)
TV/Videos	0.96	1.04	0.98	1.00
	(0.89-1.03)	(0.96-1.13)	(0.88-1.09)	(0.91-1.10)
Male Friends	1.00	1.06 [a]	1.19 ***	1.26 ***
	(0.92-1.09)	(0.97-1.17)	(1.10-1.30)	(1.14-1.40)
Female Friends	1.10 *	1.22 ***	0.92 *	1.15 **
	(1.01-1.19)	(1.12-1.34)	(0.84-0.99)	(1.05-1.25)
Hours Work	1.20 ***	1.12 *	1.06	1.13 *
	(1.10-1.30)	(1.02-1.24)	(0.96-1.17)	(1.01-1.26)

N=11,416

note: all models control for age, race, immigrant status, family structure, family income (logged) and parent education.

Significant at p<.05, *p<.01, *p<.001

[a] Activities significant when entered individually (with controls).

Results for females are presented in columns 3 and 4 of Table 6.3. Broadly, school-based

activity participation does not have significant effects on the odds of marriage, with the positive effect of participation in performing arts activities on marriage reduced to non-significance once participation in all other activities is included. However, as model 3 shows, participation in prosocial activities increases the odds of marrying in young adulthood by 63% (OR = 1.62). Females who spend more time than average with male friends in adolescence have significantly higher odds of marriage (OR = 1.19), while spending more time with female friends decreases the odds of marriage (OR = .92).

The final column of Table 6.3 shows the odds of cohabitation for women. Participating in academic and prosocial clubs has the largest negative effects, decreasing the odds of cohabitation by 26% and 41%, respectively (ORs = .74 and .59). While the significant bivariate relationship seen in Table 6.1 for participation in other clubs remains significant in the presence of demographic controls (models not shown, but denoted by the superscript), these associations lose significance when all activities are included in the model. Women who worked more than average in adolescence have significantly greater odds of cohabitation (OR = 1.13). Finally, spending more time with both male and female friends in adolescence has significant positive effects on the odds of cohabitation in young adulthood (ORs = 1.26 and 1.15, respectively). It appears that girls who are more social in general than average are also more likely to cohabit.

On the whole, Tables 6.1, 6.2, 6.3 show that while participation in certain types of activities in adolescence has significant effects on marriage and cohabitation in young adulthood, many of these effects are spurious in the face of demographic background characteristics. Effects are greatest for participation in prosocial clubs; given that these are primarily church-based youth groups, this is not surprising. Many religions have distinctly pronuptial beliefs that encourage marriage and discourage non-marital cohabitation (Thornton, Axinn, and Hill 1992). However,

the fact that participation in several different types of activities in adolescence has significant effects on the odds of marriage and cohabitation roughly 12 years later (even after accounting for some of the biggest predictors of union formation) shows that adolescent activities are not trivial hobbies. Many activities have longstanding effects on the odds of forming a relationship in young adulthood. I discuss how these results square with theory (and additional results below).

Event History Analyses

To answer whether activities affect the timing and type of relationship formed, I use Cox proportional hazard models to assess how activities affect the timing of first residential union (controlling again for demographic characteristics). Beyond this, I use competing risks proportional hazard models to understand how activity choice affects the incidence of marriage in particular, considering cohabitation as a competing risk (of first union formation). The first set of analyses use proportional hazard models to assess whether activities effect the timing of (any) first union transition. These findings will augment the results in Table 6.3 to determine if the effects of activities on union formation are concentrated at earlier ages (closer to the adolescent period during which youth participated) or if the effects of activity participation are long-standing. If activities are sources of capital in marriage markets, those who participate may be more likely to partner sooner. I further assess the effects of activities on relationship timing using competing risks models. These models take into account that the effects of independent variables (activities) on outcomes are likely to vary depending of the type of outcome (Allison 1984; Hachen 1988). That is, the decision to form a union and the decision to cohabit or get married are separate but related processes, and competing risks models allow the effects of activities to vary across outcomes.

Cox models (Cox 1972) are multivariate estimates of the effects of independent variables

(in this case, socio-demographic controls plus activities) on time-dependent risk of an event (in this case, forming a residential union). I use maximum likelihood proportional hazard models in Stata of the following form:

$$h(t) = h_0(t)\exp(B_1x_1 + B_2x_2 + \cdots + B_kx_k),$$

where $h(t)$ is the hazard, $h_0(t)$, is the baseline hazard and each $\exp(B_kx_k)$ is the hazard ratio for each independent variable in the model (Cleves, Gould, and Gutierrez, 2002; Cox, 1972). Results presented represent the hazard ratio for each activity, with values above 1 indicating an increase in odds and values below 1 indicating a decrease in the odds of the transition occurring over the interval between an individual's 15th birthday (at which point they are said to be "at risk" of forming a residential union) and the Wave 4 interview (the final point of observation).

Table 6.4 presents hazard ratios from these models for males and females, respectively. For males, being a jock (e.g., participating in baseball, basketball, or football) increases the hazard of forming a residential union by 11% (HR = 1.11). Participating in performing arts or school involvement activities decreases the rate of forming a union by 15% and 16%, respectively (HRs = .85 and .84). Males who spend more time with female friends and more time at work form residential unions sooner than other males. Model two presents the hazard ratios for females. Here, there are no significant effects of in-school activity clusters on females' risk of forming a residential union through their late 20s. However, several non-school activities have significant effects on the risk of forming a residential union. Females who spend more time than average with male friends form residential unions sooner than those who spent less time with male friends in adolescence (HR = 1.18). Spending more than average time at work increases the risk of forming a residential union (HR = 1.08).

Competing Risks Event History Model

To better understand how activities affect forming a *particular* type of first union, specifically marriage compared to cohabitation, I use competing risk hazard models to understand how activity types affect the risk of forming a marriage as a first union, treating cohabitation as a "competing risk" of first union type. A competing risk is "an event whose occurrence either precludes the occurrence of another event under examination or fundamentally alters the probability of occurrence of this other event" (Gooley, et al. 1999: 695). Competing risks models show the transition to a residential union and the union type simultaneously, modeling cause-specific hazards of different types of "failure" (i.e. union type) (Fine and Gray 1999). A cause-specific hazard of event type *j* at time *t* is

$$h_j(t) = h_{j,0}(t)\exp[b_{j1}x_1 + b_{j2}x_2 + \cdots + b_{ji}x_i] \qquad [6.2]$$

Notice the similarities to Equation 1. Here, $h_j(t)$ is the hazard for event type *j* and each b_{ji} is the effect of *i* covariate on the type-specific hazard. The model is semiparametric given the baseline hazard ($h_{j,0}$) is unspecified at the outset (and, like Cox models, the effects of the covariates are assumed to be proportional) (StataCorp 2009).

Competing risk models are appropriate when the causes of an event are likely to vary depending of the type of event (Allison 1984; Hachen 1988). That is, the decision to form a union and the decision to cohabit or get married are separate but related processes, where the determinants of the decision to form a union are likely different for cohabiting versus marital unions (Carlson, McLanahan, and England 2004; Seltzer 2000). Indeed, as seen in Table 6.1, activity clusters affect cohabitation and marriage differently, and in some cases (e.g., prosocial club participation, time with same sex friends for females), the effects of activities during adolescence have significant effects in opposite directions on the odds of marriage versus cohabitation. Traditional Cox models ignore the presence of competing risks altogether and,

while stratified Cox models allow different baseline hazards for different outcomes, they presume the effects of covariates is the same across outcomes (Cleves, et al. 2002; StataCorp 2009). Under traditional Cox models, once subjects fail, they are removed from the risk pool whereas competing risk models keep subjects who fail from a competing event "at risk" so they are counted as having not had a chance to fail from the event of interest (Fine and Gray 1999; StataCorp 2009). In competing risk models, cohabitation is considered a competing risk for first union formation; if one cohabits prior to marriage, s/he is no longer at risk to form a marriage (as a first residential union). Unlike results in Tables 6.3 and 6.4, competing risks models take into account both *type* and *timing* of first residential union simultaneously.

Table 6.4: Unweighted Cox Proportional Hazard Model of First Residential Union

	Males (n=5235)	**Females (n=6112)**
	(1)	*(2)*
	HR	*HR*
Academic	1.11	0.87
	(0.93-1.32)	(0.75-1.02)
Athletic	1.00	0.93
	(0.90-1.12)	(0.82-1.05)
Jock	1.11 *	1.06
	(1.02-1.22)	(0.93-1.20)
Other	1.00	0.94
	(0.89-1.13)	(0.83-1.06)
Music	1.00	0.93
	(0.85-1.18)	(0.82-1.05)
Performing Arts	0.85 *	0.97
	(0.76-0.97)	(0.88-1.08)
School Involvement	0.84 **	0.99
	(0.74-0.96)	(0.88-1.12)
Cheerleading	--	1.05
		(0.94-1.18)
Prosocial	1.07	0.96
	(0.98-1.17)	(0.89-1.04)
Number of Activities	0.99	1.00
	(0.97-1.01)	(0.95-1.05)

TV/Videos	1.01	1.01
	(0.97-1.06)	(0.96-1.06)
Male Friends	1.01 [a]	1.18 ***
	(0.96-1.06)	(1.12-1.25)
Female Friends	1.15 ***	1.02 [a]
	(1.10-1.21)	(0.96-1.08)
Ave Hrs. Work	1.10 ***	1.08 **
	(1.05-1.16)	(1.02-1.15)

N=11,347
note: all models control for age, race, immigrant status, family structure, family income (logged) and parent education.
Significant at p<.05, *p<.01, *p<.001
[a] Activities significant when entered individually (with controls).

Table 6.5 presents the marriage-specific hazard ratios of first union for males and females. These subhazard ratios are interpreted similarly to hazard ratios in Cox models, where values greater than 1 increase the incidence of marriage and values less than 1 are associated with lower risks. In column 1 for males, we see that participating in jock sports increases the rate of transitioning to marriage as a first residential union, as does being involved in a prosocial club (SHR = 1.22 and 1.79, respectively). However, spending more time than average with male friends is negatively associated with the transition to marriage as a first union (SHR = .94), and participation in each additional activity decreases the hazard of transitioning to marriage as a first union by 6% (SHR = .94). For females, participation in academic and music clubs decrease the rate of first union transition to marriage (results not shown), though these effects are not significant net of the effects of other activities. Girls who are in a prosocial club in adolescence have an increased risk of transitioning to marriage as a first union (SHR = 1.85), while spending more time with female friends lowers the rate of movement into marriage versus cohabitation (SHR = .92).

Table 6.5: Unweighted Competing Risks Models of Marriage

	Males	**Females**
	(1)	*(2)*
	SHR	*SHR*
Academic	1.10	1.21 [a]
	(0.82-1.47)	(0.99-1.47)
Athletic	1.06	0.91
	(0.89-1.25)	(0.76-1.08)
Jock	1.22 *	0.88
	(1.03-1.45)	(0.74-1.05)
Other	0.97	1.13
	(0.81-1.17)	(0.96-1.33)
Music	1.09	1.08 [a]
	(0.85-1.40)	(0.90-1.30)
Performing Arts	1.19	1.08
	(0.92-1.53)	(0.90-1.30)
School Involvement	1.08	1.04
	(0.86-1.35)	(0.87-1.24)
Cheerleading	--	1.16
		(0.97-1.39)
Prosocial	1.79 ***	1.85 ***
	(1.56-2.06)	(1.63-2.09)
Number of Activities	0.94 *	0.96
	(0.89-0.99)	(0.89-1.03)
TV/Videos	0.97	0.92
	(0.91-1.04)	(0.84-1.00)
Male Friends	0.90 **	1.04 [a]
	(0.84-0.97)	(0.98-1.10)
Female Friends	1.07 [a]	0.92 *
	(0.99-1.15)	(0.86-0.99)
Ave Hrs. Work	1.02	1.01 [a]
	(0.95-1.10)	(0.94-1.09)

N=11,347

note: all models control for age, race, immigrant status, family structure, family income (logged) and parent education.

Significant at p<.05, *p<.01, *p<.001

[a] Activities significant when entered individually (with controls).

Figures 6.1 and 6.2 illustrate the predicted cumulative incidence of marriage as a first union transition for males and females, respectively.[2] Figure 1 shows the cumulative incidence for males participating in jock sports and prosocial clubs (the two main activity effects in Table 6.4), compared to those who do not participate in these activities. By age 30, the probability of transitioning directly into marriage for males who were in a prosocial club in high school is over 20% compared to about 12% for males who were not in a prosocial club. For jock sports athletes, the pattern is similar, though smaller in magnitude (with differences in probability at age 30 of only about 5%). However, for males who were both in jock sports and in a prosocial club in high school, the probability of transitioning to marriage (without cohabitation) reaches 25% by age 32.[3]

Figure 2 presents a similar graph for females involved in cheerleading, academic clubs, and prosocial clubs (three large effects, though not all individually different than the baseline hazard). By age 30, the probability of transitioning to marriage for girls who were in a prosocial club in high school is roughly 24%, about 10% higher than those with average activity participation (see Figure 6.2). Finally, the highest line in figure 6.2 shows the cumulative incidence of marriage as a first union transition for girls who were cheerleaders in high school and also involved in prosocial and academic clubs; these females have over a .30 probability of transitioning directly into marriage by age 30.[4]

Figure 6.1: Competing Risks Regression Results, Males

[2] Because this is the cumulative incidence of marriage as a first union (without any prior cohabitation experience), the rates presented here are smaller than the weighted sample marriage rates of 46% for males and 54% for females presented in Table 6.1.

[3] A sizable proportion of males participated in both; 19% of males in the sample are in both. Weighted tabulations find that 18.5% of boys nationally were likely to participate in both.

[4] This is a large effect, though weighted tabulations show that only approximately 2% of females nationally participate in all three activities.

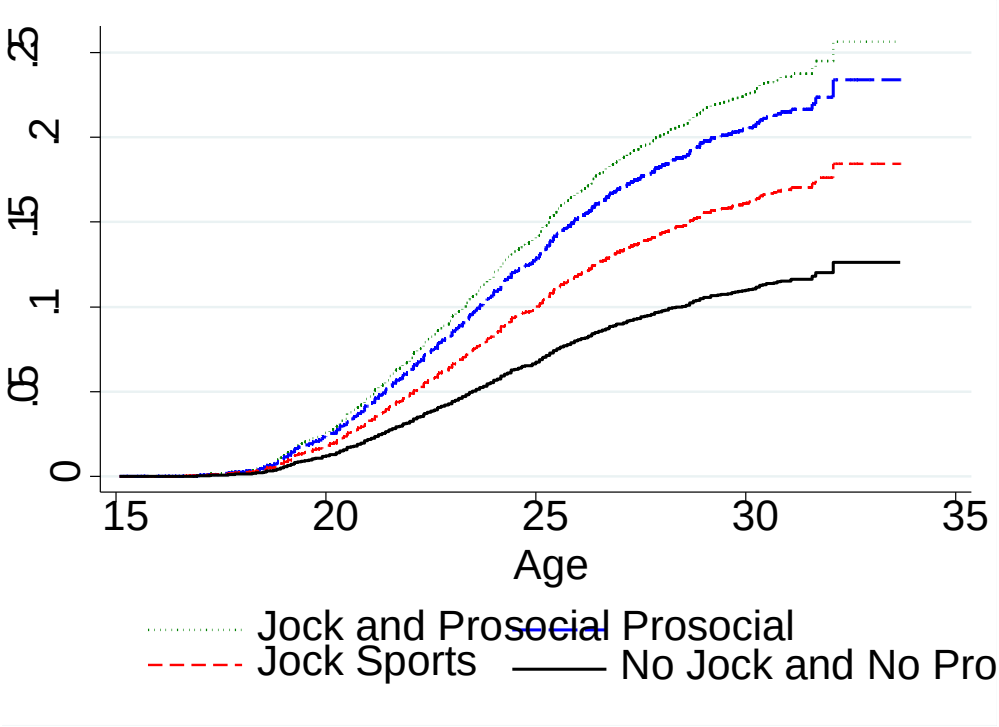
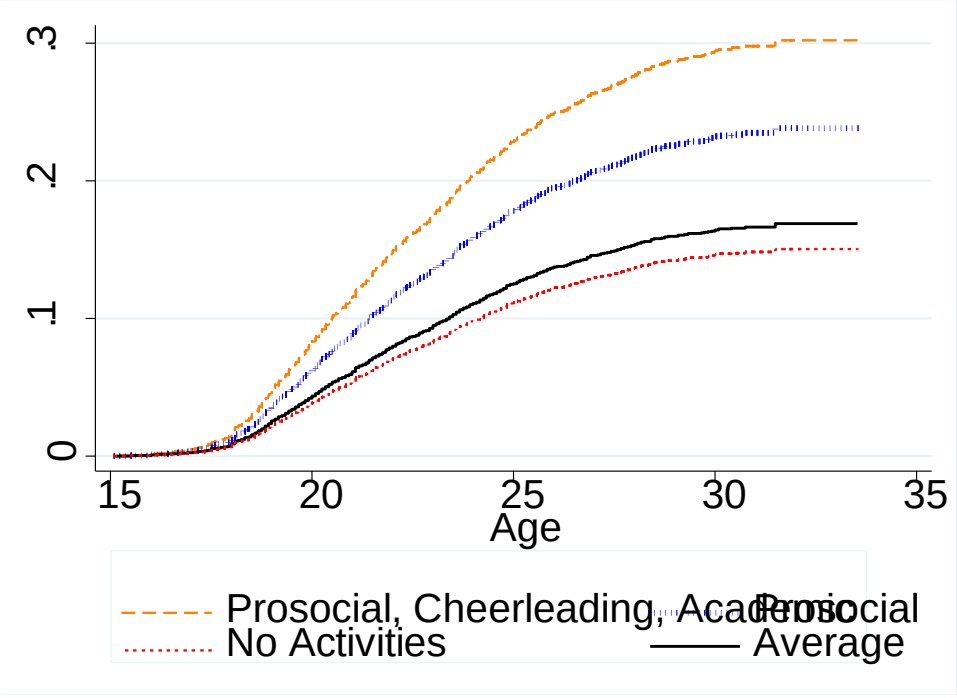


Figure 6.2: Competing Risks Regression Results, Females



Overall, Tables 6.4 and 6.5 and Figures 6.1 and 6.2 suggest that few adolescent activities have effects on the rate of union formation in young adulthood overall, but rather the effects

seem to be specific to the type of union formed. First, while time spent with opposite sex friends in high school increases the overall rate of forming a union (males' time with female friends and females' time with male friends in Table 6.4), interaction with opposite sex friends does not appear to affect rate of movement into marriage as a first union in Table 6.5. Further, being a member of a (largely non-school based) prosocial club in high school has little effect on first union transition overall (Table 6.4), but has strong effects on the risk of transitioning to marriage as a first residential union in particular (Table 6.5). Finally, results suggest largely stereotypically gendered effects for males, with male jock sports athletes moving into any union and marriage as a first union in particular at increased rates compared to their peers in other activities.

Multinomial Logistic Regression Models of Current Relationship Status

The final goal of this paper is to explore how activities affect current young adult relationship status. I anticipate results will augment and verify the results presented thus far. I use multinomial logistic regression models to compare the odds of being married, cohabiting, or single at the Wave 4 interview (when respondents are in their late 20s and early 30s). The first 2 columns present relative risk ratios for males in each of three relationship statuses compared to being single. Participation in jock sports (RRR = 1.35), prosocial clubs (RRR = 1.33), and spending more time than average with female friends (RR = 1.17) or working in adolescence (RR = 1.30) increase the risk of being married relative to other relationship statuses. Spending more time than average watching television or playing video games in adolescence is associated with decreased odds of being married in one's late 20s and early 30s. Column 2 presents relative risk ratios for cohabitation. Males who are cohabiting differ little from those who are single in their adolescent activities with the exception that spending more time in high school with female friends or spending more time working increases the risk of cohabiting (RRR = 1.17 and 1.18,

respectively). The superscripts in Column 2 denote significant differences between variables in the marriage and cohabitation equations. Jock sports participation and prosocial activities are unique in their significance for marriage alone. This is consistent with results in Tables 6.3, 6.4, and 6.5; participation in these two activities clearly leads to different union outcomes, pushing males toward marriage.

Columns 3 and 4 in Table 6.6 show relative risk ratios for females of being married or cohabiting relative to being single at the Wave 4 interview. The lack of any significant effects of school-based activity clusters on union formation is largely consistent with results shown above. Also consistent with models above, girls who participated in prosocial clubs in adolescence and those who spent more time than average with male friends are more likely to be married in their late 20s and early 30s (RRRs = 1.41 and 1.17). For cohabitation, girls who were in prosocial clubs in adolescence and those who spent more time than average watching television are less likely to cohabit (RRRs = .76 and .88, respectively) while those who spent more time than average with opposite sex friends are more likely to be currently cohabiting (RRR = 1.18).

For females, results in Tables 6.3 and 6.5 showed a significant negative effect of academic activity participation on ever cohabiting (Column 4 of Table 6.3) and a significant positive effect on the subhazard of transitioning to marriage over cohabitation when considered independent of other activities (Table 6.5). Together with the results in Table 6.6, it appears the effects of academic activities in reducing the risk of ever cohabiting and increasing the rate of transition to marriage are concentrated at younger ages (i.e. closer to when the participation occurred in high school). By their late 20s and early 30s, women who participated in academic clubs in high school have similar union formation rates as other women.[5] Overall school-based activity

[5] However, a moderately large but non-significant negative effect for current cohabitation (RRR = .83) suggests they may still be less likely to cohabit than non-participants.

participation has little significance for the union formation outcomes of young adult women.

Discussion

This paper set out to answer the following questions: do activities predict whether or not one forms a residential union, do activities affect the timing of partnerships, and finally, does activity type affect partnership type. I draw conclusions in two main areas: the particular types of activities that matter for relationship formation (my first and second research goals) and movement into one union type over another (my third research goal). As the effects of activities varied across sexes, I discuss results separately for males and females before drawing common themes linking results and theory.

Table 6.6: Multinomial Logistic Regression Models of Relationship Status

	Males		Females	
	(1)	*(2)*	*(3)*	*(4)*
	Married	*Cohabiting*	*Married*	*Cohabiting*
Academic	1.08	0.70	1.05	0.83
	(0.74-1.57)	(0.43-1.12)	(0.79-1.39)	(0.59-1.18)
Athletic	1.01	1.02	0.91	1.01
	(0.83-1.23)	(0.80-1.32)	(0.72-1.16)	(0.77-1.32)
Jock	1.35 **	1.02 [a]	1.15	1.00
	(1.08-1.68)	(0.77-1.34)	(0.93-1.43)	(0.79-1.27)
Other	1.16	1.03	1.10	0.87
	(0.91-1.49)	(0.76-1.39)	(0.88-1.39)	(0.68-1.12)
Music	1.02	0.86	1.07	1.05
	(0.80-1.31)	(0.64-1.17)	(0.83-1.37)	(0.79-1.41)
Performing Arts	0.77	1.08	1.22	1.10
	(0.55-1.07)	(0.75-1.57)	(0.99-1.51)	(0.87-1.40)
School Involvement	0.80	0.95	0.89	0.90
	(0.59-1.08)	(0.68-1.33)	(0.70-1.14)	(0.68-1.20)
Cheerleading	--	--	1.21	0.95
			(0.95-1.55)	(0.71-1.27)
Prosocial	1.33 **	0.89 [a]	1.41 ***	0.76 *[a]
	(1.09-1.63)	(0.70-1.14)	(1.20-1.67)	(0.62-0.95)
Number of Activities	0.97	1.03 [a]	1.02	1.07
	(0.91-1.02)	(0.96-1.10)	(0.93-1.12)	(0.96-1.19)
TV/Videos	0.92 *	0.97	0.89	0.88 *
	(0.85-1.00)	(0.87-1.07)	(0.79-1.00)	(0.79-0.98)
Male Friends	0.96	0.97	1.17 **	1.18 **
	(0.87-1.05)	(0.86-1.10)	(1.06-1.30)	(1.05-1.32)
Female Friends	1.17 **	1.24 ***	0.99	1.06
	(1.07-1.30)	(1.10-1.41)	(0.90-1.09)	(0.95-1.20)
Ave Hrs. Work	1.30 ***	1.18 *	1.09	1.06
	(1.18-1.42)	(1.04-1.35)	(0.97-1.22)	(0.92-1.22)

N=11,416

note: all models control for age, race, immigrant status, family structure, family income (logged) and parent education.

Significant at *p<.05, *p<.01, *p<.001

[a] Significant differences between effects for marriage and cohabitation

First, several school-based adolescent activities had consistent effects on relationship

formation. First, evidence in Tables 6.3 to 6.6 suggests that boys who are involved in performing arts and school involvement activities (honor society, school newspaper or yearbook, student council) form unions at slower rates than other males, but the effects are largely mitigated by participation in other activities and are negligible by the late 20s and early 30s. Next, boys who participated in jock sports in high school (baseball, basketball, or football) are more likely than other boys to ever marry (Table 6.3), to get married sooner (Tables 6.4 and 6.5) and to stay married by their late 20s and early 30s (Table 6.6). Additionally, participation in prosocial clubs in adolescence had consistently positive effects on marriage by increasing the likelihood of marriage and speeding the transition to marriage as a first residential union (Table 6.5). Though not as consistent or large in magnitude, prosocial club membership appears to discourage cohabitation (Tables 6.3 and 6.6). Figure 6.1 shows that the cumulative incidence of transitioning to marriage without any prior cohabitation experience is about twice as high for the nearly 20% of boys who are in both jock sports and prosocial clubs in adolescence compared to those in neither. Considering that an estimated 81% of males have formed any union by their late 20s and early 30s, interview,[6] this incidence proportion is unlikely to change at later ages.

Recall that black males had the highest participation rates in both jock sports and prosocial activities (Table 5.7) and an estimated 29% of black males are in both (not shown). Given the strong relationships between these two items and marriage, this finding appears inconsistent with the low marriage rates for black males (35% for black males compared to 49% of white males, 45% for Hispanic males, and 36% for other race males, not shown in tables) and the significantly lower odds of marriage for black males shown in Appendix Table A6.1. Exploring these relationships may provide potential avenues for engaging young black males in committed relationships through their involvement in these (and perhaps other) activities.

[6] In the sample, 4,233 of the 5,255 males (80.55%) have formed any residential union by the Wave 4 interview.

Several other types of activities in adolescence have significant effects on the union formation patterns of men. Interacting more than average with female friends as a teen increased the likelihood and rate of forming a union and remaining partnered, though the effects of spending time with opposite sex friends did not differ between marriages and cohabiting unions. Finally, working more than average in adolescence had similar effects, increasing the likelihood, and rate of forming a union and being (or remaining) in a partnership, but did not appear to have significantly stronger effects for one union type over another.

Overall there were far fewer long-term effects of adolescent school-based activities on union formation for women, though several non-school activities are important for girls' relationship outcomes. There is suggestive evidence that membership in academic clubs (honor society, math, or science club) promotes marriage and discourages cohabitation, but these effects are not consistently significant across models. The remaining effects of school-based activity participation are scattered across models and mitigated by the inclusion of all activities. In terms of non-school activities, participation in prosocial clubs in adolescence had consistently strong positive effects on marriage by increasing the likelihood of marriage (Tables 6.3 and 6.6) and speeding the transition to marriage as a first residential union (Table 6.5). Prosocial clubs also had consistent effects in deterring cohabitation for women (Tables 6.3 and 6.6).

Table 5.6 showed that girls spend significantly more time than boys interacting with same sex and opposite sex friends in adolescence (spending time together, talking on the phone, etc.). This time spent with friends has long-term effects on union formation for young adult women. Spending more time with male friends increases the rate of formation and overall likelihood of being in a union of either type for women, while more time spent with female friends slows movement into marriage and decreases the likelihood of ever marrying by the late 20s and early

30s (Table 6.3). Finally, adolescent work accelerates movement into unions (Table 6.4, but primarily cohabitation, as seen in Table 6.3) for young women, though these effects are largely mitigated by the late 20s and early 30s (Table 6.6).

Thus, regarding my first and second goals for this paper (determining whether activities affect any union formation in young adulthood and the rate of forming unions), I have found some evidence that a few activities (participation in prosocial clubs, time spent with opposite sex friends, and working in adolescence) matter for both union formation overall and rate of movement into residential unions, but there are few long-term effects of school-based activities on union formation by the late 20s and early 30s. With respect to the theories set forth at the outset as to why activities might matter for union formation, it appears activities are not universally valued sources of capital in marriage markets. In fact, performing arts and school involvement activities (arguably sources of cultural and social capital, respectively), reduced the likelihood of marriage and cohabitation for men, while academic club membership (arguably a source of human capital) decreased the likelihood of cohabitation for females. Consistent with past research, it is likely that the capital gained in these activities is valued only in other contexts (e.g. education) (DiMaggio and Mohr 1985; Kaufman and Gabler 2004). Alternately, if certain activities are significant for marriage and cohabitation outcomes but also delay union formation, having an older sample with more widespread union formation would perhaps show relationships that are not apparent in these data.[7] The consistently positive outcomes of jock sports participation on marriage for males provides evidence to support the evolutionary idea that females choose mates who are physically fit (Buss and Shackelford 2008; Faurie, et al. 2004; Schulte-Hostedde, et al. 2008). Finally, that opposite sex friendships have significant positive

[7] This is particularly likely for activities that prolog educational attainment and subsequently delay entry into residential unions, as those cited above have shown.

effects on union formation could provide support for developmental theories; those who spend more time interacting with opposite sex peers are gaining interpersonal skills useful in later relationships (Giordano 2003).

Turning to my third research question, regarding whether activities affect the type of union formed, I have found some evidence that suggests particular activities matter, but overall adolescent activities do not have strong effects for either marriage or cohabitation. The competing risks models in Table 6.5 provided an opportunity to assess the role of activities in the relationship decision-making process by considering explicitly whether participation in activities favors or disfavors marriage over cohabitation (logistic regression models in Table 6.3, hazard models in Table 6.4, and multinomial logistic models in Table 6.6 do not allow this distinction). In these models, few factors were significant and, aside from jock sports for males and prosocial groups for both, the two other significant effects for males and one significant effect for females in these models are not significant in other types of models.

Most broadly, young adults in their 20s during the early 2000s continued to form residential unions. By their late 20s and early 30s, 46% of men and 54% of women had married, while 69% of men and 72% of women had cohabited (Table 6.1). When considering both marriage and cohabitation together, 85% of women and 81% of men have formed at least one residential union by ages 26-32. While the unions formed by young adults today differ by type from prior points in history, considering both types together shows there is virtually no difference in magnitude between union formation today and marriage rates by age 30 (85-87% for women and 80-83% for men) in the 1940s, the historical high point for young marriage (Kreider and Ellis 2011).

Consistent with theories of a second demographic transition (Lesthaeghe and Neidert 2006; Raley 2001; van de Kaa 1987), several results support the idea that marriage and cohabitation are

two sides of the same coin. For males, when significant, the effects of participation in performing arts and school involvement club were similar for cohabitation and marriage. The effects of adolescent work for males were also similar for marriage and cohabitation. Third, interacting with opposite sex friends in adolescence has similar effects on marriage and cohabitation for both men and women.

However, there is some evidence that factors affecting union formation have different effects for cohabitation and marriage. For males, participating in jock sports increased the likelihood and quickened the timing of marriage only. For females, spending time with female friends decreased marriage transitions, but when significant, increased the likelihood of cohabitation. The largest and most consistent effects were found for prosocial activities, which increased the likelihood and rate of marriage while decreasing the likelihood of cohabitation for both men and women. Given that prosocial activities are comprised of church-based youth groups or other activities, the results are likely picking up a strong effect of religion on marriage and the pronuptial attitudes and practices associated with many religious traditions. The results supporting whether the activities have similar effects on marriage and cohabitation are thus mixed. However, though I have not found strong support that activities function as sources of capital in marriage markets, they may still play an important role in the assortative matching process.