

Unemployment duration and sports participation: evidence from Germany

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Motivation

Sport participation positively impacts labour market outcomes and education returns.
Usual outcomes :

- higher productivity at school ;
 - Pfeifer and Corneliessen 2010 (grades and graduation),
 - Anderson 2001,
 - Long and Caudill 1991 (graduation - good athletes)
- higher wages, higher level of responsibilities ;
 - Long and Caudill 1991,
 - Barron et al. 2000,
 - Ewing 1998,
 - Lechner 2009
- higher probability to get an interview.
 - Rooth 2010 (testing)

One outcome seems to have been left behind :

- labour market insertion : unemployment.

Idea

Hypothesis : Sporty people should experience shorter unemployment spells.

Channels

- 1 non-cognitive skills : more efficient job-search (concentration, dynamism) ;
- 2 positive signals (less human capital destruction, specific non-cognitive skills) ;
- 3 larger and more diversified social network.

Relevance of the timing of sports practice :

- *before* the unemployment spell for (1) and (3),
- *during* the unemployment spell for (2) and (3) BUT time constraint,
- both being the first best in terms of efficiency.

German Socio Economic Panel - GSOEP

German Socio-Economic Panel : panel data from 1984 to 2009, 20 000 individuals by wave.

- labour market information (monthly recorded),
- individuals' characteristics (yearly recorded).

The sample we use (from 1994 to 1999) :

Nb. Obs.	Nb. Ind.	Nb. Spells	Spell distribution	
25422	1954	xxxx	u-spell	xxx 34.5
			e-spell	xxx 65.5

total of u-spell (distribution)	1	43,7%	22.7
	2	28,9%	17
	3	16,4%	13.6
	4	7,2%	10.3

- Sporty people (at least once a week) :
 - 6% are sporty people (4.8% of the woman, 7.4% of the men) ;
 - 23.2% were sporty before being unemployed ;
 - 17.7% are sporty while they are unemployed.

GSOEP - Variables used

Sports participation facilitates unemployment exit thanks to the networking effect.

- Dependant variable : unemployment duration (probability of exit in t)
- Variable of interest : sports participation before the u-spell (1 to several lags) and during the u-spell.
- Explanatory variables :

constant within time	varying within time
gender (D)	age
ethnicity (D)	work experience
level of education (D)	family status (D)
position on the LM before the Uspell (D)	land of residence (D)
sports participation before the Uspell (D)	year
	number of visit to the doctor
	sports participation (D)

Sporty versus non sporty, comparison of the means

	mean	dif if sporty
unemployment duration	27.4	-3.3
part-time work duration	49.3	ns
full-time work duration	67.1	8.3
exit rate	0.59	0.08
entry rate	0.18	-0.07
tot spell u	1.8	ns

	mean	dif if sporty		mean	dif if sporty
woman	0.54	-0.05	education : fail	0.05	-0.02
age	37.64	-4.4	education : basic	0.41	-0.13
nb visit to doctor	9.6	-0.85	education : int	0.32	-0.01
married	0.61	-0.17	education : mat	0.09	0.09
east	0.35	-0.14	education : ter	0.14	0.07
nationality : German	0.83	0.05	education : fail	0.05	-0.02
nationality : Turk	0.05	-0.02	education : gal	0.2	-0.01
nationality : South Europe	0.06	-0.03	education : voc	0.6	-0.03
nationality : other	0.05	-0	education : ter	0.14	0.07

Duration model : Proportional hazards model

Model with proportional hazard (PH) assumption :

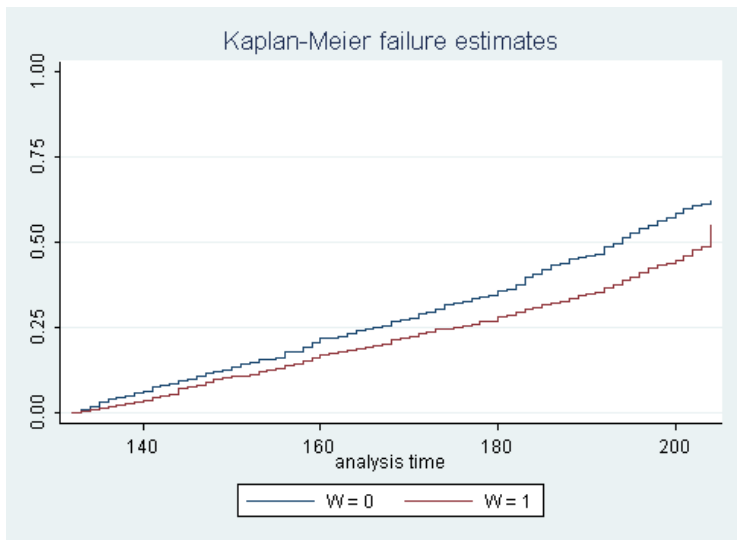
- Hazard rate at time t for the subject j :

$$h(t|x_j) = h_0(t)\varphi(X_j, \beta_x)$$

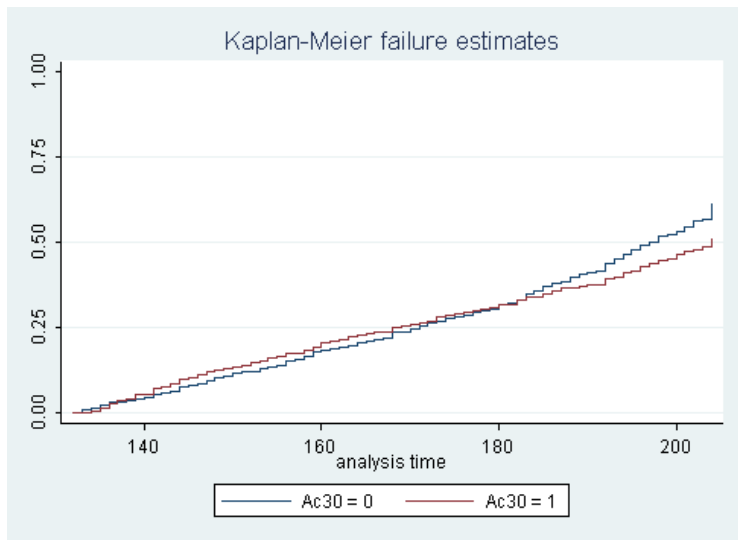
- with

$$\varphi(X_j, \beta_x) = \exp(X_j\beta_x)$$

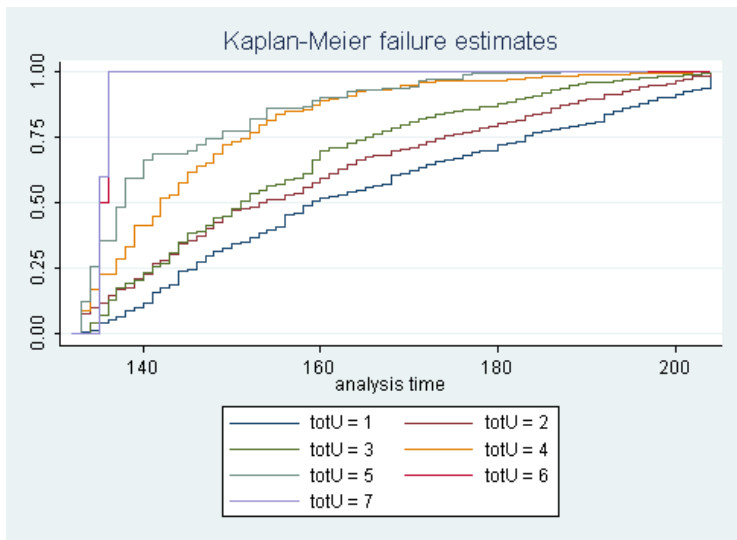
Test of the PH assumption : by gender



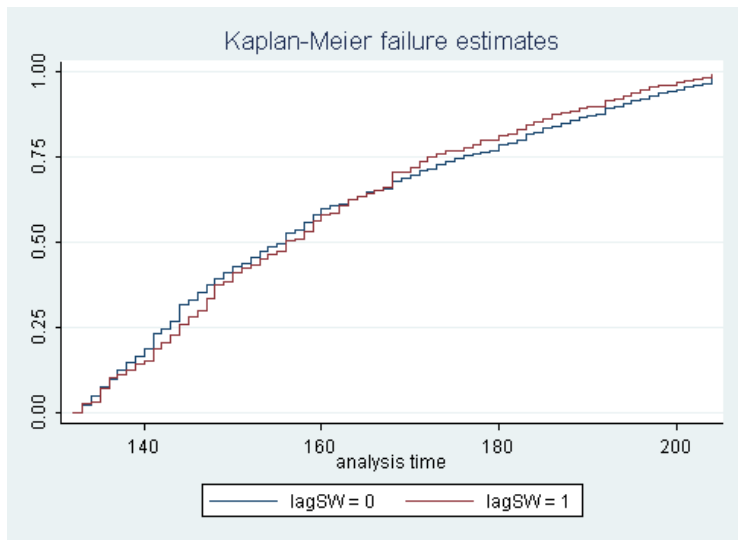
Test of the PH assumption : by age



Test of the PH assumption : by total of U-spell



Test of the PH assumption : by sports participation (lag)



Stratification

Stratification of the sample :

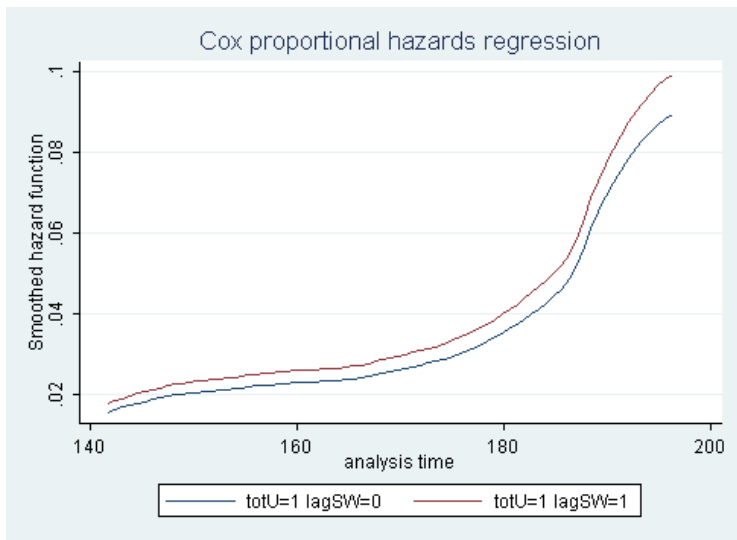
- Hazard rate at time t for the subject j who belongs to the group 1 :

$$h(t|x_j) = h_{01}(t)\varphi(X_j, \beta_x) \quad (1)$$

- Hazard rate at time t for the subject i who belongs to the group 2 :

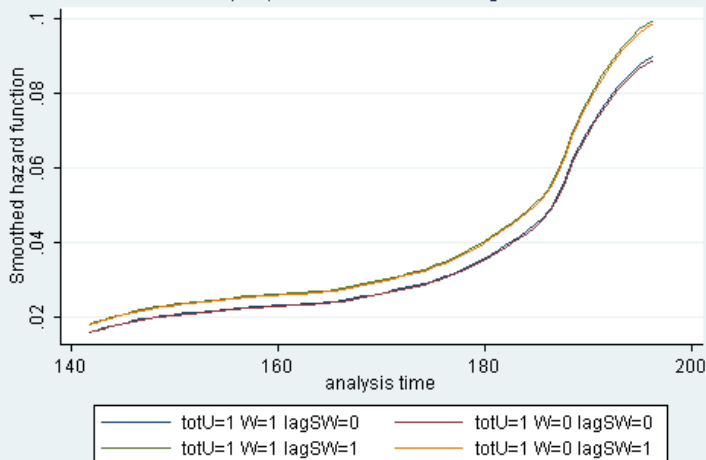
$$h(t|x_j) = h_{02}(t)\varphi(X_j, \beta_x) \quad (2)$$

Stratification : by sporting practice before the U-spell



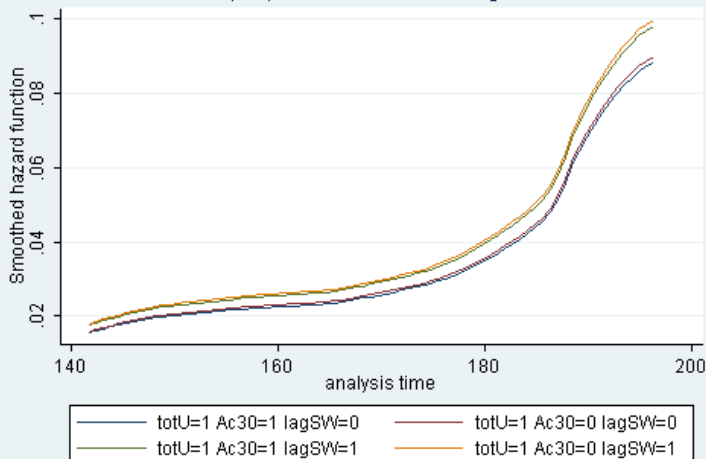
Stratification : by sporting practice (lag) and gender

Cox proportional hazards regression



Stratification : by sporting practice (lag) and age

Cox proportional hazards regression



Steps of the econometrical analysis

Estimation of the hazard ratio :

- 1 with and without various measures of sporting activity (with respect to the timing of the participation) ;
- 2 considering that sporty people have a different baseline hazard ;
- 3 controlling for the participation to others extracurricular activities.

	ALL	1 U-spell	2 U-spell
lagSW	1,125 (2.39)***	1,047 (0.63)	1,209 (2.34)***
sport week	0,946 (0.79)	1,015 (0.15)	0,919 (0.62)
dailyH houwk	0,911 (5.52)***	0,919 (3.34)***	0,922 (2.66)***
dailyH childC	0,999 (0.17)	0,987 (1.16)	1,004 (0.34)
dailyH hobbies	0,956 (4.26)***	0,949 (3.26)***	0,963 (2.16)**
num Uspell	0,682 (4.73)***		0,668 (2.98)***
nb Drvisit	0,997 (2.57)***	0,999 (0.84)	0,996 (1.58)
casminFail	0,869 (1.02)	0,730 (1.65)*	1,353 (1.71)*
casminInt	0,928 (0.92)	0,979 (0.17)	0,733 (2.18)**
casminMat	1,084 (0.38)	1,034 (0.12)	1,015 (0.06)
casminTer	1,204 (1.94)*	1,385 (2.18)**	0,978 (0.15)
exp	1,007 (0.86)	0,992 (0.76)	1,037 (2.34)***
Observations	1954	1090	528

	ALL		1 U-spell		2 U-spell	
	(1)	(2)	(1)	(2)	(1)	(2)
sport week	0,939 (0.90)		1,009 (0.09)		0,911 (0.70)	
sporty ALL		1,024 (0.19)		1,150 (0.90)		0,739 (1.02)
dailyH houwk	0,910 (5.61)***	0,912 (5.50)***	0,916 (3.54)***	0,918 (3.46)***	0,920 (2.79)***	0,928 (2.54)*
dailyH childC	0,997 (0.40)	0,996 (0.48)	0,987 (1.13)	0,986 (1.23)	1,005 (0.36)	1,004 (0.35)
dailyH hobbies	0,954 (4.43)***	0,954 (4.48)***	0,949 (3.28)***	0,948 (3.29)***	0,964 (2.13)**	0,963 (2.24)*
num Uspell	0,685 (4.61)***	0,686 (4.59)***			0,687 (2.81)***	0,679 (2.88)**
nb Drvisit	0,997 (2.55)***	0,997 (2.47)***	0,999 (0.61)	0,999 (0.60)	0,995 (1.91)*	0,995 (1.90)
casminFail	0,845 (1.21)	0,846 (1.20)	0,712 (1.79)*	0,712 (1.79)*	1,455 (2.06)**	1,445 (2.02)*
casminInt	0,921 (1.01)	0,916 (1.10)	0,994 (0.05)	0,978 (0.19)	0,722 (2.29)**	0,705 (2.44)*
casminMat	1,074 (0.34)	1,061 (0.28)	1,012 (0.04)	0,985 (0.06)	1,000 (0.00)	0,978 (0.09)
casminTer	1,250 (2.33)***	1,225 (2.10)**	1,426 (2.35)***	1,385 (2.10)**	0,970 (0.20)	0,977 (0.16)
exp	1,008 (0.94)	1,007 (0.91)	0,992 (0.79)	0,992 (0.83)	1,040 (2.55)***	1,038 (2.44)*
Observations	1050	1060	1004	1005	520	520

Comparison with other activities

Can any other extracurricular activities play the same role as sporting activity?

- Other ways to socialize, to signal or learn non-cognitive skills : meeting friends, being involved in community activities, being involved in politics, being a volunteer, going to the church or other religious places, going to the cinema, going to museum or theater.

activities	frequency	mean	dif if sporty
cinema		0.98	-0.02
culture		0.66	0.03
social		2.21	-0.01
volunteer		0.45	0.02
politics		0.13	ns
community		1.41	-0.05
religion		1.65	0.04

	all	1 U-spell	2 U-spell
lagSW	1,126 (2.38)***	1,043 (0.56)	1,215 (2.35)***
retard12U cultW	0,656 (1.86)*	1,166 (1.56)	0,741 (1.07)
retard12U socW	1,065 (1.39)	1,052 (0.48)	0,955 (0.64)
retard12U comW	0,961 (0.53)	0,583 (1.83)*	0,878 (0.80)
retard12U polW	1,031 (0.21)	1,394 (1.07)	0,902 (0.41)
retard12U volW	1,018 (0.23)	0,776 (2.08)**	0,904 (0.74)
retard12U relW	0,891 (1.38)	1,110 (1.59)	1,059 (0.44)
retard12U cineW	1,168 (2.51)***	0,980 (0.17)	1,190 (1.57)
dailyH houwk	0,913 (5.33)***	0,929 (2.93)***	0,917 (2.85)***
dailyH childC	0,997 (0.33)	0,985 (1.37)	1,003 (0.26)
dailyH hobbies	0,957 (4.24)***	0,954 (3.04)***	0,959 (2.39)***
Observations	1944	1082	526

Conclusion and further steps

Conclusion

- practicing sports reduces unemployment duration for men and women (in Germany between 1994 and 1999);
- this impact is specific to sporting activity;
- the timing is relevant : only sports practiced *before* the U-spell matter.
- channels involved : networking effect, signalling effect and difference in search efficiency.

Further steps

- introduction of frailty;
- instrumentation of the variable "sporty" (height in 2002 and birth month)

Thank you very much for your attention !