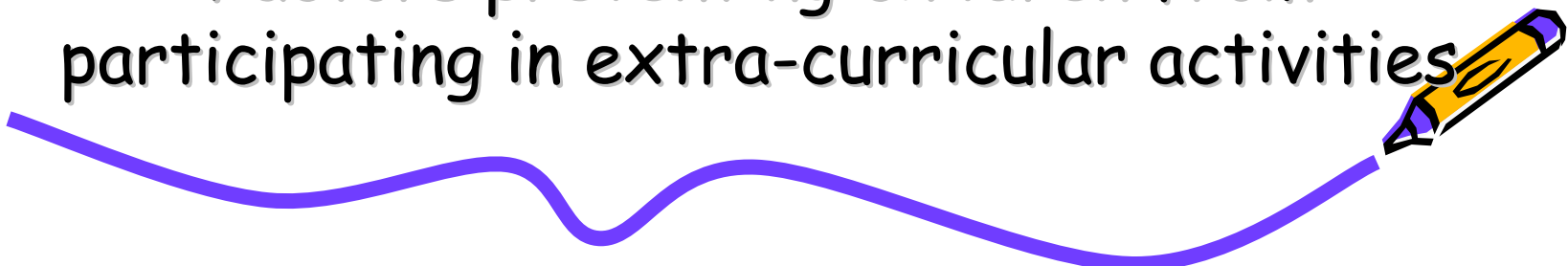


# Why are some children left out?



Factors preventing children from participating in extra-curricular activities

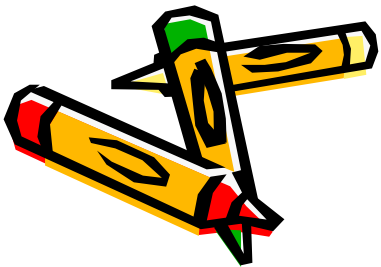


Li Xu and Anne H. Gauthier

June 2008

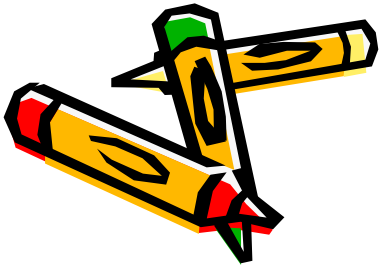
# Why a study on extra-curricular activities?

- a protective effect against deviant behaviour & early school dropout
- promotes positive outcomes in children and adolescents
- long term positive effect into adult life



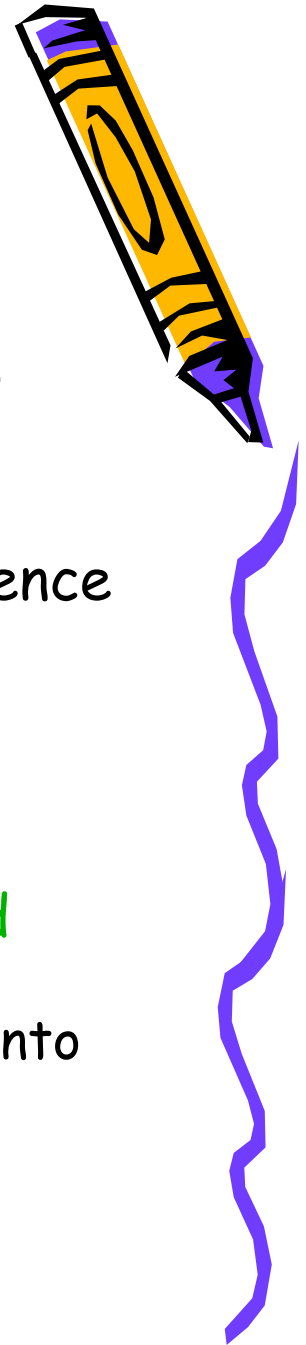
## Findings about extra-curricular activities...

- Complex pattern of effect: low SES or high risk children benefit more from extracurricular participation (McNeal 1998; Simpkins et al. 2005; Offord et al. 1998 )
- Low SES children have lower participating rate (Barsh and Kleiman, 2002; Bening 2007; Fredericks and Eccles 2006; Mahoney and Cairns 1997)



# Limitations in previous study of children's extracurricular participation

- Focus on adolescents, little research on younger children
- Focus on outcomes, little research on factors
- Factors pointed out by previous studies to influence participation
  - Child gender (individual child level)
  - Ethnicity/Race (individual child level)
  - Parent SES (family level)
  - Neighborhood characteristics (Neighborhood level)
  - Studies rarely include factors at all three levels into analysis



# Analytical model



Parent's time availability  
(e.g. mother's employment status, number of children, single-mother)

Child characteristics  
Age, gender and ethnicity

Financial resources

**Participation in extra-curricular activities**

Parent's human capital

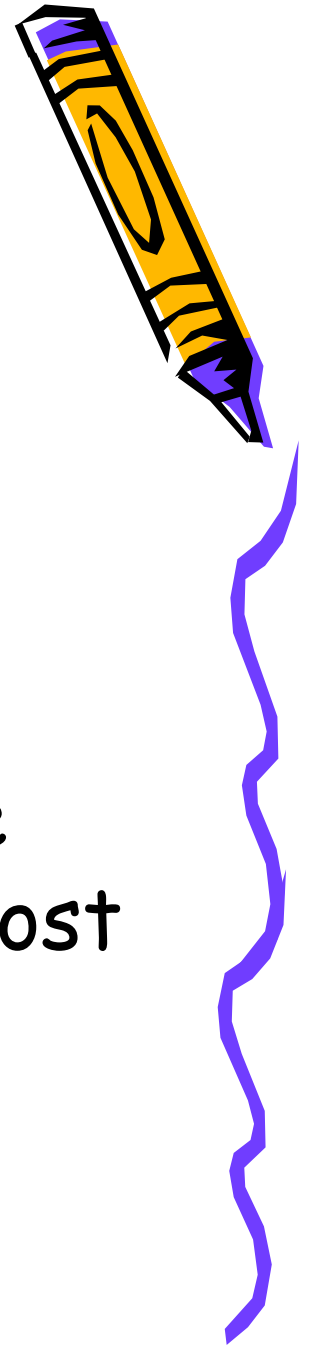
Ethno-culture  
(immigrants)

Neighbourhood environment  
(e.g. available infrastructure, safety and peer influence, playmates)



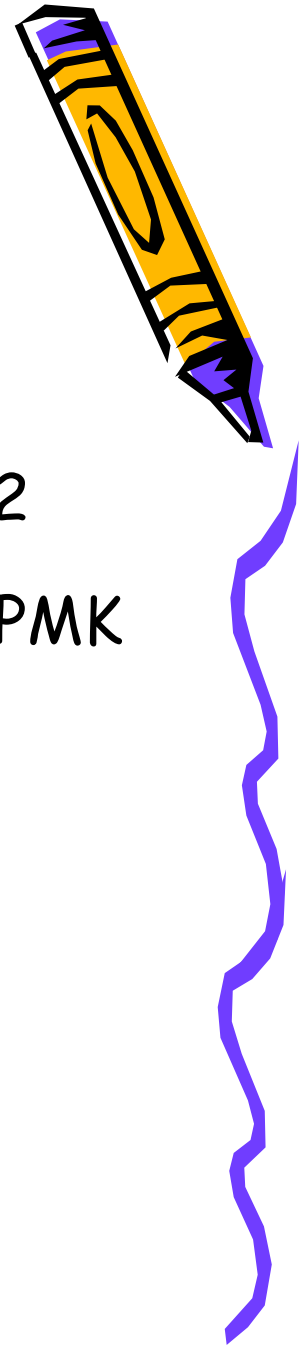
# DATA: National Longitudinal Survey of Children and Youth (NLSCY)

- Started in 1994-5 with 22,831 children 0-11 years old followed every two years
- Questions regarding children were collected from the PMK (Person Most Knowledgeable about the Child. In most cases, PMK is the mother)



# Sample of this study

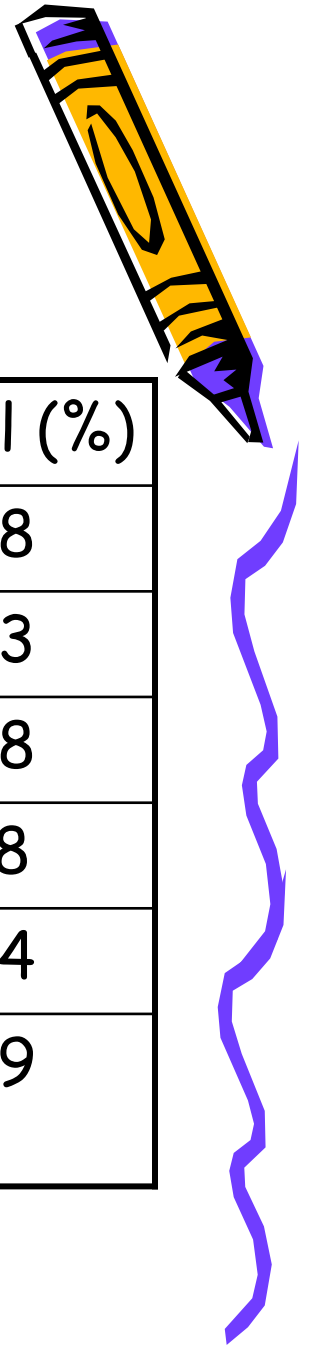
- Cycle 2-4 (1996/7 - 2000/01)
- longitudinal children of 4-5 years old in cycle 2 (N=2,289) 6-7 in cycle 3 and 8-9 in cycle 4 (randomly selected one child per household & PMK same)
- Sample attrition
  - Cycle 2: 2,289
  - Cycle 3: 2,090
  - Cycle 4: 1,797
- Weights: longitudinal weights at cycle 2
  - Unbalanced panel data



# A few facts about extra-curricular activities in Canada...

Prevalence of regular participation  
(4-9 year old, NLSCY cycle 3(1998-99) )

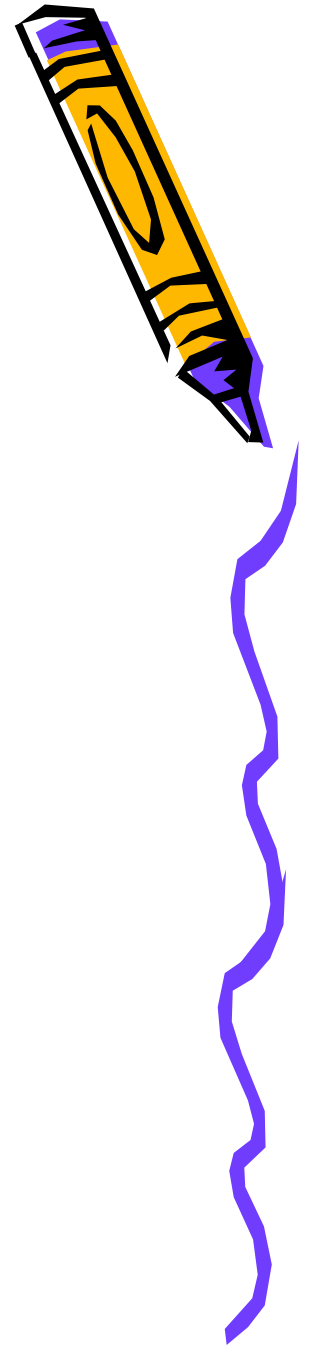
Activity	Boys(%)	Girls(%)	Total (%)
Organized sport	53	43	48
Unorganized sport	67	59	63
Dance/gym	23	33	28
Art/music	14	23	18
Clubs/community	20	29	24
At least one of above organized activities	68	70	69





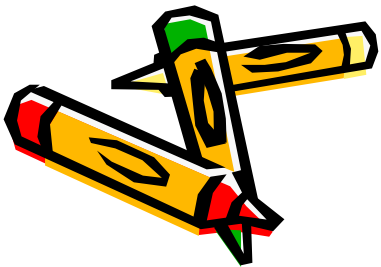
# Analytical model

- Generalized estimation equation (GEE)
  - Takes into account of correlation of repeated measurements of outcomes
  - Allows both time-invariant and time-variant covariates

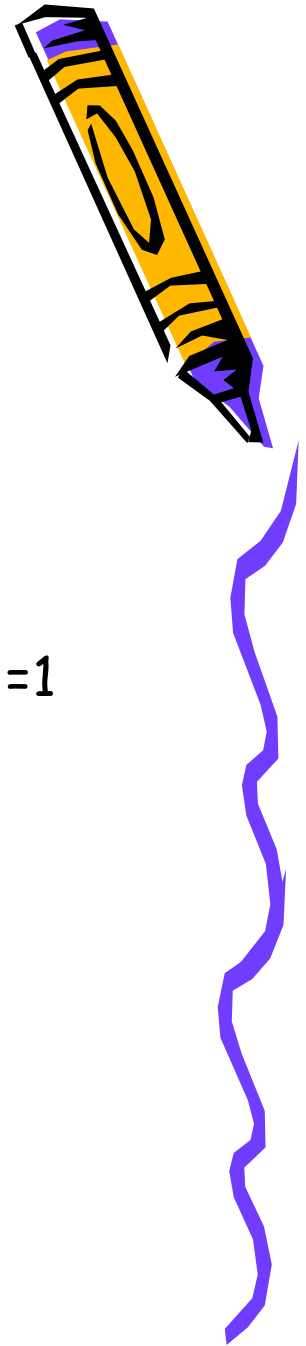


# Dependent variables

- "In the past 12 months, outside of school hours, how often has [child]..."
  - taken part in sports (except dance or gymnastics) with a coach or instructor?
  - taken lessons or instruction in other organized physical activities with a coach or instructor such as dance, gymnastics or martial arts?
  - taken part in unorganized sports or physical activities without a coach or instructor?
  - taken lessons or instruction in music, art or other non-sport activities?
  - taken part in any clubs, groups or community programs with leadership, such as Beavers, Sparks or church groups? (4-5 years old) Brownies, Cubs or church groups? (6-9 years old)



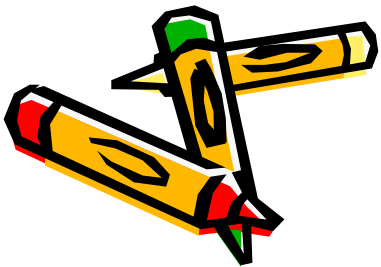
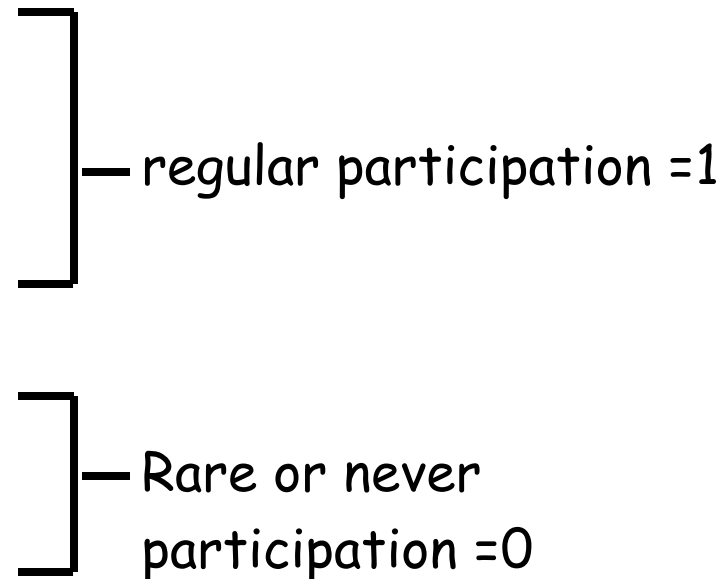
# Dependent variable categories



## Original

1. Most days:
2. A few times a week
3. About once a week
4. About once a month
5. Almost never

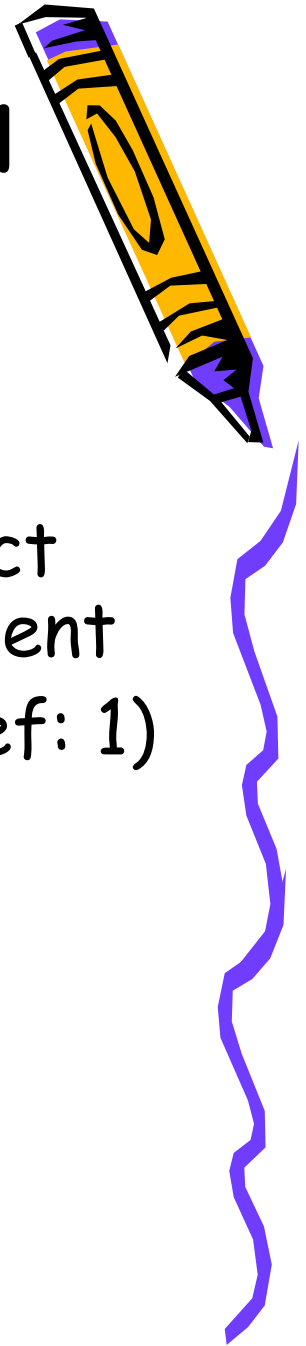
## In our model:



# Independent variables: family level

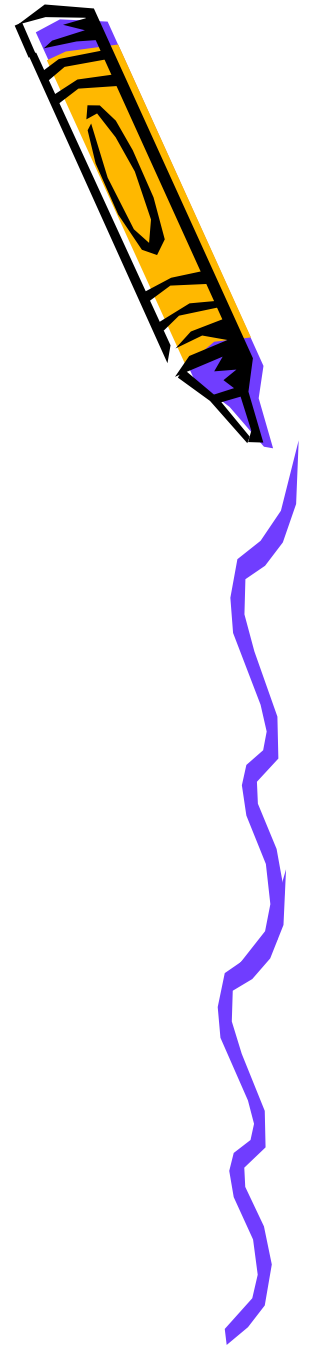
## Parent time availability

- PMK employment status (full-time (ref)/part-time/did not work)
- Family structure: two parents intact (ref)/two parents other/single parent
- Number of children (1, 2, 3, 4+) (ref: 1)
- PMK depression scale (0-36)
- Financial resources
  - Household income adequacy (4 categories; ref: lowest and low)



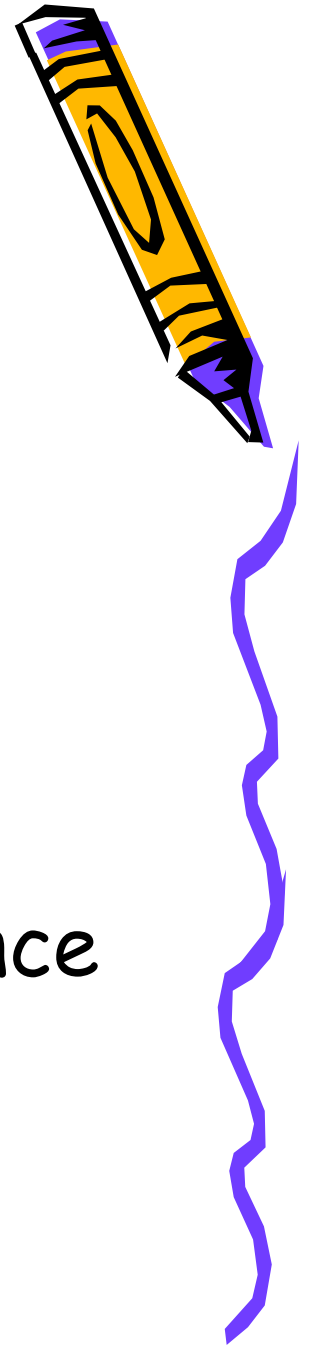
# Independent variables: family level

- Parents education and cultural values
  - PMK education: less than secondary (ref), secondary school graduation, beyond high school and college or university degree
  - PMK immigrant (non-immigrant (ref)/immigrant)



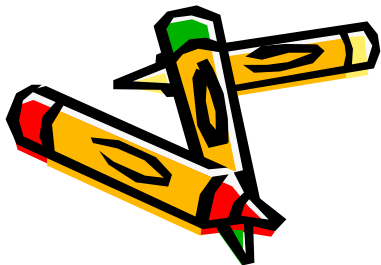
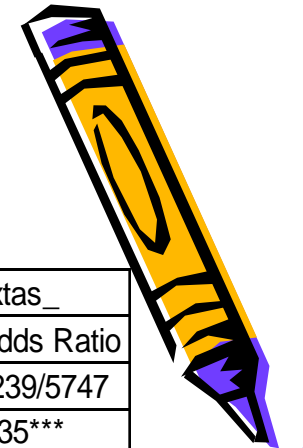
# Independent variables: Neighborhood level

- Available infrastructure and available play mates
  - dwelling types: house (ref)/duplex & apartment/other
  - rural/urban residence (re: urban)
- Safe environment and peer influence
  - EA average family income

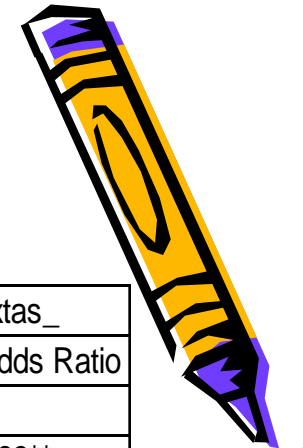


# Table 2 GEE results

	sport_	unspor_	dance_	art_	club_	extas_
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
	2239/5747	2239/5747	2239/5748	2239/5748	2239/5748	2239/5747
Child age	1.30***	1.06*	1.05	1.33***	1.15***	1.35***
Child is female	0.67***	0.68***	1.98***	1.79***	1.53***	1.08
Family structure (re: intact two parents)						
Other two parents	0.87	0.85	1.22	0.79	0.8	0.82
Single parent	0.96	1.13	0.95	0.94	1.35	0.91
No. of children aged 0-17 in H(ref:1 child)						
2 children	1.15	0.84	0.74	0.87	1	0.96
3 children	0.99	1.2	0.54**	1.11	1.26	0.78
4 children and more	0.63*	1.18	0.43**	0.78	1.17	0.47**
PMK depression scale	1	0.99	0.99	1	1.01	0.99
PMK work status(ref: work full time)						
PMK work part time	1.11	1.19	1.14	1.35	1.24	1.27
PMK did not work	1.02	0.98	1.17	1.29	1.12	1.09
PMK education (ref: less than secondary)						
Secondary school graduation	1.38	0.98	1.25	2.29**	1.17	1.26
Beyond high school	2.15***	1.46*	1.94*	2.97***	1.66**	2.06***
College or university degree".	2.32***	1.47*	2.36**	4.44***	1.61*	2.82***



# GEE results (cont'd)



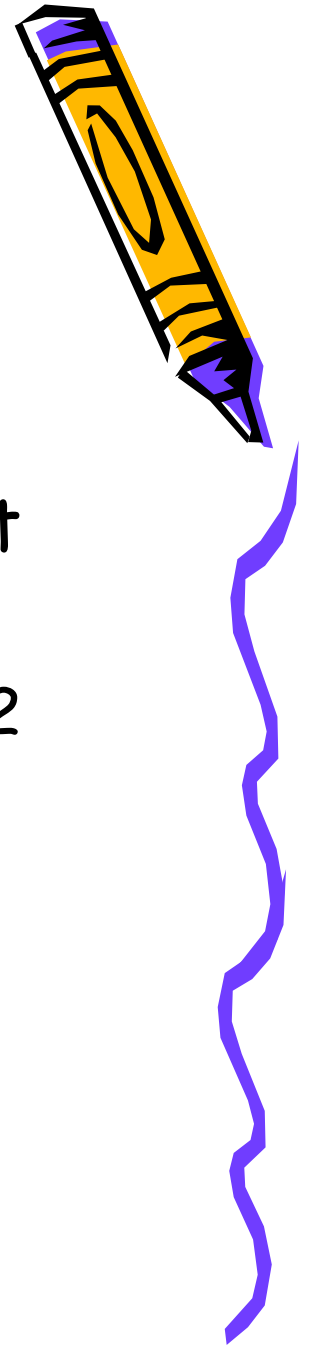
	sport_	unspor_	dance_	art_	club_	extas_
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Household Income adequacy (ref: lowest)						
Middle:	1.74*	1.23	1.58*	2.06**	1.42	1.83**
Upper middle	2.29***	1.31	2.27***	3.27***	1.38	2.95***
Highest	4.16***	1.4	2.79***	3.89***	1.67*	5.45***
Dwelling types (ref: houses)						
Duplex and apartment	0.8	0.8	0.74	0.9	0.60*	0.84
Other types	0.45**	1.14	0.56	0.49	0.87	0.38***
Rural residence (ref:urban)	0.83	1	0.73*	0.86	0.81	0.83
Province (ref: Quebec)						
Atlantic	1.19	0.89	0.7	1.24	10.00***	0.96
Ontario	1.52*	1.07	0.98	1.33	5.26***	1.45*
Prairie	1.54**	1.15	1.06	1.7**	6.27***	1.55*
British Columbia	1.98***	1.53*	1.52	1.49	8.02***	2.00**
Non-white child	1.05	0.57*	0.7	2.05*	0.53*	0.84
PMK immigrant	0.53**	0.68	1.48	0.71	0.73	0.96
* $p < .05$ . ** $p < .01$ . *** $p < .001$ .						





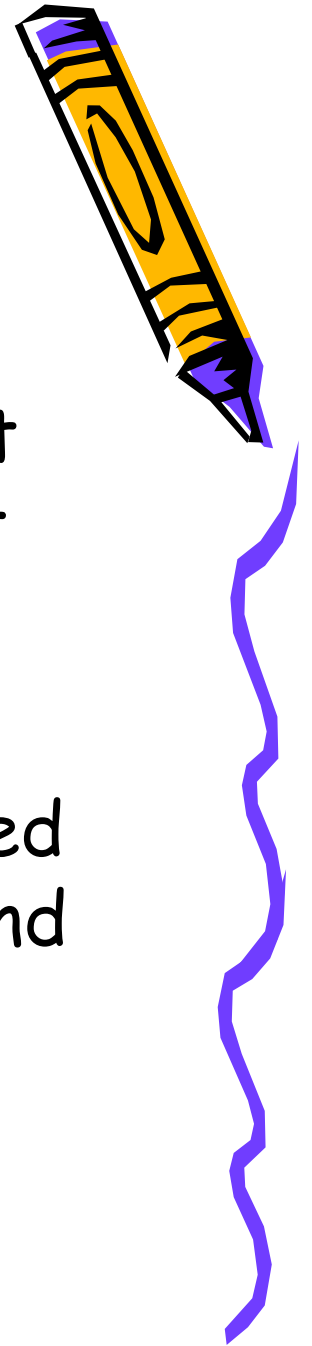
# Summary of the results

- Financial resources (Income adequacy): children from poorest families are most disadvantaged
  - organized sport: (+) strong: OR: 1.7, 2.3, 4.2
  - dance/gym (+) strong
  - art/music (+) strong
  - clubs/community (+) weak
  - Unorganized sport: no effect (interesting!)



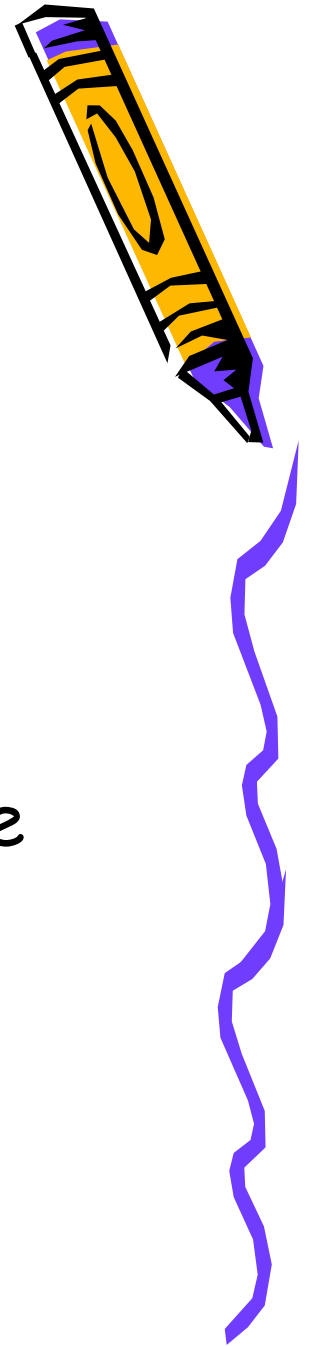
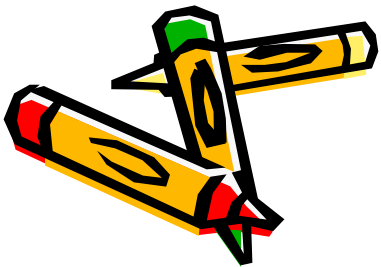
# Summary of the results

- PMK education: (+) large positive effect for categories starting with "some post secondary" for all activities
- Education: largest for "art and organized sport", smaller for unorganized sport and clubs/community



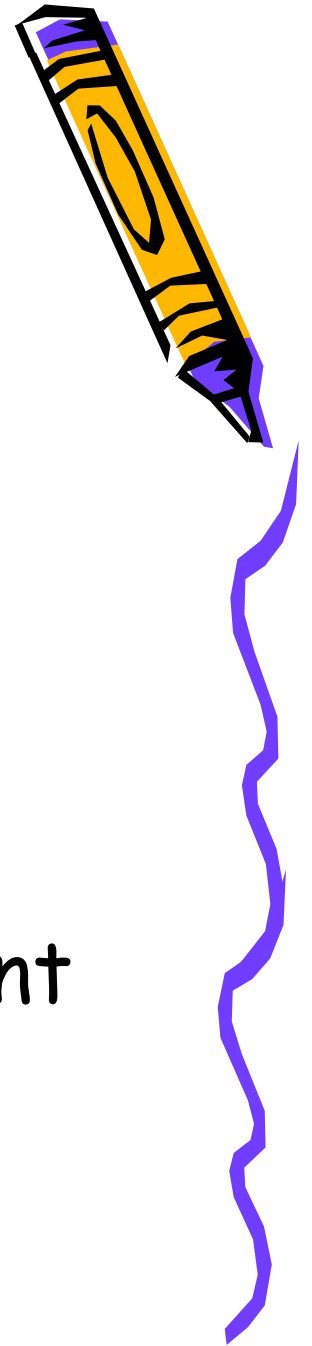
# Summary of the results

- Time availability
  - PMK employment: not significant
  - Family structure: not significant
  - Number of children: (-) for 3 or more and 4 or more children for organized sport and dance/gym



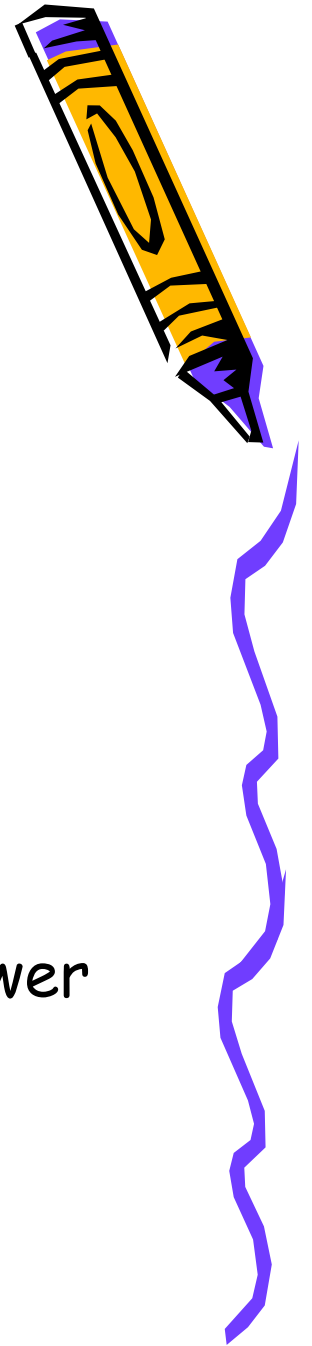
# Summary of the results

- Child ethnicity: non-white
  - (-) unorganized sport (OR 0.57)
  - (-) club/community (OR 0.53)
  - (+) for art (OR 2.05)
- PMK immigration status: immigrant
  - (-) for organized sport (OR 0.5)



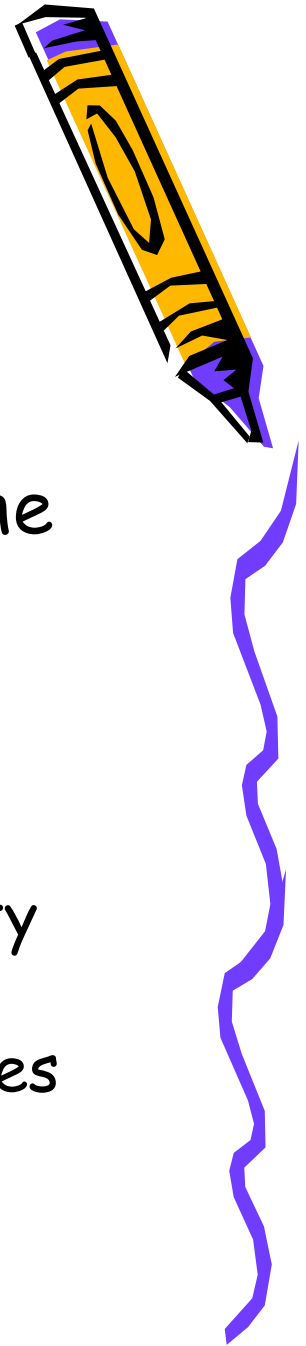
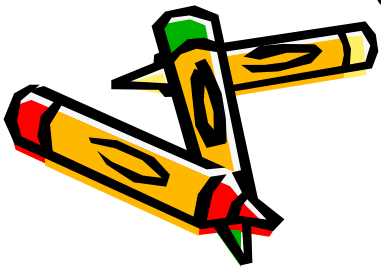
# Summary of the results

- Rural residence: (-) for dance/gym
- Dwelling types:
  - Organized sport: Other types (-)
  - Club/community: Duplex & apartment (-)
- Province/region:
  - In general QC has lower likelihood of participation of most activities,
  - Club/community: participation in QC is lower than all other regions



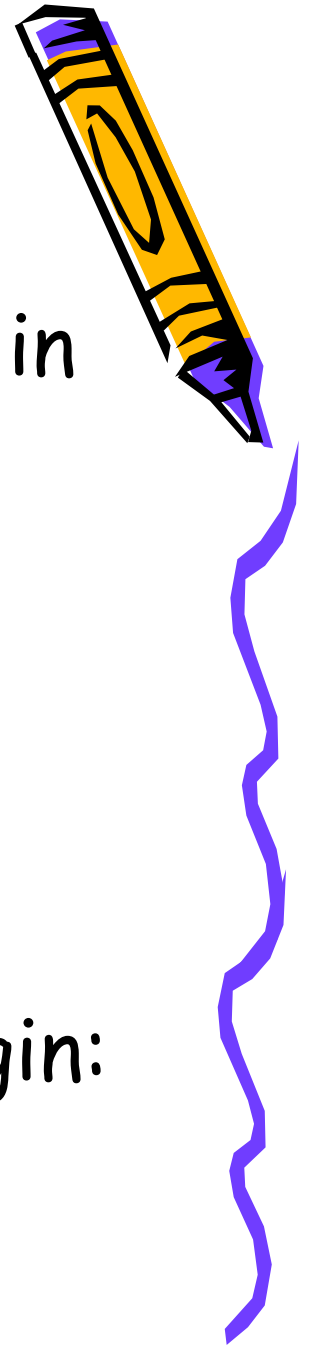
# Supplement model: add average neighbourhood household income

- Effect of average family income of the neighbourhood (EA)
  - Significant positive effect for organized sport (+)
  - Effect of family income does not change
  - Possible mechanism: peer influence, safety concern, availability of infrastructure
  - Caution: there might be "artificial" changes of EA



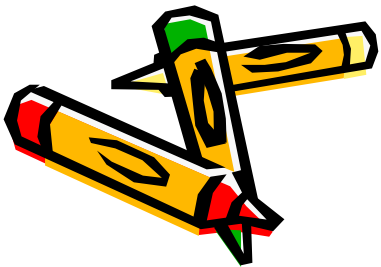
# Discussions

- Socio-economic division manifests in child after-school activities
- Income barriers are important: implication for the Fitness Tax Credit program:
- Independent effect of parent education
- Immigration status and ethnic origin: on some activities



# Limitations

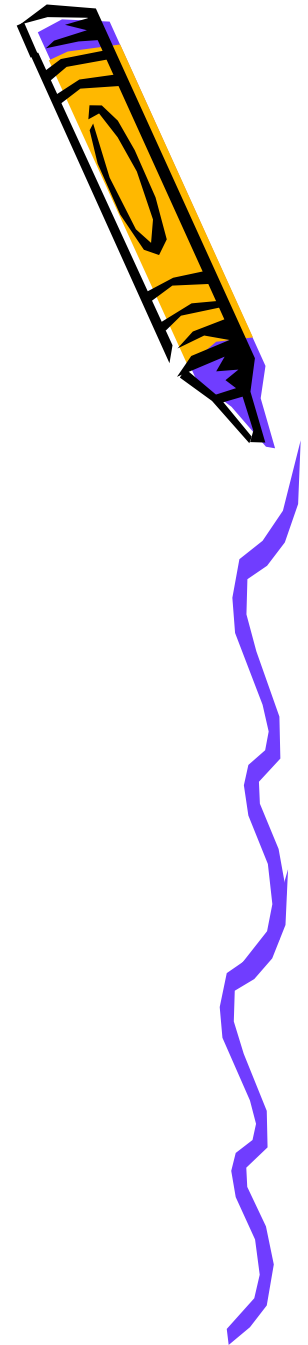
- extracurricular activities include both school-based and non-school based
- community/club activities include wide range of activities
- Insufficient cases for more detailed analysis of ethno-cultural differences
- No variables directly capture the values and attitudes towards extracurricular activities





# Descriptive statistics at cycle 2

(weighted) (total unweighted cases: 2289)



variables	Categories	Cycle 2
Organized sport	almost never & about once a month	67.88
	at least once a week	32.12
Unorganized sport	almost never & about once a month	41.95
	at least once a week	58.05
Dance/gym	almost never & about once a month	73.85
	at least once a week	26.15
Art/music	almost never & about once a month	91.12
	at least once a week	8.88
Club/community	almost never & about once a month	82.27
	at least once a week	17.73
At least one (sport+dance+art)	Did not participated any	53.15
	Participated at least one	46.85
Child sex	male	49.54
	female	50.46
Child race	none white	8.75
	white	91.25
PMK immigration status	not immigrant	85.38
	immigrant	14.62
Province/regions	Atlantic	7.95
	Qu ec	24.41
	Ontario	37.16
	Prairie	18.72
	British Columbia	11.76



# Table 1 (cont'd)

variables	Categories	Cycle 2
Household income adequacy	lowest and lower	20.53
	middle	29.27
	upper middle	33.89
	highest	16.31
Family structure	intact family	73.83
	not intact but couple census family	7.76
	other-single parent family	18.4
Dwelling types	single, semi-detached, garden house	81.51
	duplex, low-rise apt., high-rise apt.	15.87
	other	2.63
Rural/urban	non-rural	87.3
	rural	12.7
PMK depression scale	0-10	4.78
Children 0-17 in household	1	18.81
	2	46.94
	3	22.97
	4	11.28
PMK work status	worked full time	45.84
	worked part time	23.06
	did not work	31.1
PMK education	less than secondary	11.47
	secondary school	18.5
	beyond high school	28.79
	college or university degree	41.24

