

UK children's screen-based activities: The story of the millennium so far

Killian Mullan
University of Oxford

QoL and Wellbeing Showcase, London
27th November 2017

Children and technological change

- Opening decades of 21st Century witnessed rapid technological change
- Three entwined ‘revolutions’ (Rainie & Harrison, 2012):
 1. Social Network
 2. Internet
 3. Mobile
- Raised/renewed concerns around children’s time in screen-based activities, and their health and well-being

British teenagers among world's most extreme internet users, report says

Thinktank warns that heavy internet use can have damaging consequences but says educating teenagers more effective than limiting online access



<https://www.theguardian.com/technology/2017/jun/30/british-teenagers-among-worlds-most-extreme-internet-users-report-says>

Frith, E. (2017) *Social media and children's mental health: A review of the evidence*. London: Education Policy Institute

Key Findings

The digital lives of children and young people

- Over a third (37.3 per cent) of UK 15 year olds are 'extreme internet users' (defined by the OECD as a student who uses the internet for more than six hours outside of school on a typical weekend day).¹ This is substantially higher than the OECD average. The only OECD country with higher levels of extreme internet use than the UK was Chile.

24.1% are 'extreme internet users' on a 'typical' weekday

How much time do you spend online during a typical weekday/weekend: none; up to one hour; 1-2 hours; 2-4 hours; 4-6 hours; 6+ hours?

Old and new screen-based activities

- Prior to the ‘three revolutions’ (*circa* 2000) screen-based activity was time watching TV, playing videogames, and using (desktop) computers
- Now, in addition, includes the use of mobile devices and the internet for:
 - ‘old’ screen-based activity: e.g. watching TV on a tablet
 - new activities, may be combined with non-screen-based activities: e.g. social media while eating/travelling

Change in time in screen-based activities

- Decrease in TV, increases in time using computers and playing videogames
 - Bucksch et al (2016)
- Increase in time online, particularly on mobile devices:
 - Ofcom (2015); Livingstone et al. (2014)
- Suggests increase in total screen time
- Important limitations relating to measures

Measuring children's time in screen-based activities

- Recall questions (most common)
 - Easy to administer
 - Can be unreliable – memory unreliable; perceptions distort; social desirability bias
 - Difficult to combine responses for different activities, deal with overlapping screen-based activities
- Time diaries
 - Reliable, burdensome
 - Special purpose (e.g. Ofcom's *Digital Day*)
 - All-purpose (e.g. UK Time Use Survey)

Research questions

1. How much time do children spend in screen-based activities, and how has this changed between 2000 and 2015?
2. How much time are children spending using mobile devices in 2015?
3. What activities are children engaging in when using mobile devices?

Data

- United Kingdom Time Use Surveys 2000-01 & 2014-15
- Respondents 8+ years keep a time-diary for a weekday and a weekend day
 - Report main activities, other (secondary) activities, location, and co-presence throughout the day
 - In 2014-15 respondents provided data on their use of 'smartphone, tablet, computer' throughout the day
- Individual/household questionnaires

Time diary instrument

Day 1
Time: 7am – 10am
Morning

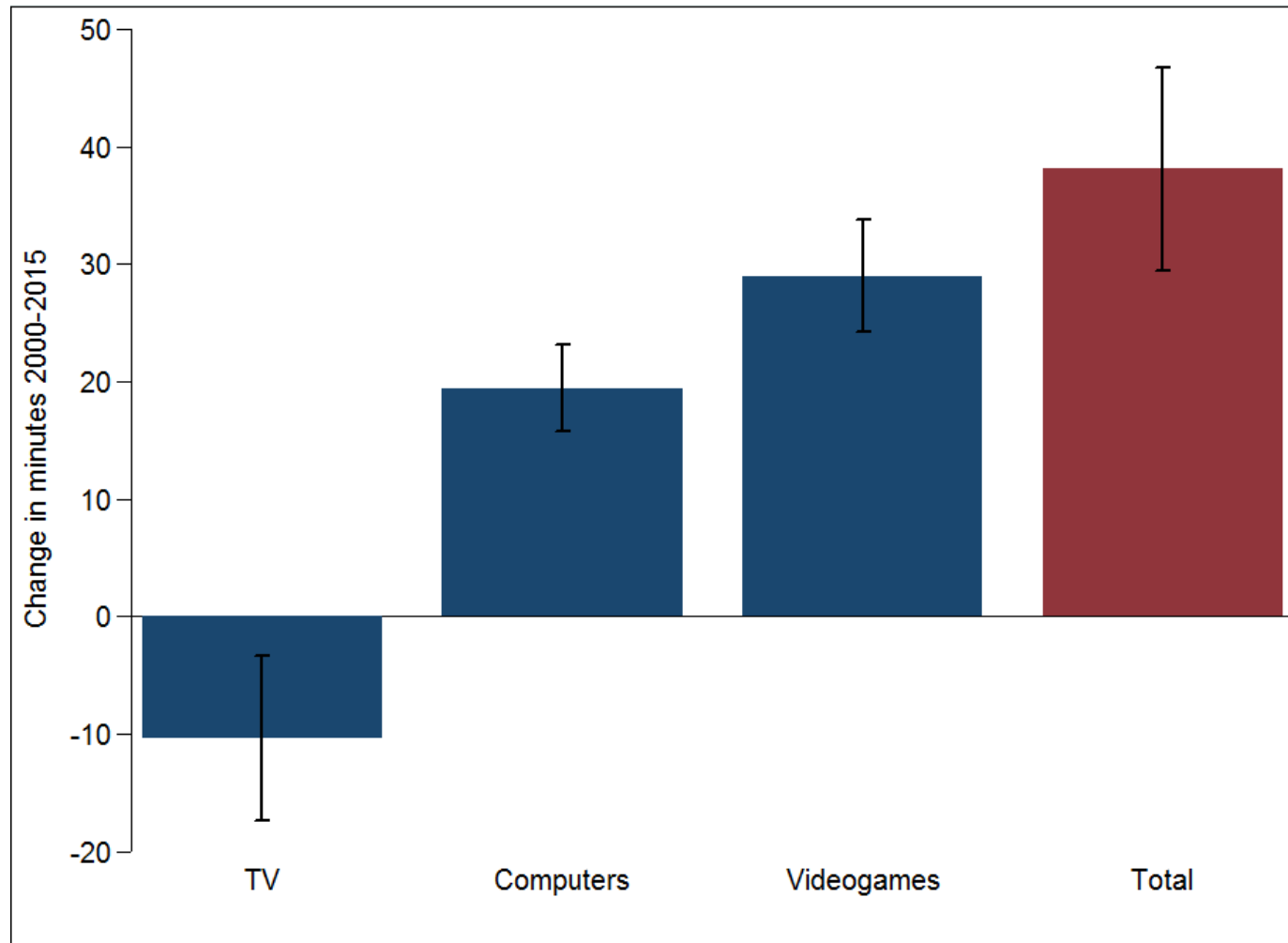
Day 1
Time: 7am – 10am

Time: 7am–10am Morning (am)	What were you doing? Please write down one main activity.	If you did something else at the same time, what else did you do?	Did you use a smartphone tablet, or computer?	Where were you? Location, or mode of transport	Were you alone or with somebody you know? Mark all relevant boxes							How much did you enjoy this time? 1 =not at all 7 =very much
					Alone	People who live with you						
					Spouse / partner	Mother	Father	Child aged 0-7	Other person			
7am-7.10	Woke up the children		<input type="checkbox"/>	At home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
7.10-7.20	Had breakfast	checked emails	<input checked="" type="checkbox"/>	↓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
7.20-7.30	" "	Talked with my family	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
7.30-7.40	Cleared the table	Listened to the radio	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
7.40-7.50	↓	↓	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓
7.50-8am	Helped the children dressing	Talked with my children	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓
8am-8.10	" "	↓	<input type="checkbox"/>	↓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓	
8.10-8.20	Went to the day care centre	↓	<input type="checkbox"/>	on foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	

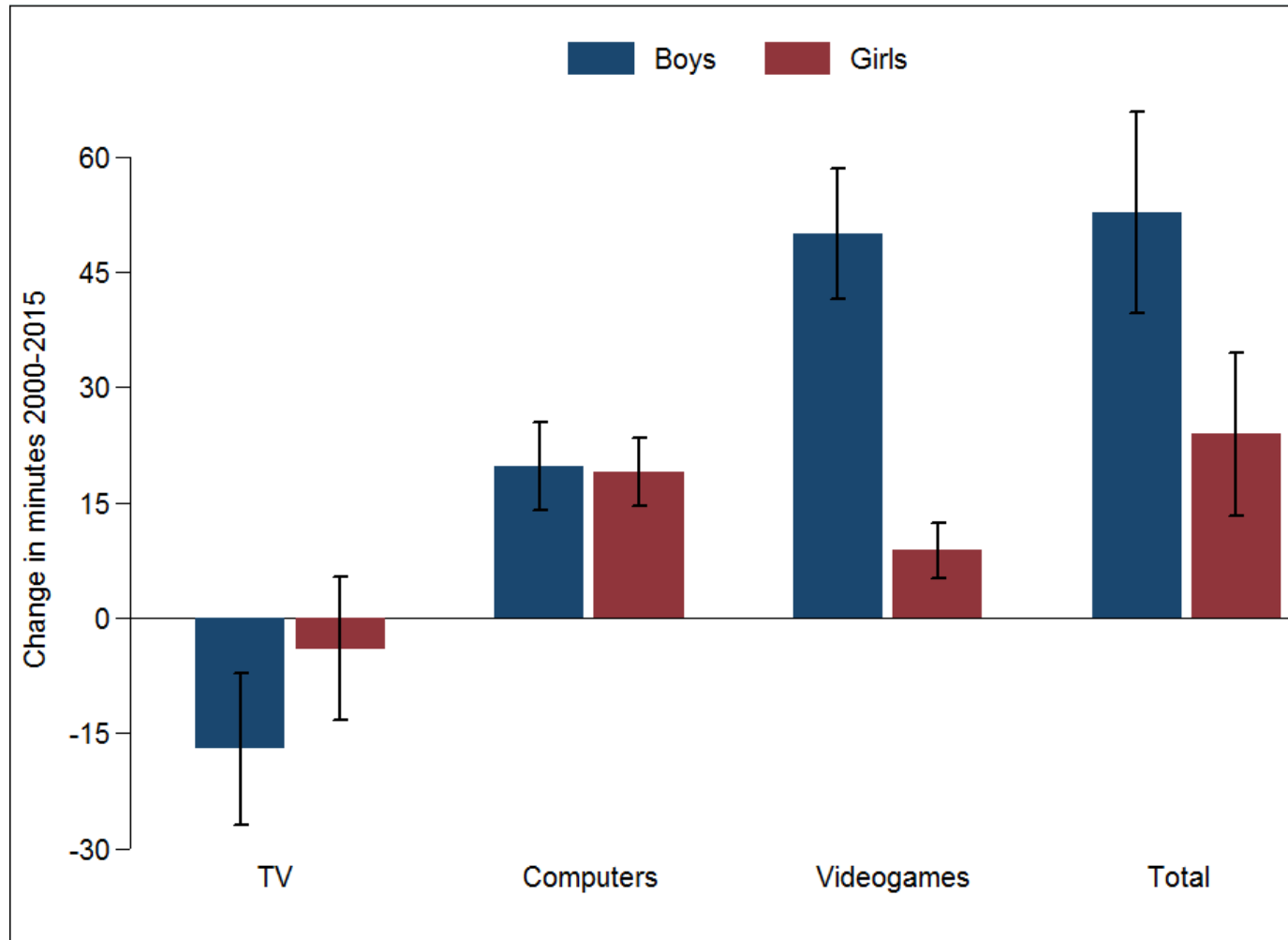
Sample and analysis

- Analysis based on a sample of children 8-18 years in education, living in two-parent (mother and father) or lone-mother families
 - N=3,434 diaries from 1,761 children in 2000-01
 - N=2,227 diaries from 1,134 children in 2014-15
- Multivariate analysis (OLS)
 - **Key variable:** survey year
 - **Controls:** sex, age, mothers' education and employment, family structure, home computer, car, number of siblings, day-type
- Descriptive analysis of device use (smartphone, tablet, computer) in 2015

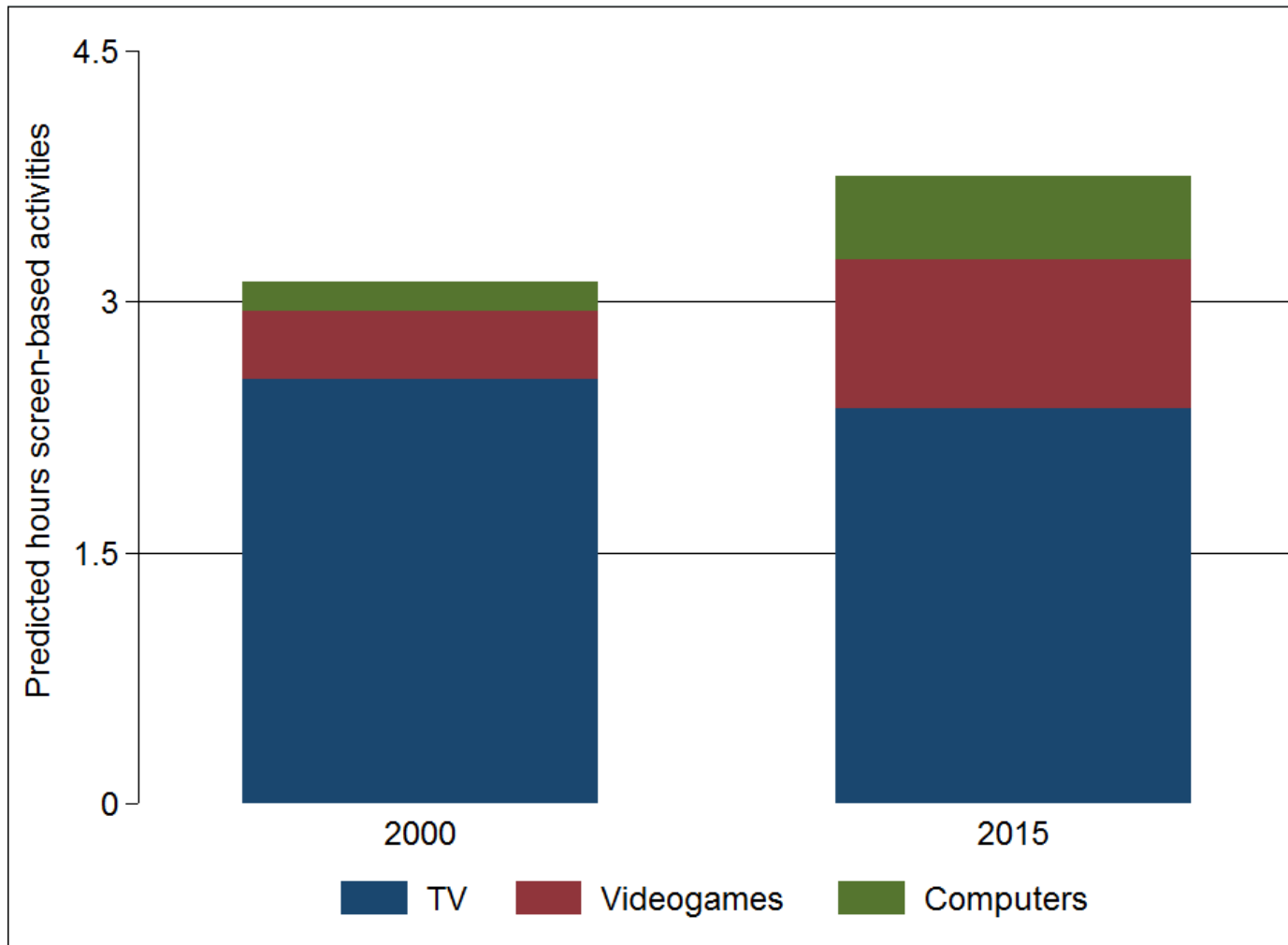
Change in time in screen-based activities



Change in screen time: boys and girls



Increase in total time in screen-based activities

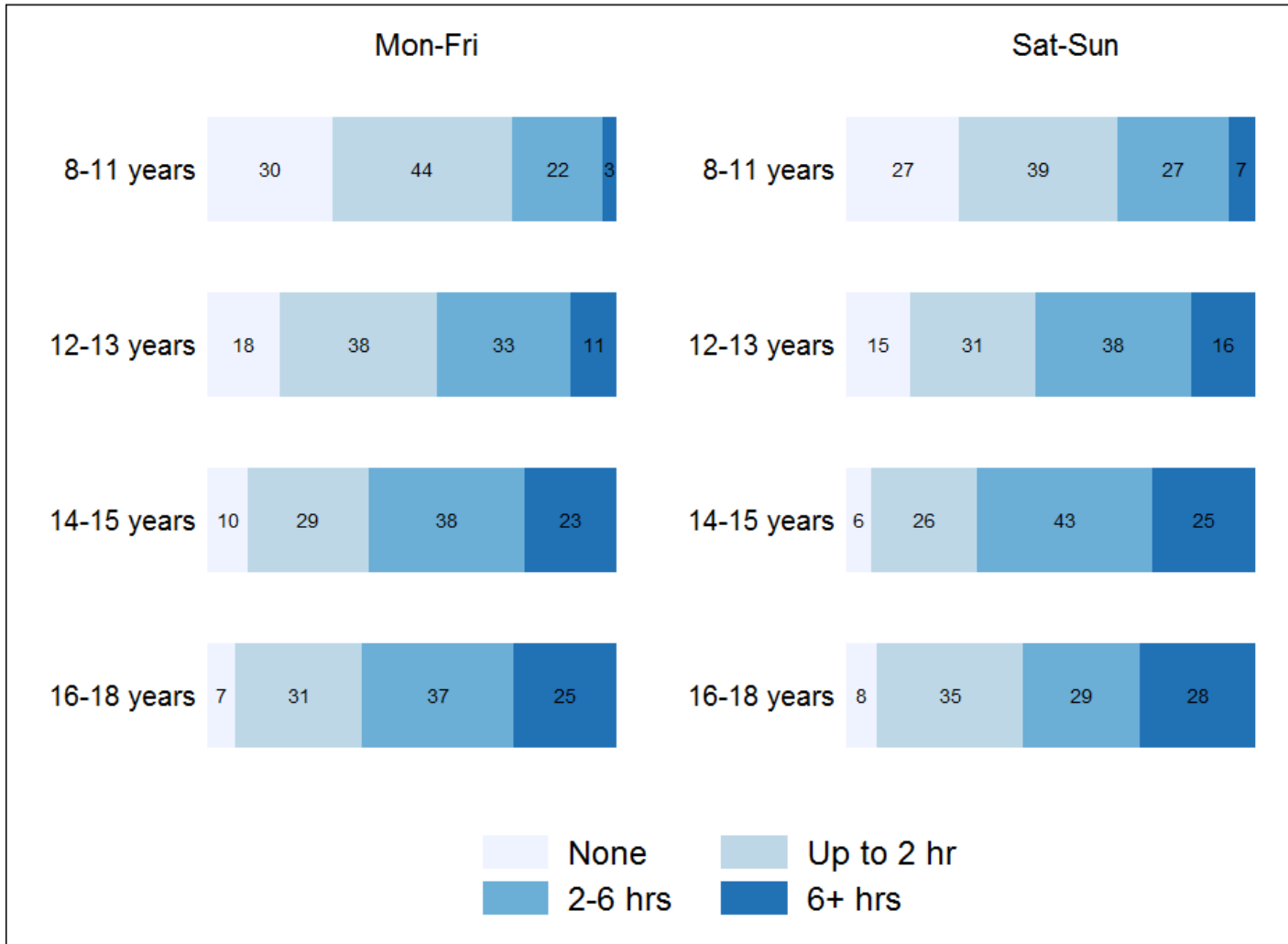


Mobile device use

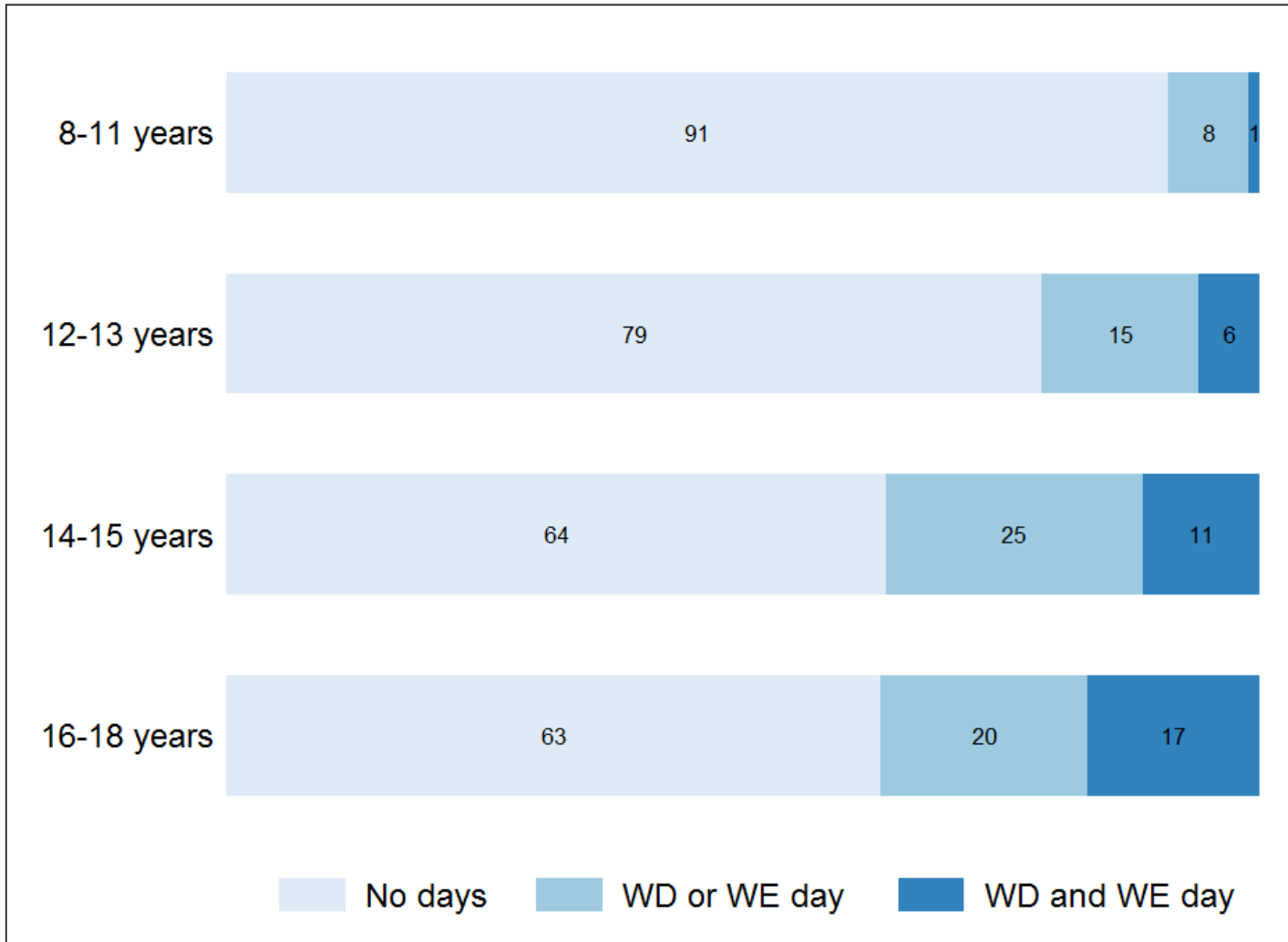
	95% CI		
	Average (hr:min)	Min (hr:min)	Max (hr:min)
Total: 8-18 years	02:46	02:38	02:53
Boys	02:51	02:40	03:02
Girls	02:40	02:30	02:50
8-15 years	02:20	02:12	02:27
8-11 years	01:30	01:22	01:37
12-15 years	03:13	03:01	03:26
16-18 years	03:56	03:37	04:14

Weights applied

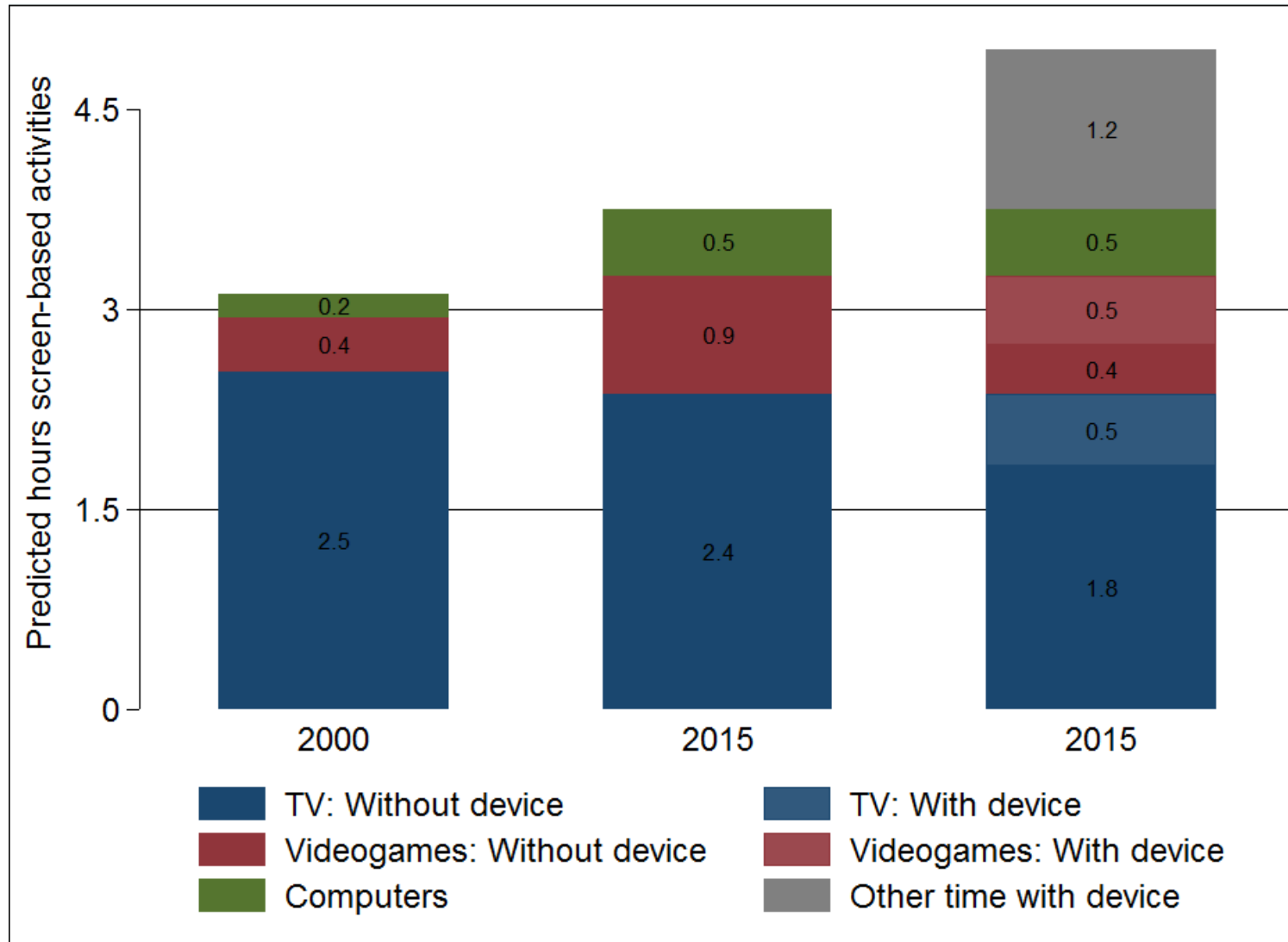
“Extreme” users?



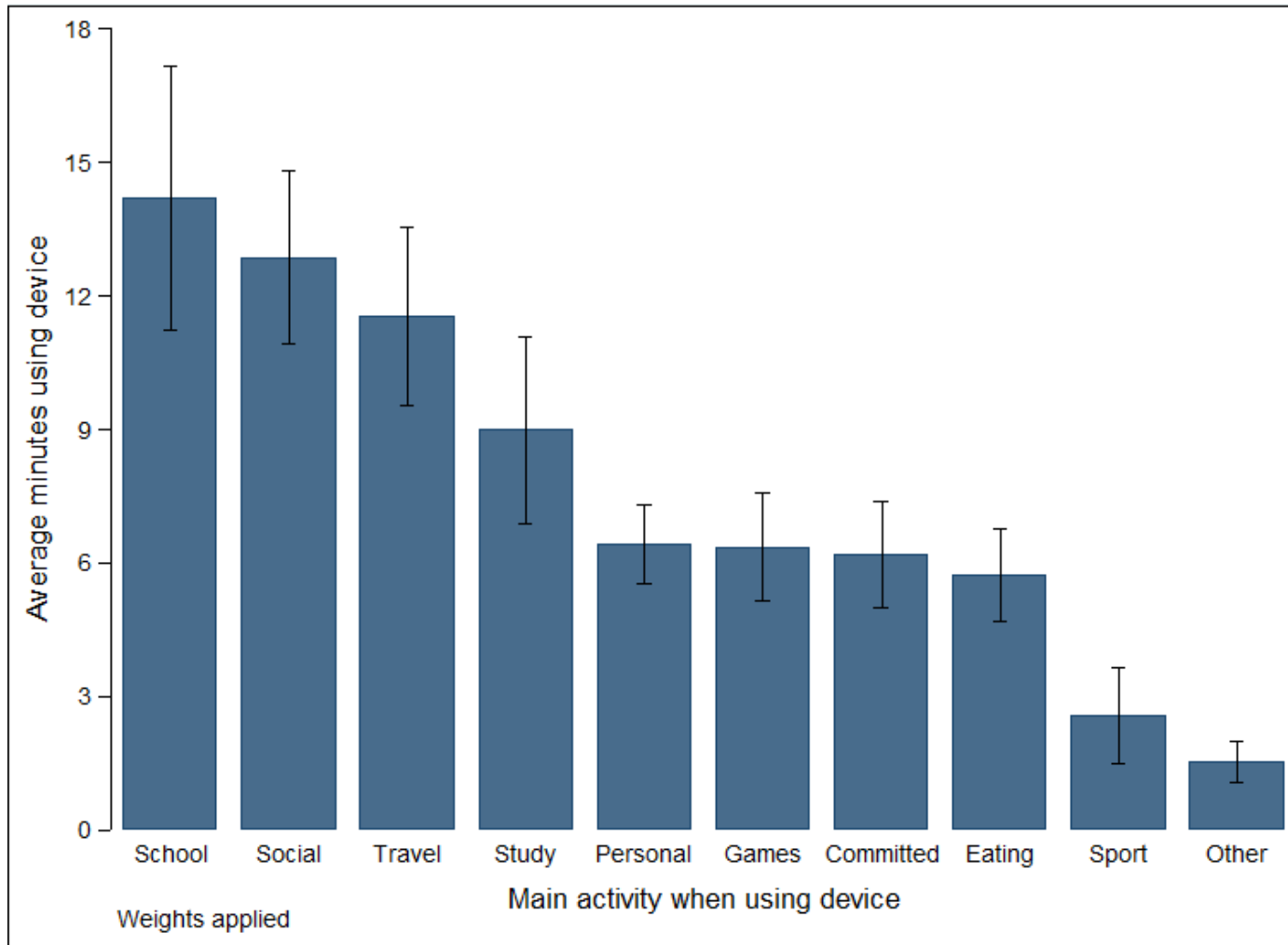
“Extreme” users



Devices used along with screen-based activities



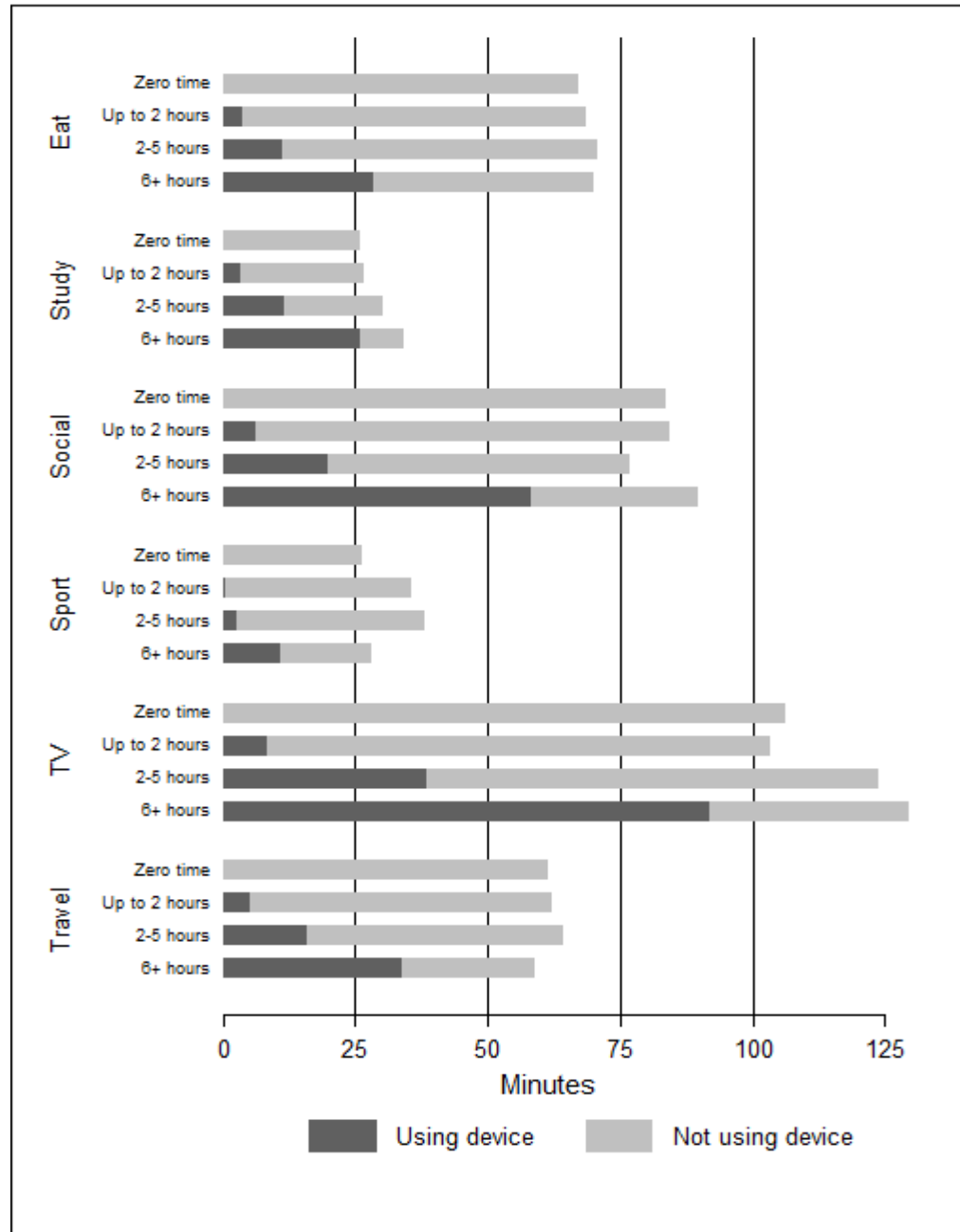
Other activities when using a device



Time in other activities and levels of device use

	Eat	Study	Social	Sport	TV	Travel
No device use (ref.)						
Up to 2 hrs	0.9	-1.4	-1.0	9.3*	-6.1	-1.1
2-5 hrs	3.1	2.1	-8.6	11.8**	14.4	1.0
6+ hrs	2.6	6.2	4.4	1.7	20.2*	-4.5

*** $p < .001$; ** $p < .01$; * $p < .05$



Summary

- ½ hr increase in ‘old’ screen-based activities
 - Pronounced among boys’ playing videogames
- A further 1hr 15 min using devices while engaging in other activities
 - Increase in 1hr 45 mins in any activity with a screen-based device
- Device use spread across a wide range of different activities
- Suggestive evidence that device use associated with time in some other activities – exploratory analysis only

Gaps and future work

- Need more information on what children are using devices for along with information about what they are doing while using device
- Not capturing rapid responses to notifications
 - Unknown how much time this would amount to throughout the day
- Work ongoing looking at social aspects of time using devices: e.g. family time
- Need to link reliable measure of time in screen-based activities to indicators of child wellbeing