

Flexibility of Electricity Demand: the role of pricing and automation



Prof Jacopo Torriti

Wednesday 6th February 2019

09:00 – 13:30

Central Hall Westminster

Interaction with speakers: Sli.Do

- For WiFi – connect to “CentralHall”, password: **Flexibility**
- Go to **slid.do** in browser (or app) and use code **#Flexibility**
- For questions:
 - If directed to a particular speaker, please state their name in the question.
 - In Parallel Sessions, please state which session you are in.

Now, practice time: give your opinion flexibility poll on Slido.

- [Flexibility will benefit:
 - Consumers
 - Network operators
 - Aggregators
 - All of the above]

Housekeeping

- Fire alarms and Evacuation
 - No fire alarm tests are planned
 - In case of fire, proceed to the designated Assembly Point (Grass area at the front)
- Toilets
- Blog (Photography and Audio Recording)
- Format of the day
- Questions answered at the end of each session

Research overview

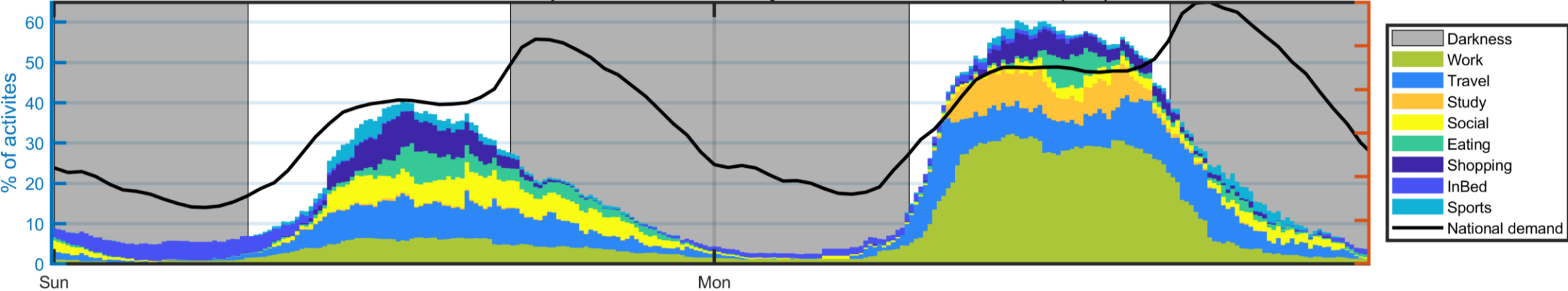
Prof Jacopo Torriti
Dr Timur Yunusov
Dr Mate Lorincz



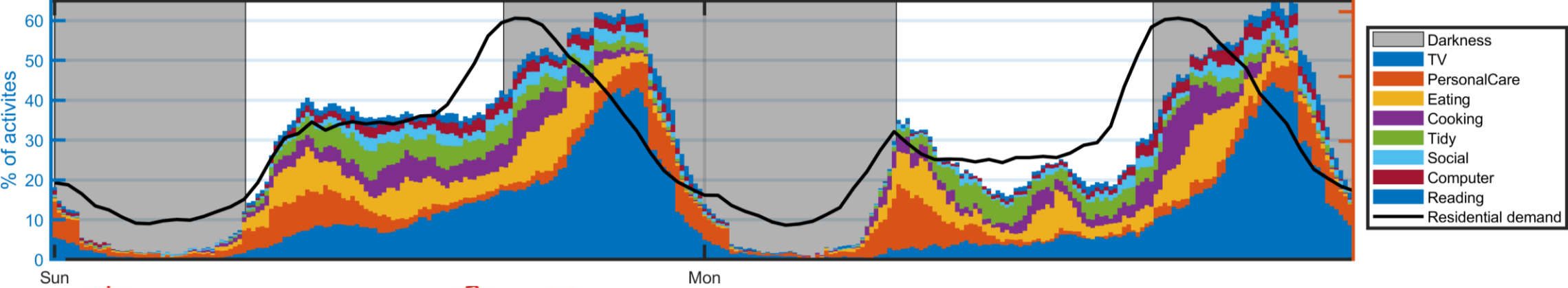


From Activities to Demand

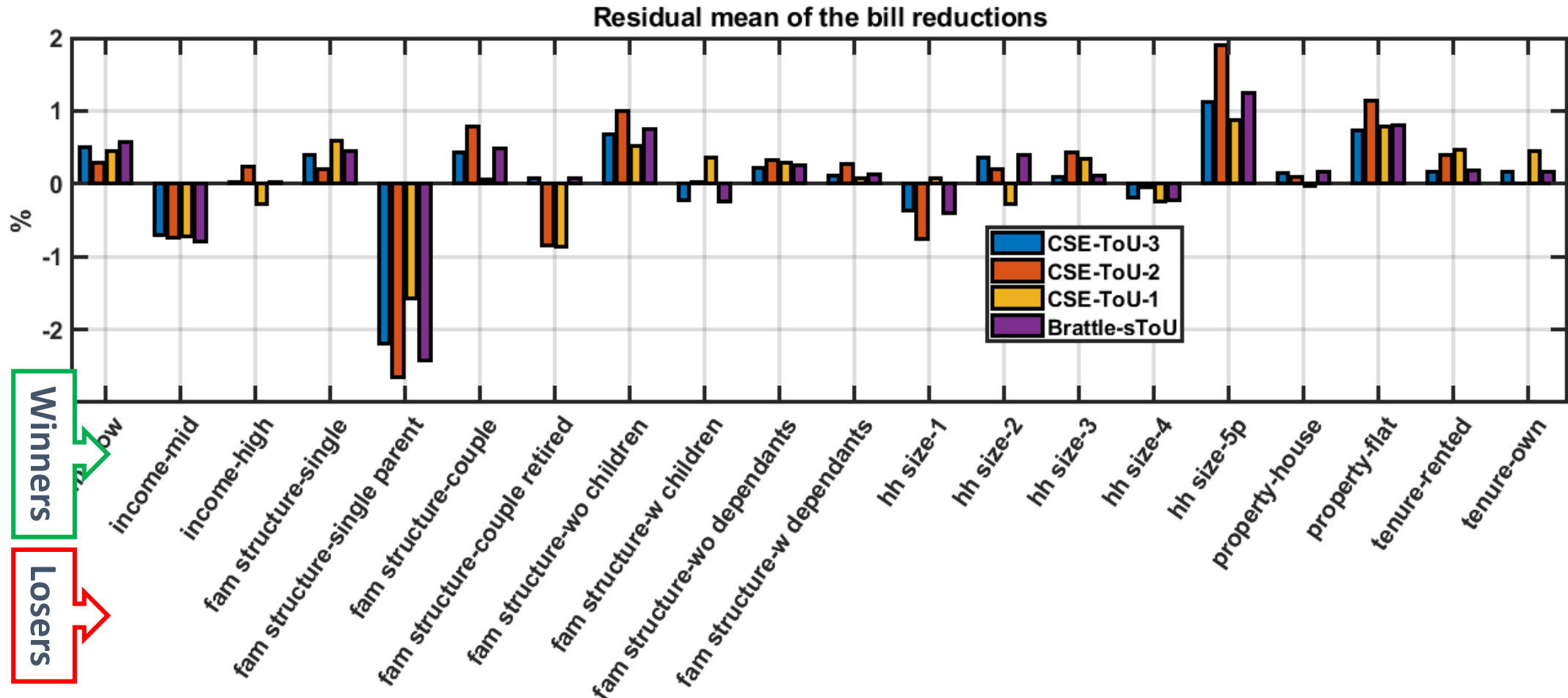
Stacked distribution of top 8 activities when away from home. Season: Winter (Nov)



Stacked distribution of top 8 activities when at home. Season: Winter (Nov)



Income and impact from time of use pricing



Winners

Losers

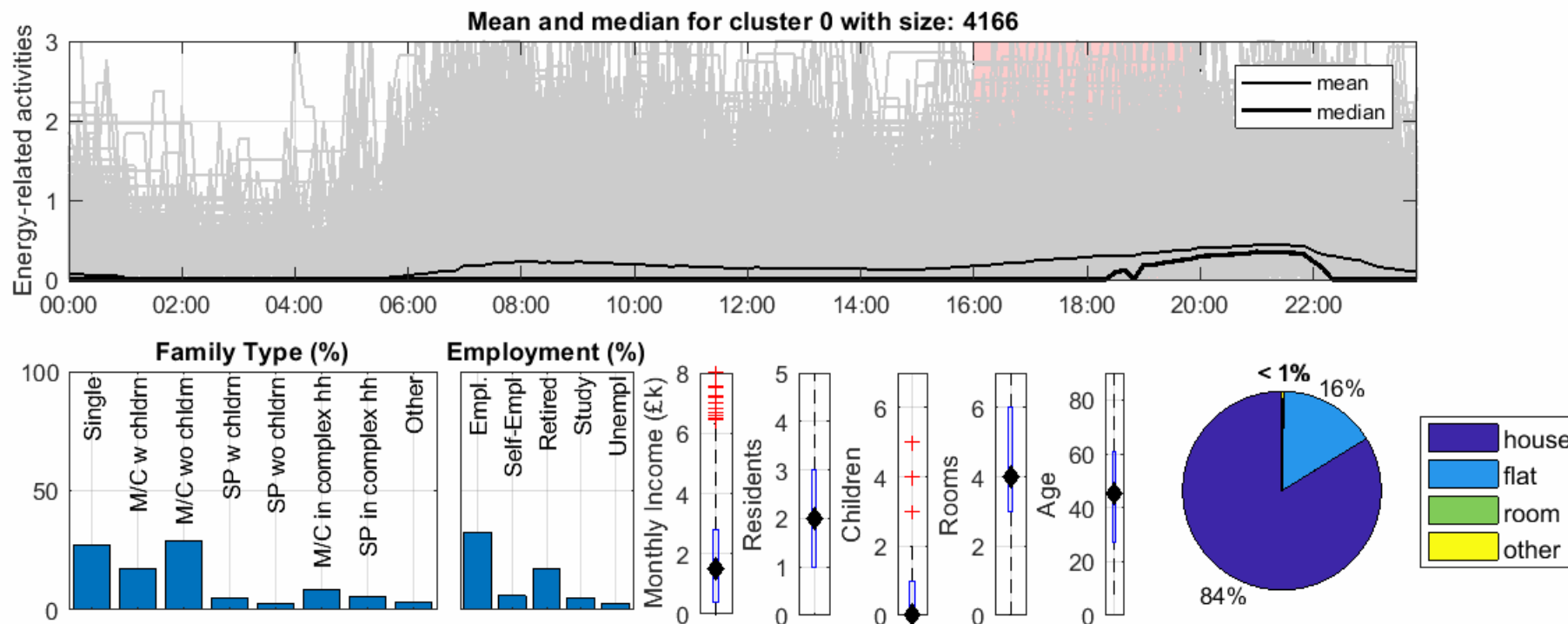
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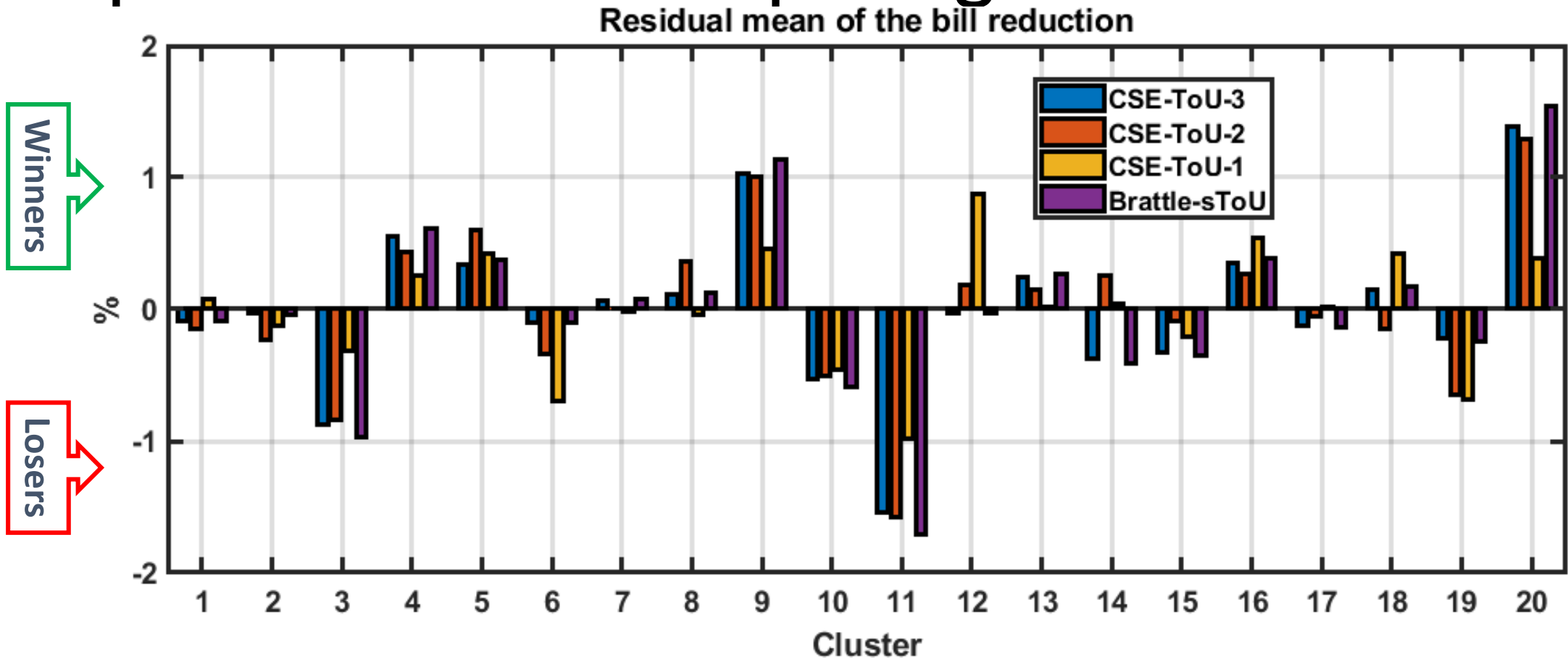
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Clustering by activity



Clustering by activity: impact of time-of-use pricing



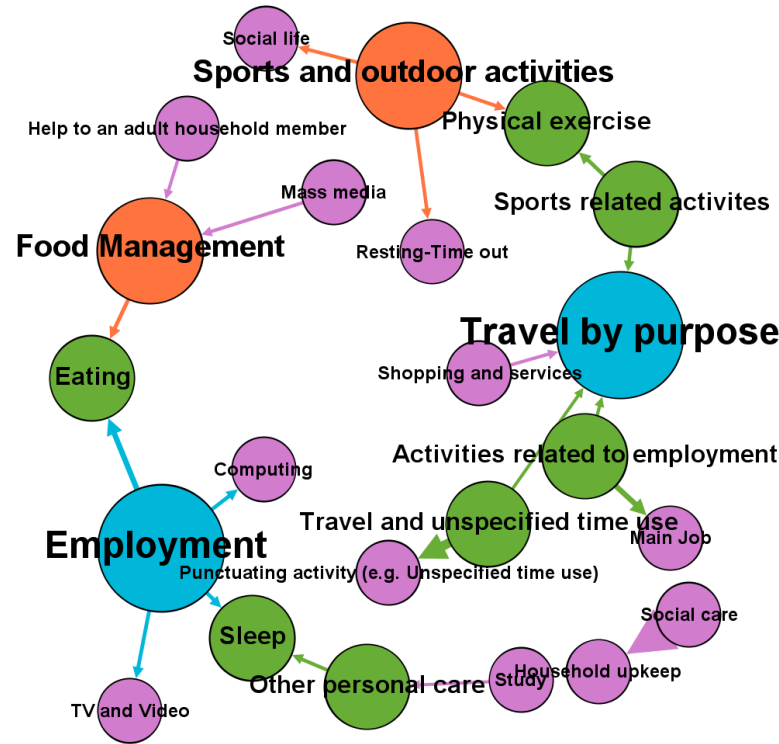
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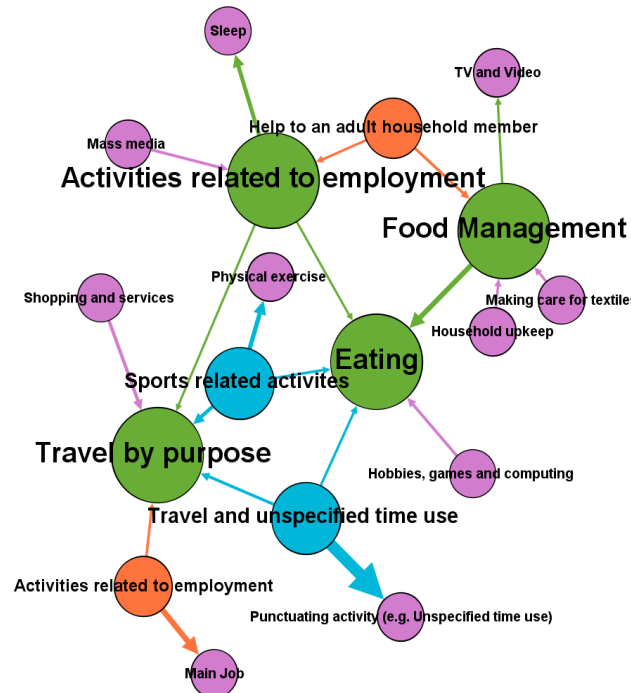
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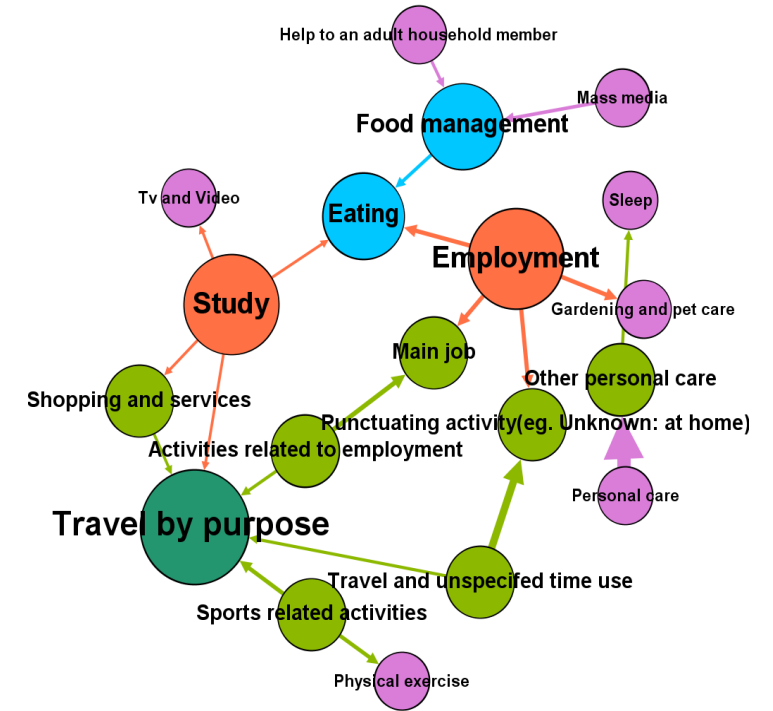
Sequences of activities and demographics



Solo

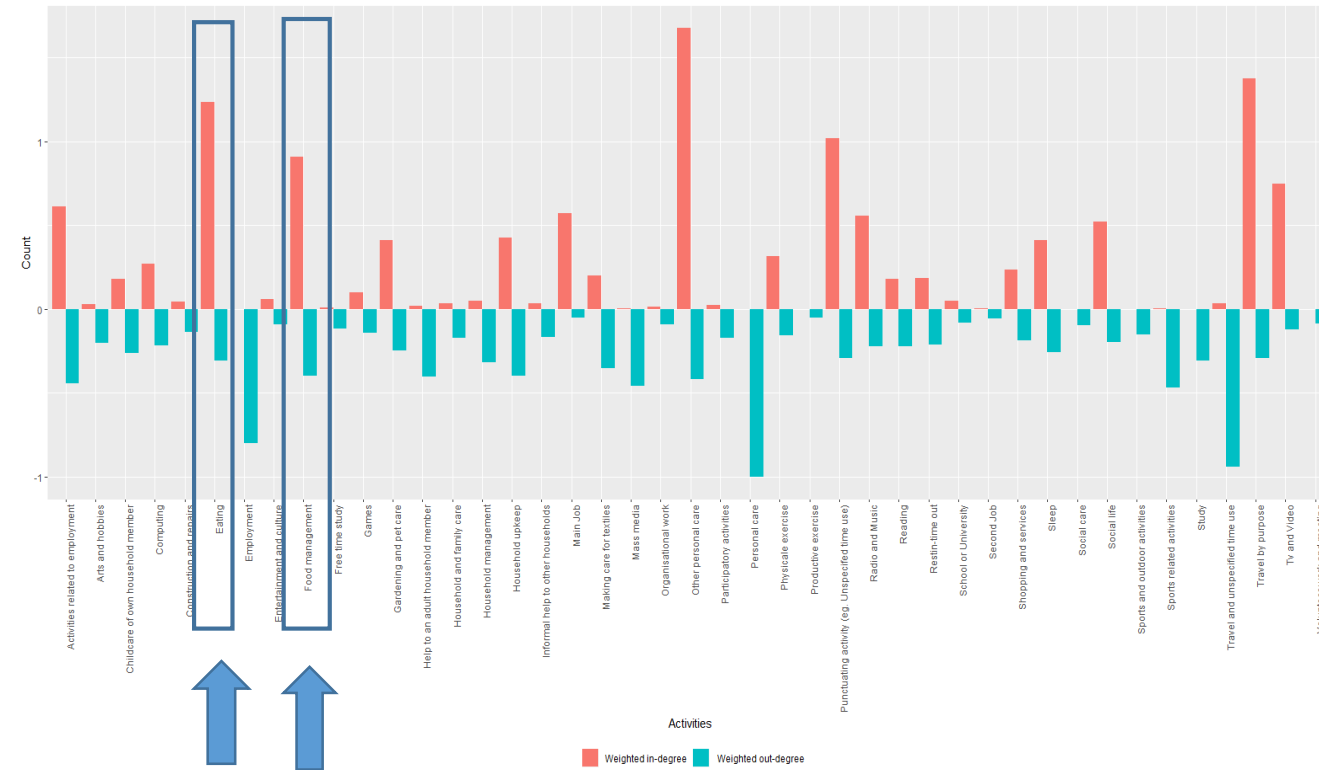


Couple



Family with kids

Start and end points for sequences



Id	Activities	Single		Couple		Family	
		Weighted Indegree	Weighted Outdegree	Weighted Indegree	Weighted Outdegree	Weighted Indegree	Weighted Outdegree
NA							
1	Personal care (1 code)	0	0	0	0	0	1
2	Employment (1 code)	0	0.625	0	0	0	0.8
3	Study (1 code)	0	0.076923	0	0	0	0.307692
6	Social care (1 code)	0	1	0	0	0	0
7	Sports and outdoor activities (1 code)	0	0.333333	0	0	0	0
8	Hobbies, games and computing (1 code)	0	0	0	0.071429	0	0
9	Mass media (1 code)	0	0.102564	0	0.069444	0	0.135135
10	Travel and unspecified time use (1 code)	0	0.619469	0	0.475649	0	0.58547
11	Sleep (3 codes)	0.235837	0	0.108846	0	0.111111	0
12	Eating (1 code)	0.38816	0	0.384462	0	0.407475	0
13	Other personal care (3 codes)	0.076923	0.110837	0.128419	0.215333	1	0.111111
21	Main Job(3 codes)	0.243461	0	0.159138	0	0.432143	0
23	Activities related to employment (5 codes)	0	0.336016	0	0.220292	0	0.343254
41	Food Management (5 codes)	0.188502	0.13816	0.18836	0.19494	0.238228	0.130552
42	Informal help to other households (23 codes)	1	0	0	0.059706	0	0
43	Making care for textiles (5 codes)	0	0	0	0.059423	0	0
44	Gardening and pet care	0	0	0	0	0.2	0
46	Shopping and services (11 codes)	0	0.095665	0	0.087323	0.076923	0.083931
49	Help to an adult household member (8 codes)	0	0.085938	0	0.128205	0	0.103093
61	Social life (6 codes)	0.111111	0	0	0	0	0
63	Resting-Time out (1 code)	0.111111	0	0	0	0	0
71	Physical exercise (20 codes)	0.246246	0	0.121739	0	0.172414	0
73	Games (3 codes)	0	0.243243	0	0.278261	0	0.362069
82	Computing (10 codes)	0.125	0	0	0	0	0
92	TV and Video (8 codes)	0.125	0	0.056196	0	0.076923	0
100	Travel by purpose (30 codes)	0.380399	0	0.370312	0	0.564185	0
111	Punctuating activity(e.g. Unspecified time use, 8 codes)	0.535398	0	0.342532	0	0.682906	0

In-degree and out degree relationship in families with kids as well across different types of households

Sli.do poll results





Website: research.reading.ac.uk/redpeak