

Forms of telecommuting, travel time and hours worked: getting more work time out of workers?



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Outline



- Telecommuting
- Impacts on travel but *hours worked*?
- Redefining “modern” telecommuting
- Methods : Canadian Time use 2010
- Results on work time
- Implications

Presentation derived from report:

Tanguay, G.A. et Lachapelle, U. (2018). *Impacts potentiels du télétravail sur les comportements en transport, la santé et les heures travaillées au Québec*. (2018RP-05). Montréal : Centre interuniversitaire de recherche en analyse des organisations (CIRANO).

Background

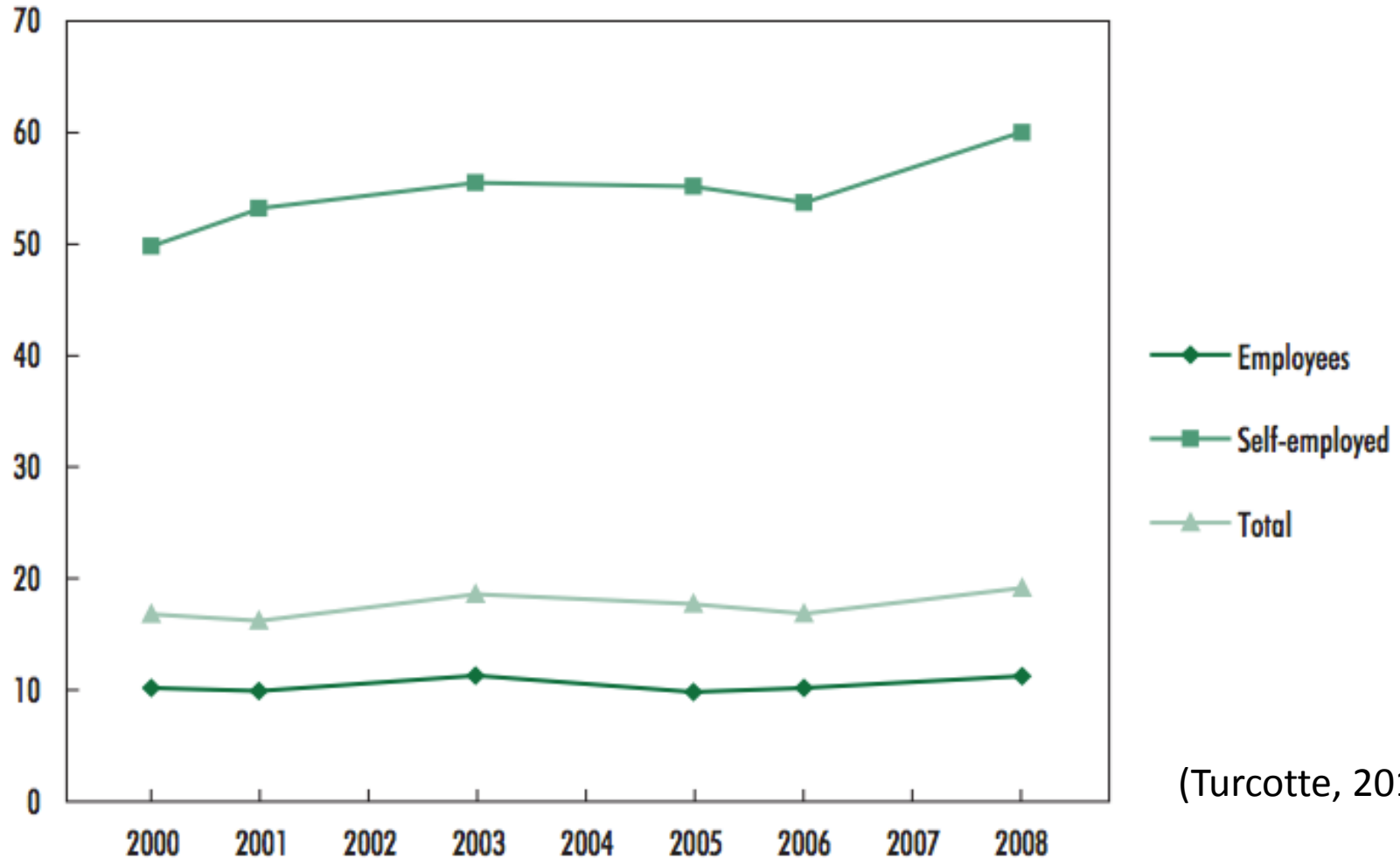


- Most of the literature has studied the effect of telecommuting on transportation behaviors
 - Total travel
 - Reduced commuting, energy, GHG
 - Peak hour travel
- Focused on working from home
 - Some early work on *telecentres (satellite office)*
- Management research
 - Quantitative work on offer
 - Qualitative work on obstacles, best approaches, required reporting, productivity

Stylized question from Statistics Canada



percentage of those working at home



(Turcotte, 2010)

"Some people do all or some of their paid work at home. Excluding overtime, do you usually work any of your scheduled hours at home?"

Research question

Telecommuting is taking many new forms



- Sometimes require travel, may influence work time

*Are the different forms of telecommuting associated with varying duration of work during the day *ceteris paribus*?*

H1

- Telecommuting increases time available for work
- Time spent travelling reduces time available for work

Defining telecommuting

Telework:
-ICT;
(e.g. On-line searches,
Videoconferencing)



Telecommuting

Working at home

- Employee that has a fixed workplace
- Conducting part or all of work day outside of workplace (Haddad et al., 2009), usually involves ICT
- **! Not necessarily from home** (coffee shops, libraries, telecommuting centers) (Ory and Mokhtarian 2006; Rietvelt, 2007; Lachapelle et al., 2018)

Methods

Data :



- Time use module of the 2010 Canadian General Social Survey (GSS, Statistics Canada), one day
- Probabilistic sampling: data represent 25 M. Canadian workers
 - 15 390 respondents to 283 000 time use episodes
 - Focus on worker, working on survey day (n= 5009)
- X = Sociodemographic characteristics
- X = Labour characteristics
 - Self-employed, Full time, unionized
- **Y = Number of hours worked**

Categories of job suitable for telecommuting (*Telecommuting job*)

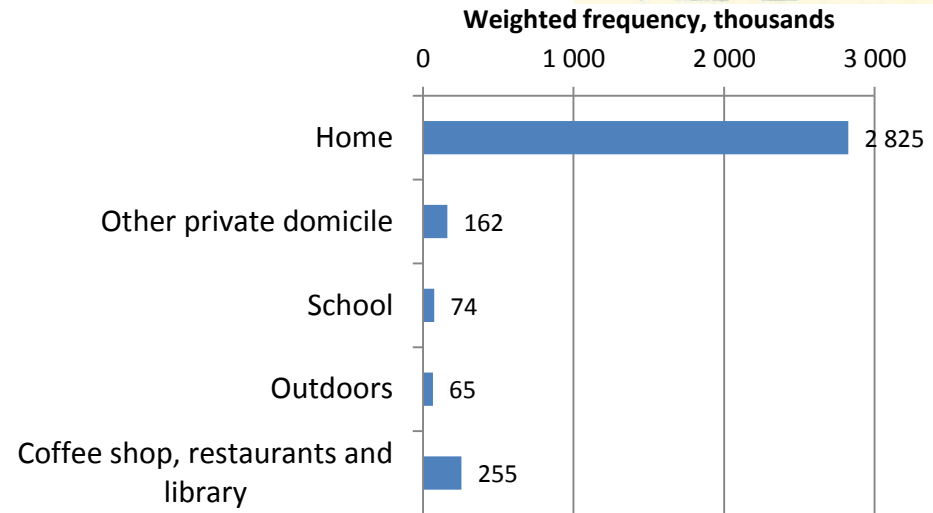


	Potential	Non potential
Management	X	
Business. finance and administration	X	
Natural and applied sciences	X	
Health	X	
Social sciences, education, public administration and religion	X	
Arts, culture, sport and leisure	X	
Sales and services		X
Transportation, machinery and equipment		X
Primary sector jobs		X
Transformation, manufacturing and public utility services		X

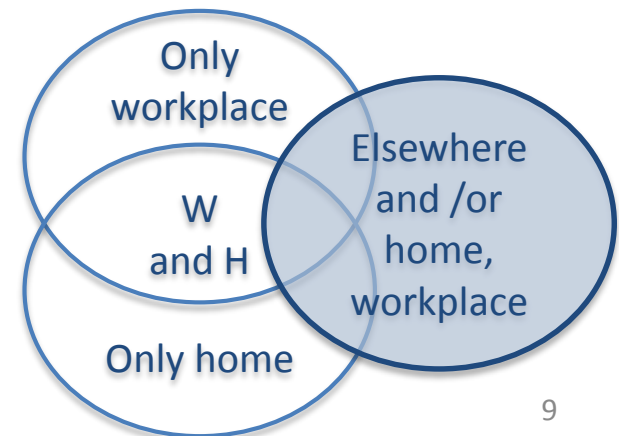
Methods

Coding activity diaries

- Activity codes:
 - Work for Pay at Main Job
 - ~~Work for Pay at Other Job(s)~~
- Location codes
 - Workplace, home, and 8 other locations were declared
- Aggregating information at individual level
- Merging individual level information to activity diary

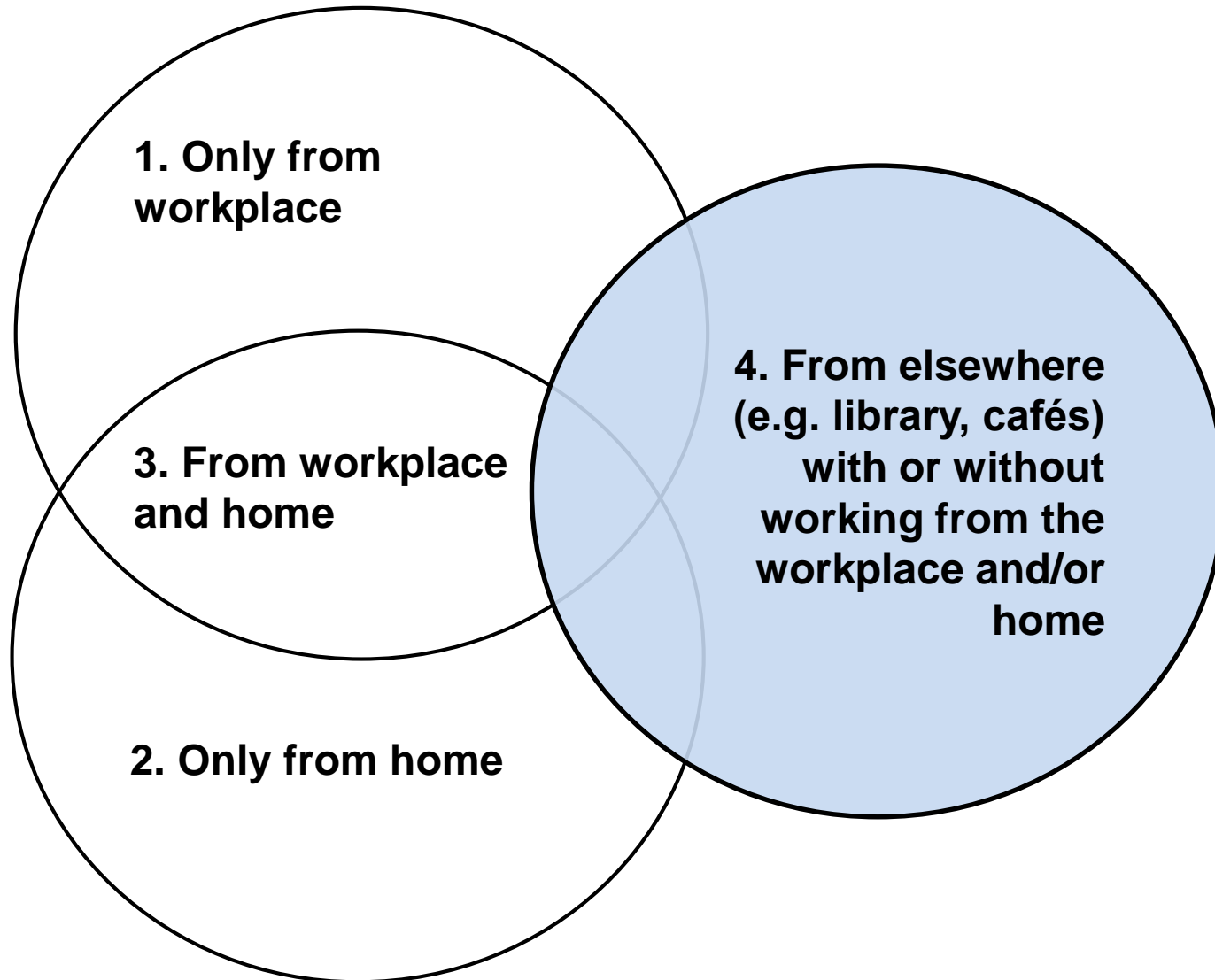


+24 million work episodes
+20 million from the workplace



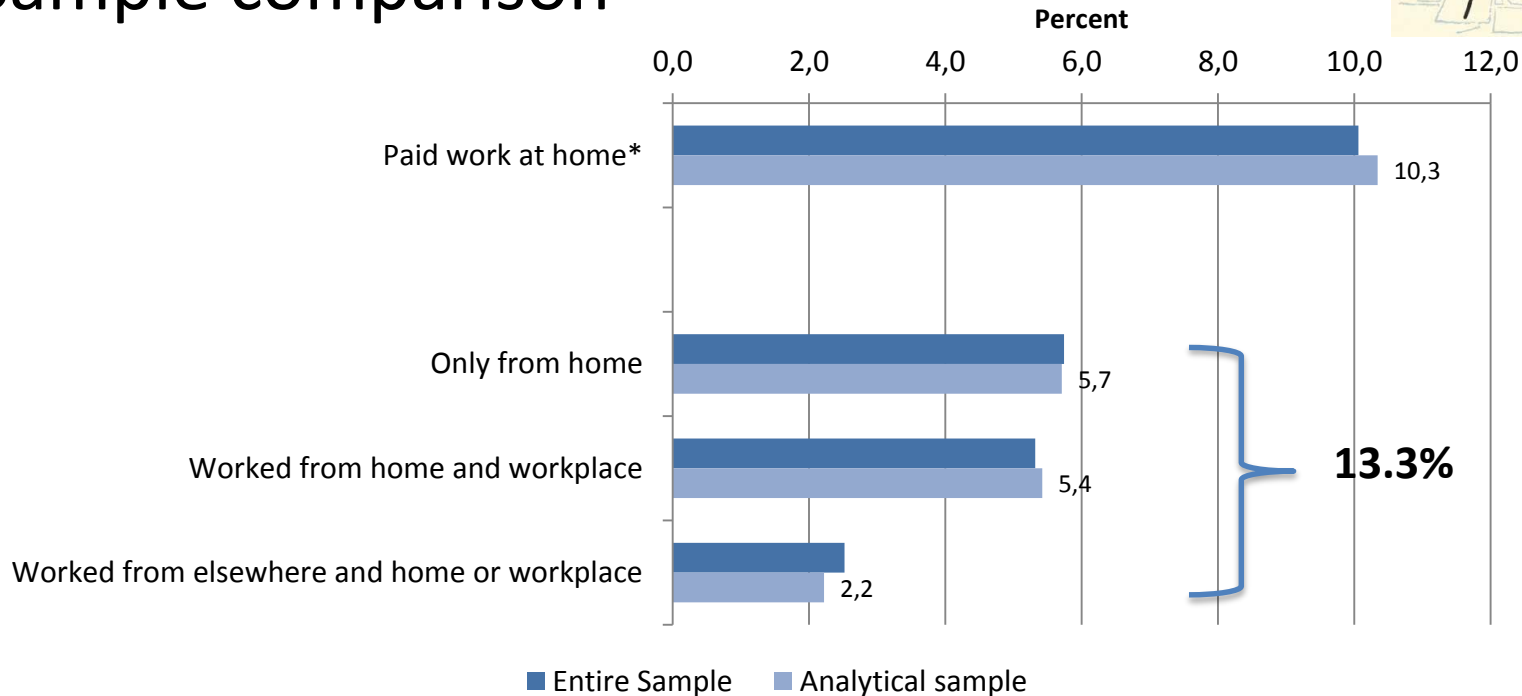
Methods

Working arrangements classification



Results

Sample comparison

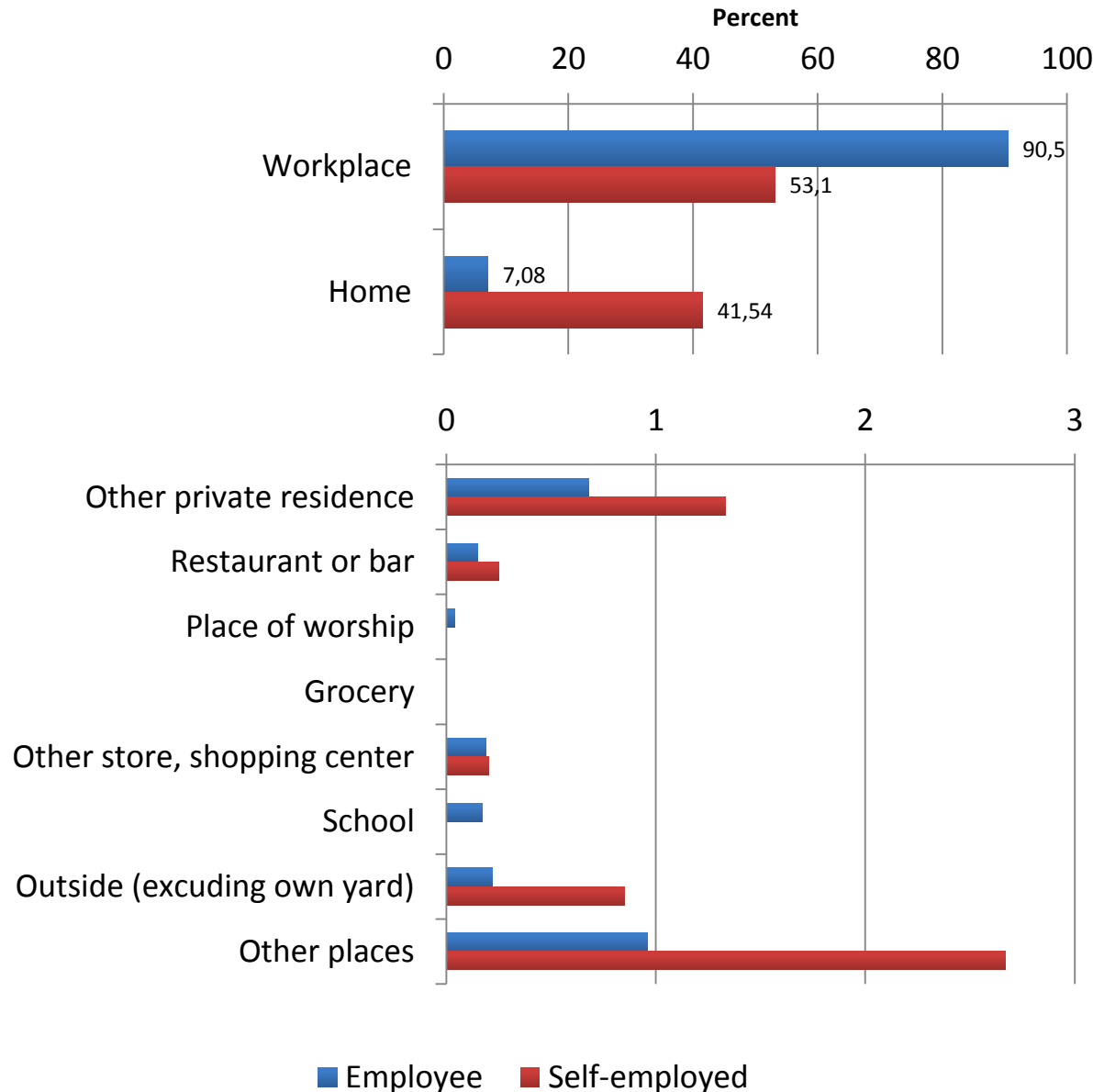


- Analytical sample is similar to entire sample
- Diary captures slightly more telecommuters

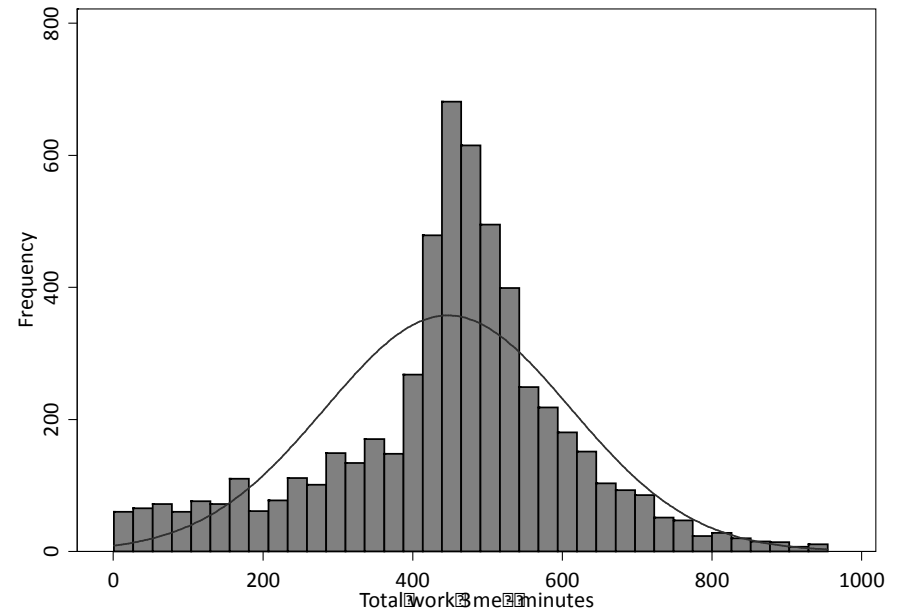
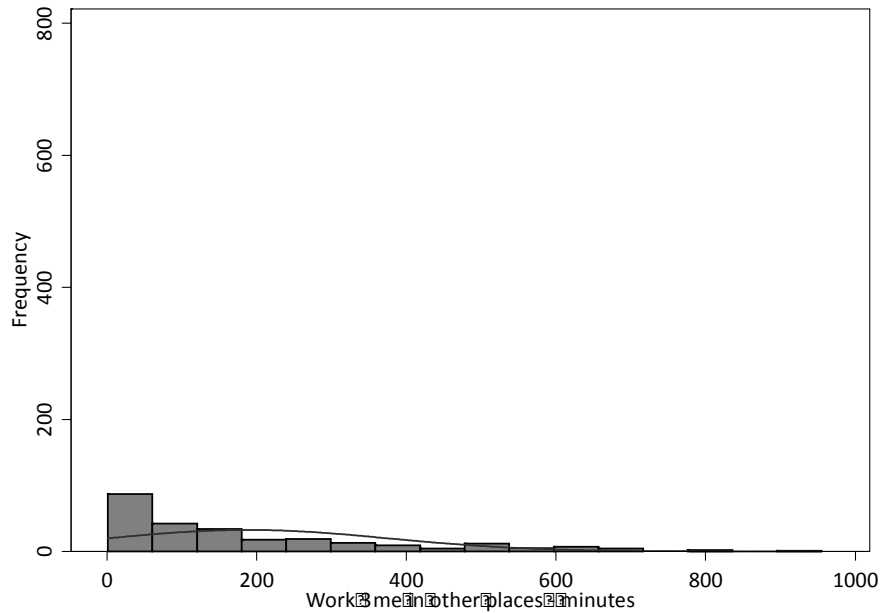
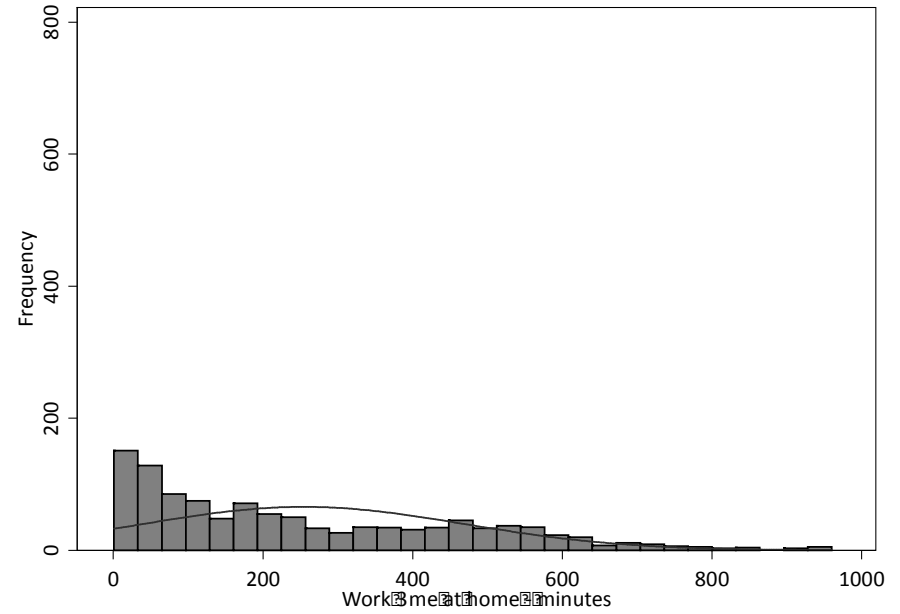
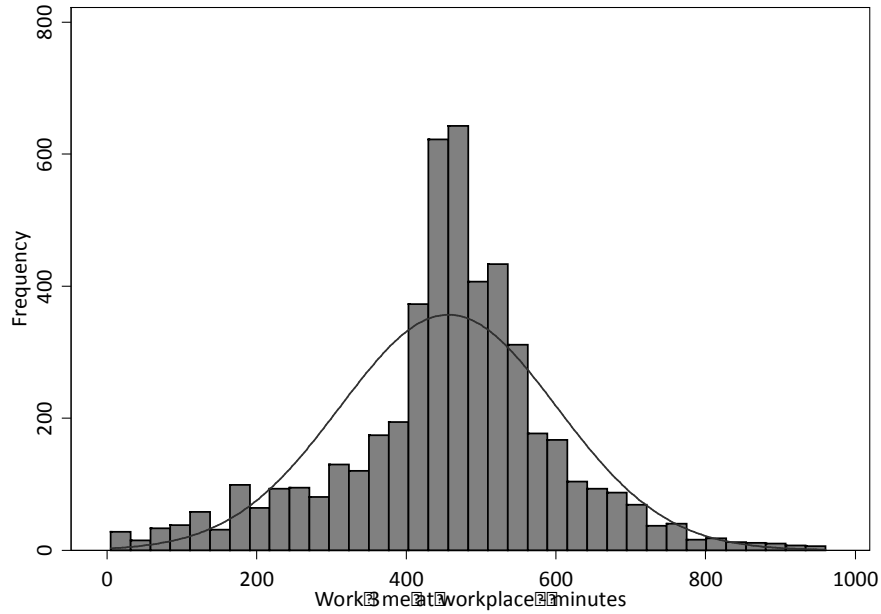
Lachapelle, U., Tanguay, G.A. et Neumark-Gaudet, L. (2018). Telecommuting and sustainable travel: Reduction of overall travel time, increases in non-motorised travel and congestion relief? *Urban Studies*, 55(10), 2226–2244.

Working from home or elsewhere

Episode percentage, weighted



Results Distribution, time worked (minutes)



OLS regression

Hours worked

Observations	5 009
F	44.6
Prob > F	0.00
R ²	0.26
	63
AIC	531.2

Sign. : * = 10% ; ** = 5% ; *** = 1%

Independent variables	Coef. and sign.
Working arrangements	
Only from workplace [ref.]	
Only from home	-135.86***
From workplace and home	48.52***
From elsewhere with or without workplace and/or home	-43.01*
Age (years)	
15-29 [ref.]	
30-44	-1.11
45-59	-11.20
60 +	-49.26***
Income (CAD)	
0 - 19 999 [ref.]	
20 000 - 39 999	17.04
40 000 - 59 999	30.74***
60 000\$ +	38.75***
Total trip(s) time (minutes)	
Woman	-24.33***
Child(en) at home	-16.12*
Week end	-79.55***
Employee info	
Self-employed	6.93
Full time worker	113.81***
Unionized worker	-14.23*
Urban region	-12.33
Constant	430.26***

Results

Estimated marginal means of hours worked



	Mean (minutes)	Standard error
Working arrangements		
Only from workplace [ref.]	466.3 (7h46)	2.8
Only from home	330.6 (5h30)	10.6
From workplace and home	514.7 (8h30)	10.3
From elsewhere with or without workplace and/or home	423.3 (7h)	17.0

Discussion



- These results are in line with the literature: telecommuting can increase the number of hours worked if done in conjunction with work at the workplace (McCloskey-Igbaria, 2003; Neufeld-Fang, 2005; Gallup, 2013).
- Independent variables explain 26% of the observations variance ($R^2 = 0,26$)
- Other factors than the ones considered (e.g. age, income) can explain variations in hours worked

Discussion



- Home workers are working on average about 2 hours less than office workers
- Reduced travel time is not completely reinvested in work hours
- Workers that engage in part-time telecommuting from home or that work from other locations : 40 more minutes of work per day than average office worker
- Total travel time does reduce work time beyond the explored working arrangements

Conclusion



Policy implications



- The data cannot help ascertain just how productive each hour of work is
- Points to the impact of:
 - individual telecommuting choices
 - employer telecommuting policies
- ... can have on the time spent working