



# Does temporal and locational flexibility of work increase the labour supply of part-timers? – The Dutch case

**Daniel Possema<sup>abc</sup>, Wolter Hassink<sup>ab</sup>, Jannke Plantenga<sup>a</sup>**

<sup>a</sup> Utrecht University School of Economics

<sup>b</sup> IZA Bonn

<sup>c</sup> Leuphana University Lüneburg

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Changing Demographics and the Labor Market



# Temporal and locational flexibility (TLF)?

- Employees can make choices in the temporal and locational aspects of their work, i.e. influence when, where and how long to work
- Implemented via various arrangements, e.g.
  - Schedule: Flexi-time, working time accounts, self-rostering
  - Location: Tele(home)work, flexplace
  - Duration: Part-time (possibly also leave, job sharing)
- Aim: (better) combination of work and private life
- On policy agenda in many countries, e.g.
  - Netherlands : “Het Nieuwe Werken”
  - Germany: “Zeitsouveränität”
  - UK & US: “Workplace flexibility” and “Flexible work arrangements”

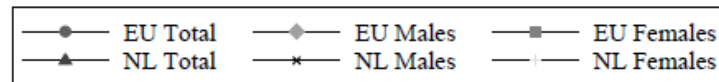
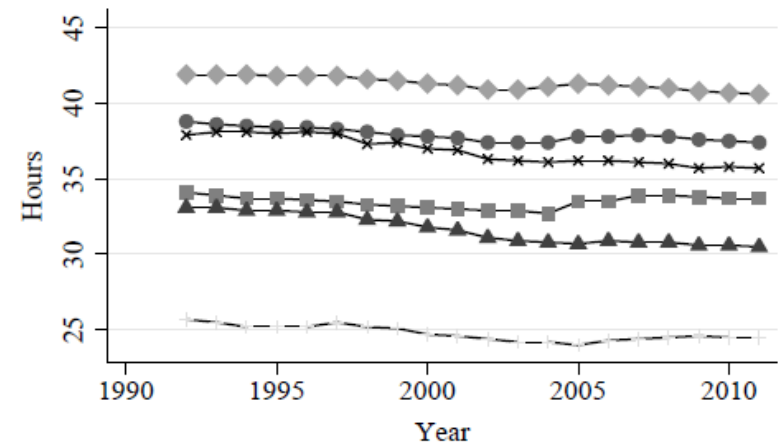
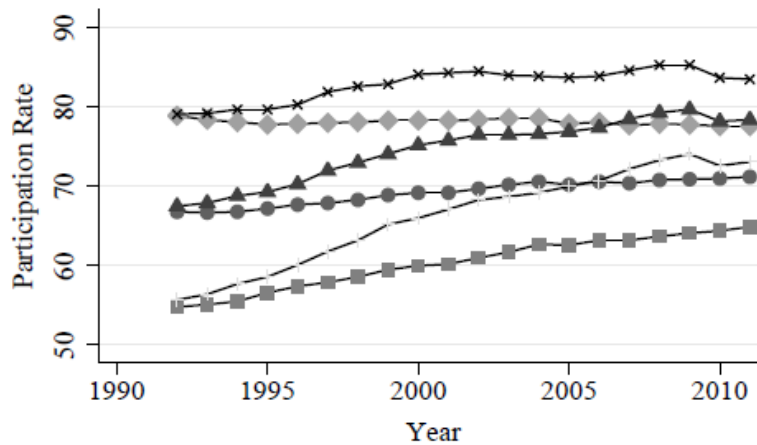


# Why increase the labour supply of part-timers?

- Demographic changes
  - Old-age dependency ratios rising
  - Labour force shortages expected in the future
  - Projected deficits in public pension accounts
- Financial independence
- Public education as an investment
  
- Labour force participation (of females) has been rising
- But average working hours (per week) have been stagnating



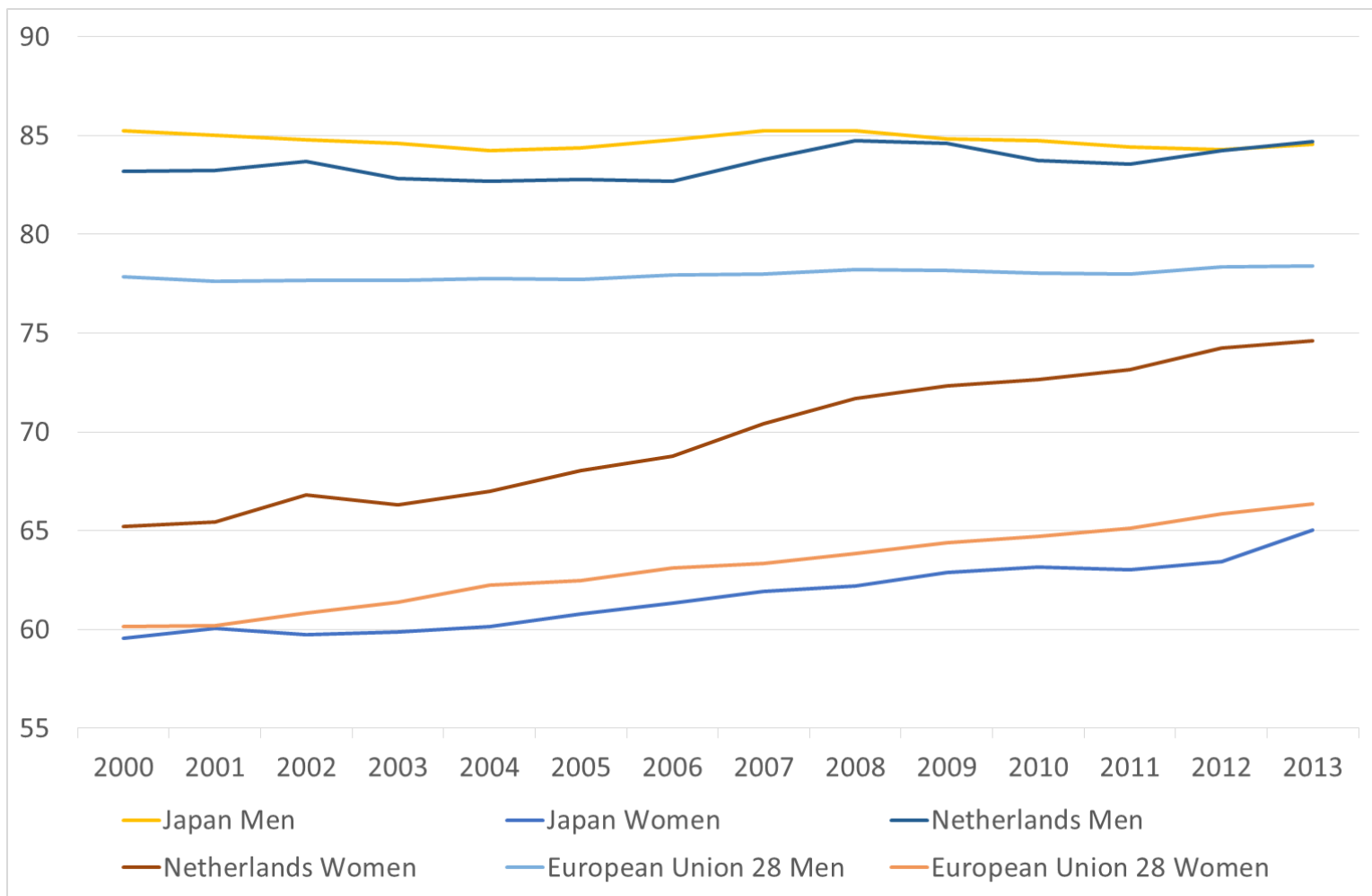
# Participation rate and work hours in EU & NL 1991-2011



Note: EU designates EU12 until 1994, EU15 –2004, EU25 –2006 and EU27 –2011  
 Source: European Union Labour Force Survey (EU-LFS)



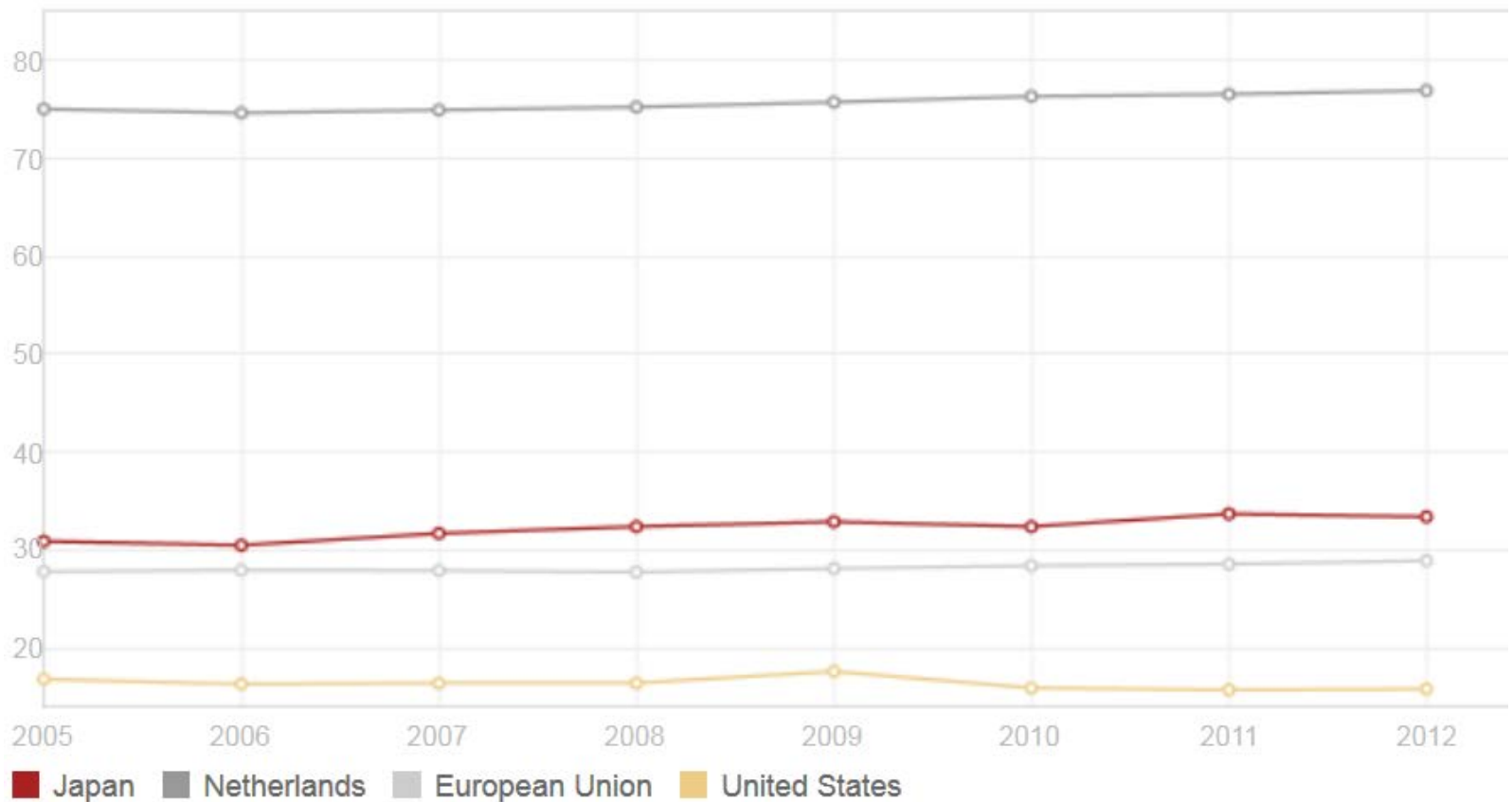
# Labour force participation rates



Source: OECD stats



# Female part-time employment as a share of female total employment

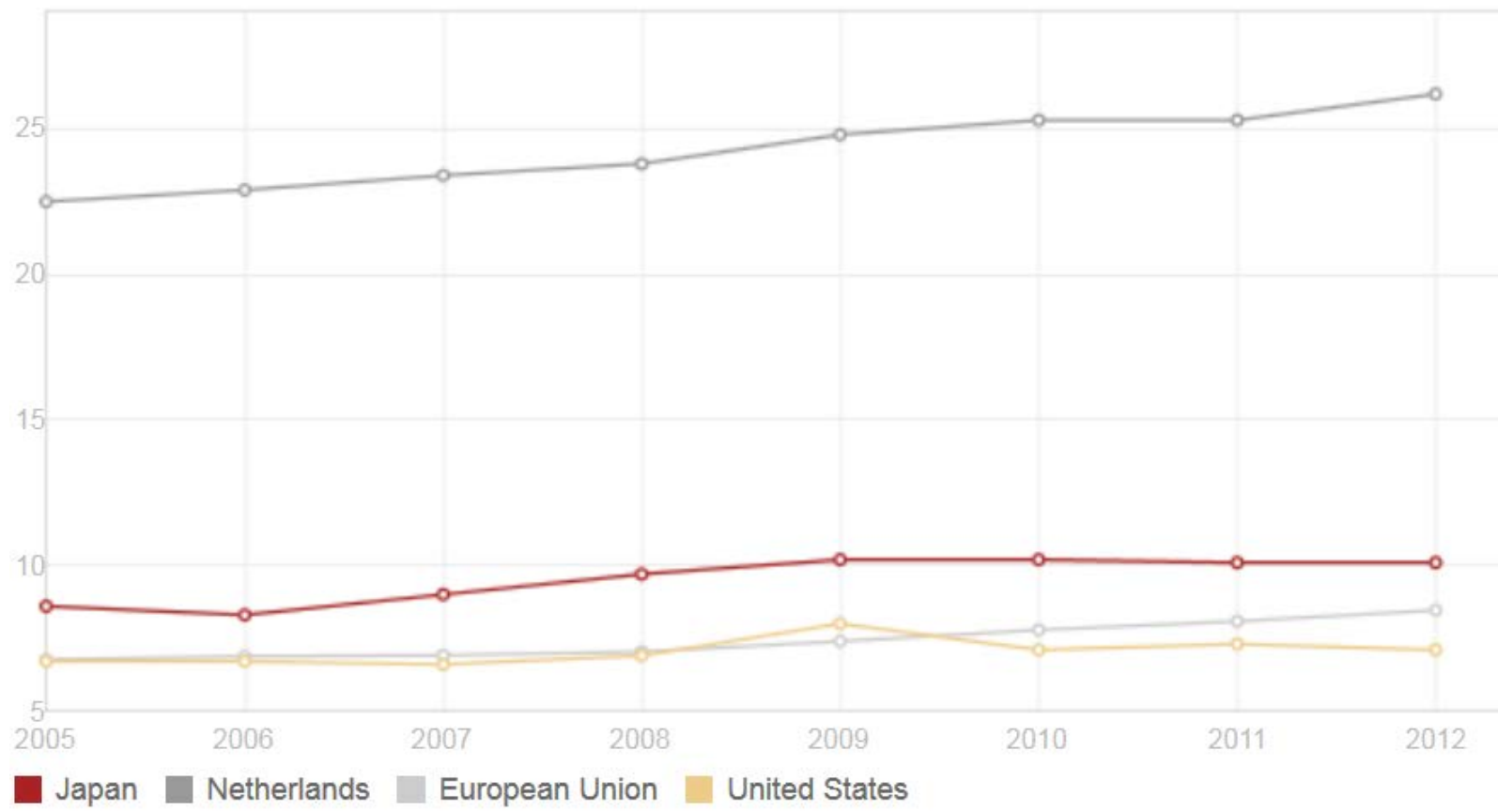


Source: World Bank/ILO





# Male part-time employment as a share of male total employment



Source: World Bank/ILO



# How can work hours be increased?

- If part-time, i.e. duration flexibility, is a strategy to combine work and private life
- Schedule and location flexibility could substitute part-time
- According to a Dutch survey, 1/3 of respondents would indeed be willing to work more hours in exchange for more schedule and location flexibility
- But apart from that there is no further compelling evidence





# Why would TLF increase work hours?

Two channels:

1. TLF reduces time spent commuting
  - this gain could be spent on work
2. Improved match between work and private schedule
  - Better match => more hours possible
  - Trade-off between number of working hours and work schedule (and wage)
  - $U = U[C, L, S]$



# Empirics

So, did more schedule and location flexibility lead to more working hours in the past?

Empirical challenge:

- Control for individual and job-related heterogeneity:
  - Preferences for and availability of TLF and working hours differ between individuals and jobs
- Reverse causality and feedback effects

Empirical strategy:

1. Descriptives and correlations between TLF and working hours
2. Correlations corrected for control variables and time-invariant factors
3. Fixed-effects estimation: TLF arrangements on working hours



# Data

- Dutch labour supply panel (*Arbeidsaanbodpanel*) 2002-2010
  - Biennial household panel => 5 waves
  - We use 13,326 observations from 6,398 individuals
- TLF arrangements
  - Flexi-time: determine start- and end-times (dummy)
  - Telehomework: work at home at least once a week (dummy)
- Working hours
  - Actual hours (2004 onwards)
  - Contracted hours
  - Preferred hours



# Share of employees with flexi-time and telehomework by year and gender

	Male		Female		Total	
	%	S.E.	%	S.E.	%	S.E.
Flexi-time						
2002	36.41	(1.57)	26.72	(1.41)	31.51	(1.07)
2004	45.54	(1.28)	34.37	(1.37)	40.57	(0.95)
2006	43.46	(1.25)	33.52	(1.26)	38.75	(0.91)
2008	47.92	(1.27)	34.73	(1.24)	41.56	(0.90)
2010	43.97	(1.40)	33.23	(1.34)	38.64	(0.99)
Total	44.05	(0.86)	32.85	(0.84)	38.69	(0.61)
Telehomework						
2002	15.98	(1.19)	13.16	(1.09)	14.55	(0.82)
2004	17.37	(0.97)	14.98	(1.02)	16.30	(0.73)
2006	18.79	(0.98)	16.62	(0.98)	17.76	(0.71)
2008	20.19	(1.01)	18.54	(1.01)	19.39	(0.74)
2010	19.78	(1.12)	17.85	(1.08)	18.82	(0.80)
Total	18.59	(0.66)	16.46	(0.66)	17.57	(0.48)



# Share of employees with flexi-time and telehomework by sector

Sector	Flexi-time		Telehomework	
	%	S.E.	%	S.E.
Agriculture	32.61	(4.01)	6.52	(2.11)
Industry	37.98	(1.24)	10.69	(0.79)
Construction	29.93	(1.91)	10.03	(1.25)
Trade, gastronomy, repair	24.65	(0.99)	8.31	(0.64)
Transport	31.26	(1.61)	6.47	(0.85)
Business services	54.84	(1.05)	18.25	(0.82)
Care, Welfare	30.68	(0.89)	13.95	(0.67)
Other services	43.16	(1.99)	18.52	(1.56)
Government	66.87	(1.30)	15.57	(1.00)
Education	28.95	(1.17)	53.17	(1.29)
Total	38.69	(0.42)	17.57	(0.33)



# Average working hours by flexi-time and telehomework

Working hours	Flexi-time				Telehomework			
	Yes		No		Yes		No	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Actual hours	36.27	(0.17)	31.75	(0.14)	37.03	(0.17)	31.80	(0.13)
Contracted hours	32.86	(0.13)	29.89	(0.11)	32.90	(0.13)	30.14	(0.11)
Preferred hours	32.13	(0.13)	29.60	(0.11)	32.07	(0.13)	29.86	(0.11)





# Pairwise correlations of working hours, flexi-time, and telehomework

	Actual hours	Contracted hours	Preferred hours	Flexi-time
Total (N = 13326)				
Flexi-time	0.19***	0.14***	0.12***	1
Telehomework	0.16***	0.059***	0.046***	0.18***
Male (N = 6946)				
Flexi-time	0.18***	0.083***	0.061***	1
Telehomework	0.17***	0.012	-0.0033	0.21***
Female (N = 6380)				
Flexi-time	0.13***	0.11***	0.086***	1
Telehomework	0.17***	0.087***	0.072***	0.14***

\*\*\*  $p < 0.01$



# Let's take the individual and job-related heterogeneity out of the equation

- Separate fixed-effects estimations of flexi-time, telehomework, and the three working hours measures on the control variables:
  - Individual: gender, age, marital status, children at home, education, work experience
  - Job: permanent contract, change in employment (e.g. job switch), multiple jobs, no. of supervised employees, occupational level, firm size (employees), sector, year.
- Calculate the pairwise correlations of the residuals



# 'Corrected' correlations

	Actual hours	Contracted hours	Preferred hours	Flexi-time
Total (N = 13326)				
Flexi-time	0.015	-0.015*	-0.0041	1
Telehomework	0.047***	0.017**	0.017**	0.036***
Male (N = 6946)				
Flexi-time	0.027**	0.0066	0.025**	1
Telehomework	0.035***	0.0013	0.016	0.037***
Female (N = 6380)				
Flexi-time	-0.0025	-0.039***	-0.043***	1
Telehomework	0.051***	0.020	0.011	0.033***

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



# TLF arrangements on working hours

- Fixed effects estimation with controls, clustered standard errors

	Actual hours			Contracted hours			Preferred hours		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Flexi-time	0.198 (0.231)	0.381 (0.294)	-0.0821 (0.357)	-0.193 (0.168)	0.0701 (0.201)	-0.547** (0.270)	-0.0763 (0.206)	0.386 (0.282)	-0.707** (0.292)
Telehomework	0.829*** (0.247)	0.580* (0.334)	0.934*** (0.357)	0.262 (0.168)	0.0132 (0.201)	0.346 (0.275)	0.334 (0.229)	0.274 (0.320)	0.237 (0.321)
Observations	11355	5974	5381	13326	6946	6380	13326	6946	6380
Individuals	5641	2954	2687	6398	3301	3097	6398	3301	3097

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



# Sensitivity analyses of FE specification

- Estimation for employees with children only
- Estimation for professionals
- Inclusion of (instrumented) wage
- Inclusion of lags of flexi-time and telehomework
- No suitable instrumental variables



# So why doesn't more flexibility lead to more work hours?

- Dutch part-time culture
  - Many high quality part-time jobs
  - Low share of involuntary part-time
  - Many women without children work part-time
  - By default, parental leave is also taken part-time
  - Dutch put a high value on free time?
- Too small to matter?
  - Impact of commuting ambiguous in earlier studies
- Imperfect labour markets may allow workers to just reap the benefits of TLF (or employers benefit in other ways)





# Conclusions

So, does more schedule and location flexibility increase work duration?

- Telehomework: moderate increase of actual hours (50 min p.w.) only
    - Only overtime? Blurred boundaries or gift exchange?
  - Flexi-time: no increase, but decrease of contracted & preferred hours for females?
  - Most of the 'raw' correlations due to individual- and job-related heterogeneity
  - Reverse causality and feedbacks possibly an issue (but not really)
- ⇒ TLF does not seem to increase work hours substantially





**Thank you!**

**Questions or comments?**

d.possenriede@uu.nl



**Universiteit Utrecht**

## Average working hours by gender

Working hours	Male		Female		Total	
	Mean	S.E.	Mean	S.E.	Mean	S.E.
Actual hours	39.60	(0.12)	26.84	(0.14)	33.55	(0.11)
Contracted hours	36.54	(0.08)	25.05	(0.12)	31.04	(0.09)
Preferred hours	35.69	(0.09)	25.02	(0.12)	30.58	(0.09)

