Conspicuous Work: Peer Working Time, Happiness and Labour Supply

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Abstract

This paper sheds light on the background of social interactions in labour supply, by analysing how peer working time relates to both labour supply and happiness for Dutch men. Using a unique measure of peer weekly working time, we find that men's working time increases along with the working time of their peers, as has been found in earlier studies. Explaining this finding, we find that men who work longer hours than their peers are happier, even after controlling for relative income. This is consistent with what we call a "conspicuous work" model, in which individuals derive status from working time. A number of robustness checks suggest that the relationships found are not spurious.

1 Introduction

Several papers have studied social interactions in labour supply, using different strategies to identify peer effects (e.g. Woittiez and Kapteyn, 1998; Aronsson et al., 1999). The role played by social factors, such as "work as a source of social and self-esteem", "social custom and conditioning" or gender identity is also stressed by the literature which analyses the link between working time and well-being (Booth and Van Ours, 2008, 2009). This paper makes the link between these two types of studies. In order to find out which exact role peers' working time plays in an agent's utility function, we examine how peers' working time relates to both working time and happiness of individuals. We use a unique measure of peer labour supply, namely the average weekly working time of a man's acquaintances, as reported by the respondent himself, rather than the working time of workers with characteristics similar to those of the individual (e.g. Aronsson et al., 1999) or a working time variable constructed on the basis of other peer characteristics described by the individual (Woittiez and Kapteyn, 1998). To our knowledge, this paper is the first to analyse the link between peer working time and happiness in order to shed light on social interactions in labour supply, and the first to use evidence directly provided by respondents about their peers' working time.

We first formulate three ways in which peer working time can enter an individual's utility function. First, peer working time can generate externalities and therefore influence the marginal utility of leisure or of work for an individual. Second, an individual can have a preference for conformity and derive utility from working the same number of hours as his peers. Third, the individual can derive status, and therefore utility, from the difference between his own working time and that of his peers. If the individual dervies status from working less than his peers, we have "conspicuous leisure". Alternatively, in what we call the "conspicuous work" case, the individual derives status from working more than his peers, and this increases his utility.

Using data from the CentER data panel, a panel survey among Dutch households, for the period 1994-2011, we first find a positive relationship between a man's working time and his peers', as do Aronsson et al. (1999) and Weinberg et al. (2004). Second, we find that men are happier if they work more than their male peers, also when controlling for own and peer income. Our second finding can help explain the first: the evidence is consistent with the "conspicuous work" model, in which individuals derive status from working more than their peers, and in which the optimal behaviour is to imitate their peers because their utility function is concave in status and convex in costs. We use individual fixed-effects to control for characteristics which individuals might share with their peers, and additional robustness checks suggest that the relationships identified here are not spurious.

The paper is further structured as follows. In the next section, we formulate different models, to be tested empirically, for the different ways in which peer labour supply may influence an individual's utility and his labour supply, and we give a brief overview of the empirical literature on social interactions in labour supply. Section 3 describes the data. In section 4, we test the different models formulated earlier, by first analysing the influence of peer working time on men's own working time, and second by studying the relationship between a man's working time, his peers' working time, and his happiness. Section 5 concludes.

2 Social interactions in labour supply

2.1 Models of social interactions in labour supply

Externalities

A first way to explain why individuals would want to conform to their peers' working time is to argue that peer working time generates externalities. Working alone or relaxing alone is arguably less enjoyable than working or relaxing together with others. Alesina et al. (2006) present a simple model accounting for what they call this 'social multiplier' effect in leisure and use it to explain differences in hours worked between the USA and Europe. Grodner and Kniesner (2006) model a similar idea under the name "spillover effects". Similarly, Stiglitz (2008) argues that the marginal utility of leisure decreases when others

work more, because it is more enjoyable to spend leisure time together. There is indeed evidence that individuals coordinate their working hours to have common leisure time within the household (Hamermesh, 2002) and within regions (Osberg, 2004).

The utility function of the individual in such a case takes the form:

$$U = U(h, h\bar{h}, c, X)$$

where h stands for the weekly working time of the individual, $\bar{h}$ for the weekly working time of the relevant peer group, c is consumption of market goods and services, and X is a vector of personal characteristics and tastes. $U_{h\bar{h}} > 0$, meaning that the individual enjoys working more the more his peers work. Further, $U_c > 0$, $U_{cc} < 0$, i.e. more consumption raises utility but at a decreasing rate. $U_h < 0$ if work is a mere disutility, but if working time itself contributes to utility apart from the income it generates, one can also have $U_h > 0$, and possibly $U_{hh} < 0$ if the positive effects of working time on utility diminish as working time increase.

The labour supply function takes the form:

$$H = H(w, y, \bar{h}, X)$$

where w represents the hourly wage rate an individual can command on the labour market and y is his non-labour income. H_w can be positive or negative a priori, depending on whether the income or the substitution effect dominates. $H_y < 0$ according to the standard labour supply model. $H_{\bar{h}} > 0$ because an increase in peer hours leads to a decrease in the marginal disutility from work (and symmetrically to a decrease in the marginal utility from leisure) for the individual.[1].

Conformity

Second, peer working time can set a norm to which individuals want to conform. Akerlof's (1980) theory of social custom, and identity theory by Akerlof and Kranton (2000) state that an individual's utility will be enhanced, through an increase in "identity utility", if he behaves as is expected from people in the social category he belongs to. In the case of working time, this means that an individual will dislike having working hours which deviate a lot from what is expected of people in his social category. His peers' working hours can be considered a reasonable proxy for what is expected. Clark (2003) shows that unemployed men are happier if their peers are unemployed as well and interpret this as evidence that unemployment can constitute a social norm. Analogous to Grodner and Kniesner's (2006)'s "conformity effects" in labour supply, we can model the individual utility function in this case as:

$$U = U(|h - \bar{h}|, h, c, X)$$

[1]To allow for this interpretation, we need to abstract from the issue of timing of work, by assuming that everyone works roughly during the same hours.

Here, we have$U_{|h-\bar{h}|} < 0$, since there is a reputation cost of deviating from the social norm. This specification ensures that there is no reputation effect if the individual complies to the norm, and a negative one if he deviates (see Akerlof 1980 and its use by Clark 2003).

Bernheim (1994) develops a model in which individuals who care for the status derived from complying with the social norm tend to conform to a homogeneous standard of behaviour, even if their preferences regarding that behaviour differ. In the labour supply function, again, $H_{\bar{h}} > 0$ because the longer a man's peers work, the more he is willing to work himself, because he wants to confirm to the social norm to work long hours[2]. Social norms held by individuals or by people around them have been shown to influence the division of household and market work in couples (Van der Lippe and Siegers, 1994). Stutzer and Lalive (2004) show that individuals in communities with a stronger social norm to work tend to have shorter unemployment durations. Burda et al. (2013) find that theories based on social norms are consistent with the distribution of work across gender in a number of countries.

Status: conspicuous leisure or conspicuous work?

A third way to explain social interactions in labour supply is to start from the idea that individuals derive status from the difference between their own labour supply and that of others. Clark and Oswald (1998) develop a general model of the behavioural implications of striving for status through differentiation. Applying their model to the case in which status can be derived from labour supply behaviour, one gets an individual utility function of the form:

$$U = U(s, h, c, X)$$

where s is a status term, which in our case can take the form $s = h - \bar{h}$ (in the case of what Clark and Oswald (1998) call "additive comparisons") or $s = h/\bar{h}$ (in the case of "ratio comparisons"). How exactly this status terms affects individual utility depends on whether individuals derive status from having more leisure than their peers or from working more than others.

Veblen (1899) coined the concept of "conspicuous leisure", i.e. the idea that individuals can prove their status not only by consuming expensive and exclusive goods ("conspicuous consumption"), but also by showing that they do not have to work much and can afford to learn all kinds of skills which are not directly productive. Frijters and Leigh (2008) depict individuals in present times as making trade-offs between investing in conspicuous consumption and in conspicuous leisure, and show that the balance is shifting towards the first element as mobility increases and leisure activities are less easily registered by

[2]Grodner and Kniesner (2006) show how the positive peer effects on labour supply differ between the "conformity effects" and the "spillover effects": while the first one leads to labour supply tending towards the mean of the reference group, the second one leads to a snowball increase in labour supply. We do not use their models here because these are primarily designed to measure the influence of social interactions on wage elasticities, which is not the focus of our paper.

one's environment. In the presence of conspicuous leisure, we have $U_s < 0$, and therefore also $U_{\bar{h}} > 0$.

However, individuals nowadays also signal their worth to others through working time itself. In many social groups, an individual can indeed increase his status by telling everyone that he is very busy, preferably even more than others around him. We label the case in which working time is viewed as a provider of status "conspicuous work". Clark and Oswald (1998) themselves name emulation in labour supply as a possible application of their model: "One example is the Japanese-style case of corporate cultures in which everyone works at high levels of effort. When performance gives status, either directly or through added earnings, the model predicts effort-following." Experimental results by Falk and Ichino (2006) also seem in line with the idea of conspicuous work: they find that individuals are more productive if they share a room with another worker than if they work alone. This is consistent with the workers deriving status from relative productivity. This suggests that there is, by analogy, a possibility for individuals to derive status from working time. The results by Falk and Ichino (2006) are also in line with an individual utility function which is concave in status: they find that sharing a room with another worker seems to increase productivity more for workers who are less productive. One can imagine that the increase in productivity is larger because the increase in status is also larger for those who lag further behind their peers in terms of productivity and therefore of status. In the "conspicuous work" model, we have $U_s > 0$ and therefore $U_{\bar{h}} < 0$.

Clark and Oswald (1998) show that if the individuals' utility function is concave in social comparisons, those seeking status will tend to conform to others' behaviour. This has the interesting implication that both conspicuous leisure and conspicuous work will lead to following behaviour in labour supply. In terms of the labour supply function presented above, we have $H_{\bar{h}} > 0$ in the conspicuous leisure case, because if an individual's peers would reduce their working time, he would need to reduce his as well in order to maintain his relative leisure position. Symmetrically, if his peers increase their working time, he can afford to increase his without losing status from conspicuous leisure, while increasing the utility he derives from consumption through increased income from work.

In the case of conspicuous work, we also have $H_{\bar{h}} > 0$: if an individual's peers increase their working time, he will imitate them in order to maintain the status he derives from conspicuous work. The labour supply of his peers motivates a man to work more hours in order to improve his "relative working time position". The working time of his peers influences his behaviour because of the preference he has for the status of a "hard worker".

To sum up, all three models of social interactions in labour supply predict a positive effect of peer working time on individual working time, but for different reasons, associated with a different role of peer working time in the individual utility function.

2.2 Empirical evidence of peer effects in working time

There is quite some evidence that individuals conform to the labour supply of people around them. Peer labour supply has been found to have an influence on mothers' labour market participation (Maurin and Moschion, 2009), exit rates from welfare programmes (Van der Klaauw and Van Ours, 2003), exit from unemployment (Topa, 2001), and effort provision of workers (Ichino and Maggi, 2000; Falk and Ichino, 2006). As far as the number of hours worked is concerned, Woittiez and Kapteyn (1998) find that the desired number of hours worked for married women in the Netherlands is influenced by the working time of a peer group constructed on the basis of characteristics of the women themselves and of characteristics of their peers as reported by these women. Aronsson et al. (1999) find that the number of hours worked by Swedish married men is influenced by the number of hours worked in a social reference group defined on the basis of age, educational level and the presence of children in the household. Weinberg et al. (2004) find that the male employment rate in the neighbourhood influences the annual number of hours worked by American young men. Grodner and Kniesner (2008) construct a peer group based on a measure of economic proximity, and find that the working time of this peer group is positively related to the working time of married American men.

The estimation of peer effects raises a number of methodological problems. First, most studies examining the effect of peer behaviour on labour supply have to make assumptions about the peer group. The studies about peer effects in working time mentioned above mainly construct peer groups based on demographic and/or geographic criteria. The only exception is Woittiez and Kapteyn (1998), who use information provided by respondents about whom they consider to be their peer group, in order to construct peer working time. Soetevent (2006) regrets that this strategy "was since then not copied by other researchers". To our knowledge, subjective data about peer group has not been used to estimate peer effects on labour supply since then.

A second problem is that one has to find a strategy to distinguish effects really caused by peer behaviour from what Manski (1993) calls "correlated effects", i.e. effects which are simply due to the fact that individuals and their peers share unobserved characteristics, or that they are affected by the same environmental factors or shocks. Aronsson et al. (1999) use cohort fixed-effects to account for changes in the preferences of the reference group as a whole, which enables them to control for time-invariant shared unobservables, but not for common shocks or shared unobservables which would vary over time. Grodner and Kniesner (2008) instrument the mean labour supply of a reference group using the mean labour supply in the adjacent reference group. In order for this technique to solve the problems mentioned, they have to assume that the labour supply in this adjacent reference group is not correlated with an individual's own labour supply, i.e. that there are no unobservables and no common shocks shared with this adjacent group, and that the mean labour supply of this adjacent group has no direct influence on men's own labour supply. Finally, Weinberg et al. (2004) use individual fixed-effects and individual-specific exper-

ience profiles in order to correct for the influence of shared unobservables, both time-invariant and time-varying, but they cannot entirely exclude the effect of common shocks.

There is thus evidence that a man's working time is influenced by the labour supply of his environment. Peer influence, or social influences in general, are also often mentioned in the literature as one of the possible drivers behind the link between working time and subjective well-being: "social custom and conditioning might affect subjective well-being and the gender division of labour" (Booth and Van Ours, 2008); "Men might be more satisfied with longer working hours because the social norm is to work full-time" (Rätzel, 2009). Booth and Van Ours (2009) explain their finding that working full-time is positively associated with the life satisfaction of men and negatively associated with that of women by the fact that couples behave according to traditional gender identity. However, to our knowledge, the way in which peer working time influences individual well-being has not been examined directly yet.

The model by Clark and Oswald (1998) has been applied to the case of obesity by Oswald and Powdthavee (2007) and Blanchflower et al. (2009), who show that relative weight influences individual happiness, and that this could lead to imitative obesity. We test the model by Clark and Oswald (1998), along with two other concurrents, in the case of relative labour supply.

3 Data

We use the CentER data panel, a panel held since 1993 among Dutch households. We use information from respondents who have participated in the modules work and pensions, income and health, and economic and psychological concepts. The estimation sample consists of men aged 23 to 60 (cf. Booth and Van Ours, 2013). Table 1 presents descriptive statistics for the main variables in our estimation sample.

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Happiness	4.03	0.63	1	5
Log net household income	10.23	0.60	6.12	11.62
Net household income	31580.98	14684.65	454.55	111472.90
Log net peer household income	1.99	0.23	0	2.40
Net peer household income (11-point scale)	7.50	1.37	1	11
Weekly hours	41.65	9.14	1	72
Peer weekly hours	39.63	5.49	1	70
Looking for another job	0.20	0.40	0	1
Subjective health	4.06	0.64	1	5
Age	43.96	9.08	23	60
Number of children	1.11	1.19	0	6
Partner	0.83	0.38	0	1

We choose to focus on individuals with a positive weekly working time, unlike

Booth & Van Ours (2008, 2009, 2013), because we want to find out about the effects of weekly working time, and would like to avoid picking up any effect of being employed rather than unemployed. To exclude any effect on happiness of being employed while one's peers are unemployed, we also exclude individuals who report 0 as average working time of their peers and those who indicate that most of their peers do not have a paid job.

The number of hours that respondents work is measured by a number of questions, with respect to their normal (contractual) weekly working hours, their usual working hours, and any additional hours which they work in a second job. To measure weekly working time, we add up usual hours and hours worked in second jobs. Since there were a number of implausibly high values for weekly working time, we excluded those observations with weekly hours higher than 72. This corresponds to dropping the top percentile of the hour distribution in our sample[3] . The happiness of the respondents is measured by the question: "All in all, to what extent do you consider yourself a happy person?", to which they could answer by choosing from one of the following six possibilities: "very happy"; "happy"; "neither happy nor unhappy"; "unhappy"; "very unhappy"; "don't know" [4]. Figure 1 in the Appendix presents histograms of the distribution of the happiness and hours variables which are central to the analysis. Figure 2 presents scatterplots of how happiness relates to own and peer working time.

The questions about an individual's peers are announced as follows: "The following questions concern your circle of acquaintances, that is, the people with whom you associate frequently, such as friends, neighbours, acquaintances, or maybe people at work." This is followed by a number of questions about the age of most of these people (in 5-year age groups), the number of persons in most households of these acquaintances, the average total net income per year of those households (in 11 categories), the level of education of most acquaintances (in 7 categories), the kind of employment of most acquaintances. Table 7 and Table 8 in the Appendix compare the characteristics of men in our sample to those of their peers. The figures show that men in our sample are in general similar to their peers, but that, as one could expect, not everyone classifies the majority of their peers as similar to themselves in terms of age, education level, household size, etc.. This demonstrates that directly collecting information on peer characteristics has a real added value.

The labour supply of people in the environment of the respondents was measured using two separate questions for men and women, formulated as follows: "If you think of the men among your acquaintances, how many hours per week do they work on average?". As for respondent's own weekly working time, we excluded observations for which an average peer weekly working time higher than 72 hours was reported. Figure 3 shows how peer working time relates to

[3]We tried out different upper limits for the hours variable, ranging from 60 hours to no limit. The choice of the upper limit had only very little influence on the main estimation results. Where the thresholds influenced the results, this is mentioned when the results are described.

[4]Those who answered that they 'don't know' were excluded from the sample. They represent less than 1 percent of the sample.

own working time. The answers about peer working time are concentrated on horizontal lines, which seems to indicate that the respondents used the focal points constituted by a number of standard weekly work durations (such as 30, 36, 38, 40, 45, 50 and 60 hours). If individuals would use their own working time as proxy for their peers' working time, most observations would be concentrated on the 45-degree line. We see that this is not the case, which is reassuring, because it means that reporting bias is unlikely to play a big role in our analysis.

In the CentER panel, income is measured in a very detailed way at the individual level, through a number of questions on sources of income like earnings, social benefits, transfers from family, etc. Total net household income is measured as the sum of the net incomes of the different members of a household[5]. To eliminate implausibly low and implausibly high values of household income, we exclude 0.5 percent at the top and 0.5 percent at the bottom of the household income distribution[6].

The response to the question about the average income of the respondent's acquaintances is lower than for other items relating to peers (49 percent, compared to 70 percent response to the other peer-related items among working men aged 23 to 60). To avoid losing too many observations, we predicted the missing values for peer income as the linear prediction resulting from estimation of an ordered logit model with the measured peer income as dependent variable and measured peer characteristics as independent variables (see Table 6 in the Appendix for the results)[7] .

4 Estimations

4.1 Peer working time and own working time

All of the three models of social interactions in labour supply discussed above predict that the relationship between own and peer working time should be positive. Therefore, we start by estimating this relationship.

[5]The data is organized to avoid double-counting.

[6]As for the hours variables, the choice of the threshold for cleaning the household income variable had very little impact on the estimation results.

[7]Admittedly, the coefficients estimated in this model can be influenced by selection bias if the fact of answering the peer income question is related to the level of peer income. To check for this possibility, we also estimated a simple linear model by OLS, with and without correction for selection (results available from the authors). As an instrument for selection, we used the lag of the number of missing answers to peer related questions other than the question about peer income. (We could not use the present value since it was a perfect predictor of being part of the estimation sample.) There is very little variation in this variable, but it still had a negative and significant effect on the probability of answering the peer income question. We did find evidence that selection matters. However, in our equations of interest, whether we used predicted peer income computed on the basis of the ordered logit, the simple OLS, or the Heckman model with selection equation made very little difference to the estimation results. We therefore chose to use the linear prediction from the ordered logit because the distribution of the predicted peer income variable was most similar to that of the measured one.

Estimation method

We estimate a fixed-effects model. This is useful to control not only for unobserved heterogeneity among individuals, but more importantly to take into account unobserved characteristics which individuals can share with their peers and which can account for part of a positive relationship between own and peer working time. The standard errors are clustered at the individual level.

We do not observe hourly wages directly. Computing them on the basis of total earnings and hours worked would cause a bias in its coefficients, since hours worked is the dependent variable in our analysis. Therefore, we follow Weinberg et al. (2004) by choosing to estimate a reduced form of the labour supply equation, in which hourly wage is not included[8].

Estimation results

Table 2 presents the estimation results. We first estimate a baseline model in which peer working time is not included (column 1). Peer working time is added to this baseline model in column 2. The coefficient on the working time of male peers is positive and significant. The working time of female peers, when included in the model, is not significant (results available from the authors). Also, including the hours worked by the individual's partner does not affect the coefficient on peer working time (results available from the authors). The positive coefficient on peer working time remains, and even hardly changes, when peer income is added to the model as a regressor (column 3)[9]. .

Our results are in line with the evidence of peer effects in working time found by Aronsson et al. (1999), Grodner and Kniesner (2008) and Weinberg et al. (2004). In their estimation of peer effects on labour supply, Woittiez and Kapteyn (1998) and Grodner and Kniesner (2008) include a lag of own working time in order to control for habit formation in labour supply. Following their example (see column 2 of Table 10 in the Appendix), we find that habit formation plays a role, but that the coefficient on peer working time remains positive and significant next to it.

The positive coefficient on peer working time, which remains smaller than 1, indicates that individuals tend to follow the labour supply of their peers, without engaging in an explosive rat race.

Robustness checks

We estimate a number of additional models to check for the role of various potential sources of endogeneity of peer working time, or more generally of bias in our estimation results. Table 3 presents an overview of the robustness checks conducted and of their results.

[8]Including hourly wage and non-earned income as a regressors in the model does not cause the coefficient on peer working time to change.

[9]The coefficient on peer income, however, is larger when peer hours are not included in the model.

Table 2: Weekly hours worked: parameter estimates of an OLS model with fixed-effects

	(1)	(2)	(3)
Male peers' weekly hours		0.0999***	0.0939***
		(0.0285)	(0.0288)
Log net peer household income			0.5682
			(0.5811)
Age	0.8885***	0.8695***	0.8529***
	(0.2721)	(0.2696)	(0.2703)
Age^2	-0.0113***	-0.0110***	-0.0109***
	(0.0029)	(0.0029)	(0.0029)
Number of children	-0.1005	-0.0977	-0.0999
	(0.2670)	(0.2592)	(0.2601)
Partner	0.4684	0.4310	0.3965
	(0.7843)	(0.7826)	(0.7815)
Constant	25.0427***	21.1676***	20.8889***
	(6.1088)	(6.3047)	(6.3241)
Observations	8203	8203	8203
Number of id	3042	3042	3042
R-squared	0.02	0.03	0.03

* significant at 10%; ** significant at 5%; *** significant at 1%
Standard errors (clustered by individual) in parentheses
Year dummies included as additional controls.

Table 3: Overview of robustness checks for the weekly hours estimations

Potential source of bias	Estimation method	Coefficient on peer working time
	Fixed-effects model (baseline)	0.0939***
Reverse causality (Endogenous effects)	Use lag of peer working time	0.0611**
Influence of other peer characteristics (Exogenous effects)	Control for other observed peer characteristics	0.0853***
Time-invariant unobservables (Correlated effects 1)	Pooled model for comparison with fixed-effects model	0.4158***
Common shocks (e.g. in labour demand) (Correlated effects 2)	Desired working time as dependent variable	0.0677**
Remaining correlated effects	Instrumental variables	0.0238 (p-value Hausman test: 0.577)
Endogenous controls	Drop potentially endogenous controls	0.1001***
Selection bias	Correction for selection	0.0831***

First, we want to examine the role of possible feedback effects from own working time to peer working time ("endogenous effects" in Manski's terminology). Therefore, we also estimate the model replacing the present value of peer working time by its one-year lagged value. The estimation results are presented in column 1 of Table 9. The coefficient on the lag of peer working time is still positive and significant[10]

Second, we check whether observable characteristics of peers other than their working time have an influence on an individual's working time, in order to account for what Manski calls "exogenous effects". We include the peer characteristics which are measured in our dataset as additional regressors in the model. The estimation results are presented in column 2 of Table 9. We find that most added peer characteristics have no significant influence on an individual's working time. An individual's working time is only higher if most of his peers are self-employed. But most importantly, controlling for additional peer characteristics does not affect the coefficient on peer working time much.

Third, we argue that estimating a fixed-effects model brings us closer to identifying a causal effect, since it eliminates the role of characteristics which individuals might share with their peers and which might influence both their peers' and their own working time. To check this argument, we compare our estimates with those of a pooled model (see column 1 in Table 10 in the Ap-

[10]Individuals can change peers over time. We assume that the peer group does not change much from one year to another, and also that the working time of peers does not change much. Further lags of peer working time were not significant.

pendix). The coefficient on peer working time is indeed four times larger in pooled estimations, which confirms that using fixed-effects corrects for the role of confounding factors.

Then, the working time of a man and that of his peers can both be determined by external factors, such as labour demand. We therefore estimate a model in which the dependent variable is no longer actual hours worked, but the desired working time of the individual (Table 11 in the Appendix). A man's desired working time is less likely to be influenced by labour demand conditions than his actual working time. The estimation results show that peer working time still has a positive influence on desired working time. This suggests that the positive relationship is not purely driven by demand factors.

However, one might be unsure that desired working hours are not influenced by labour demand conditions. To try and tackle these issues, we also estimate a model in which we instrument for peer working time. We use peer age as an instrument for peer working time[11]. The exclusion restriction is that peer age only influences a man's working time through peer working time[12]. We take up peer age and its squared value as instruments. The estimation results are in Table 12 in the Appendix[13]. The F-statistic for these two variables indicates that the instruments are strong enough. Once we instrument for peer working time, its effect becomes smaller and insignificant. However, the endogeneity test does by far not reject the null hypothesis of exogeneity of peer working time.

Next, for the reader worried about potential endogeneity of control variables such as peer income, having a partner or the number of children, we also re-estimated our model leaving out these control variables. The main results were not affected (results available from the authors).

Finally, we are estimating a labour supply model using only individuals with positive working time, and with peers who have a positive working time. The reader might be worried about selection bias. We would first like to stress that when we remove the restriction of positive own and peer working time on our sample, sample size increases only to n = 9261, with 3346 individuals. This means that about 90 percent of individuals in our sample work and have peers who work. The chances of selection bias are therefore limited. To be sure, we

[11] We recognize that it might be problematic to use reported peer characteristics as an instrument for peer working time, but they are the only candidates in the data we have. The use of individual fixed-effects is important for the validity of our instrument, since it eliminates at least part of the unobservables which could account for a correlation between peer characteristics and the error term. Compared to other peer characteristics, peer age presents two advantages which speak for its use as an instrument: it is less likely than other peer characteristics to be related to shocks in labour demand, and it appears to be strong enough a predictor of peer working time.

[12] Admittedly, there might be other channels through which peers' age would influence labour supply, for instance if older acquaintances need care. We are unable to measure this effect or to control for it. Peer age might also be correlated to time-varying unobservables which an individual shares with his peers and which might influence labour supply. We have to assume that these effects are not too important. The fact that peer age does not have a significant coefficient when taken up next to peer working time in the baseline model (see column 2 in Table 9) is no compelling evidence, but it is encouraging.

[13] We use the xtivreg2 command in Stata (Schaffer, 2010).

also estimated a model in which we corrected for potential endogenous selection, using the technique developed by Semykina and Wooldridge (2010), and using as an instrument for selection the unemployment rate of men of the same age category in the province (results available from the authors). We then still find a positive and significant effect of peer working time on men's working time of about the same magnitude as without correction for selection bias.

To sum up, we have addressed the role of time-invariant characteristics shared with peers, labour demand conditions, reverse causality (feedback effects) and selection bias and we have used instrumental variables to tackle potential remaining issues. All in all, we take the results of these robustness checks to be evidence that peer working time has a positive influence on a man's own working time. This is consistent with any of the models presented above in which peer working time enters the agent's utility function. In the following section, we want to discriminate between these concurrent models by turning to the link between peer working time and happiness.

4.2 Peer working time and happiness

Estimation method

In this section, we examine the relationship between peer working time and men's happiness. Earlier research has demonstrated that in studies of self-reported happiness, it is crucial to take individual-specific effects into account (e.g. Lykken and Tellegen, 1996). In our setting, the individual fixed-effects are also important because they offer a partial solution to the problem of potential endogeneity of own and peer working time. Not controlling for these individual characteristics could lead, on the one hand, to a bias in the estimated coefficient of own working time if there are unobserved characteristics which have both an effect on happiness and on working time. On the other hand, if individuals also share some of these characteristics, which influence both working time and happiness, with their peers, not controlling for them could also lead to a bias in the coefficient of peer working time.

For simplicity, we estimate a linear model with fixed-effects. Because our dependent variable is discrete, we also estimate ordered logits with individual fixed effects for comparison purposes. Ferrer-i Carbonell and Frijters (2004) have developed a model with individual-specific thresholds, which is used by Rätzel (2009) and Booth & Van Ours (2008, 2009, 2013). However, Baetschmann et al. (2011) have shown that this model can bias estimation results because the choice of the individual thresholds is endogenous, so that the threshold chosen is correlated with the dependent variable. They have proposed an alternative, the "blow-up and cluster" (BUC) model, which has since then been used by Frijters and Beatton (2012) and Geishecker et al. (2012). We use both techniques, and find, like Ferrer-i Carbonell and Frijters (2004), that the estimation results are not substantially different when using ordered logits with fixed-effects (see Table 13 in the Appendix).

Estimation results

Table 4 presents the estimation results. First, in column 1, we estimate a model without peer working time, concentrating on men's own hours and net household income. It includes a quadratic term in hours to allow for possible non-linear effects of hours on happiness. The signs on the coefficients for the working hours variables indicate an inverted U-shaped relationship between weekly working time and happiness[14]. The two terms are jointly significant at the 5-percent level (p-value = 0.0467)[15]. The values of the coefficients indicate that men's happiness is at the highest for a weekly working time of around 50 hours[16].

In columns 2 to 5, we test the different models of social interactions presented in section 2 by examining how peer working time relates to individual happiness. Column 2 presents a test of the "externalities" hypothesis, because the interaction of own working time with peer working time is taken up in the model. If individuals enjoy working more the more their peers work, one would expect a positive sign on the interaction. This is not the case here, which seems to invalidate the externalities hypothesis. Note that if we add peer working time as a control to this regression, the results are not much different, with a positive coefficient on peer working time (0.006) and still a negative coefficient on the interaction term (-0.0002) (estimation results available from the authors).

To test the "conformity model", we take up the absolute value of the difference between a man's and his peers' working time (column 3). The coefficient of this variable is insignificant and positive, which seems to speak against the idea that men conform to their peers' working time because of social norms or of externalities in work or leisure.

In columns 4 and 5, we test the "status" model, in its "additive comparisons" and its "ratio comparisons" versions respectively. The sign on the status term will enable us to determine whether individuals derive utility from "conspicuous leisure" or from "conspicuous work". In column 4, we introduce peer working time itself into the regression. Note that this is practically equivalent to introducing the difference between own and peer working time, since we already control for own working time. Conspicuous leisure would imply a positive coefficient

[14] We note that when the model is estimated including household income and men's working time separately, the coefficients on these variables barely change. This suggests that the relationships between each of these variable and happiness are quite independent from each other, and that one is not "picking up" the effect of the other when they are included together in a regression.

[15] While the positive relationship between working time and happiness is found independently of the upper threshold chosen to define "plausible" working hours, the quadratic term was often found to be insignificant when using other values for the upper cut-off on the hours variable.

[16] Our finding that working full-time is significantly associated with men's happiness differs from the insignificant coefficient found by Booth & Van Ours (2013), who also use the CentER panel. It appears that the difference in results is mainly due to the fact that they were using an income variable which was different from ours and is no longer available, and that they had less data points than we have (they use the years 1993 – 2006), which might explain their insignificant results. However, they also come to the result that working full-time can be positively associated with men's happiness up to working 50 hours a week when using Australian data (Booth & Van Ours 2009).

Table 4: Happiness: parameter estimates of an OLS model with fixed-effects

	(1)	(2)	(3)	‘(4)	(5)
Weekly hours	0.0093**	0.0132***	0.0139**	0.0096**	0.0090**
	(0.0042)	(0.0044)	(0.0060)	(0.0042)	(0.0042)
Weekly hours^2	-0.0001*	-0.0001	-0.0002**	-0.0001*	-0.0001*
	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0000)
Own hours * peer hours		-0.0001***			
		(0.0000)			
Absolute difference in working time			0.0021		
			(0.0018)		
Male peers' weekly hours				-0.0041**	
				(0.0020)	
Hours ratio					0.0145***
					(0.0046)
Log net household income	0.0251*	0.0260*	0.0262*	0.0263*	0.0246*
	(0.0148)	(0.0147)	(0.0147)	(0.0147)	(0.0148)
Log net peer household income		-0.0384	-0.0577	-0.0438	0.0041
		(0.0440)	(0.0437)	(0.0442)	(0.0527)
Looking for another job	-0.0524***	-0.0531***	-0.0532***	-0.0527***	-0.0526***
	(0.0198)	(0.0197)	(0.0198)	(0.0197)	(0.0198)
Subjective health	0.0818***	0.0825***	0.0817***	0.0824***	0.0821***
	(0.0154)	(0.0154)	(0.0154)	(0.0154)	(0.0154)
Age	-0.0349*	-0.0335	-0.0335	-0.0332	-0.0353*
	(0.0204)	(0.0204)	(0.0204)	(0.0204)	(0.0204)
Age^2	0.0004*	0.0004*	0.0004*	0.0004*	0.0004*
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Number of children	-0.0039	-0.0033	-0.0032	-0.0038	-0.0040
	(0.0206)	(0.0206)	(0.0206)	(0.0207)	(0.0205)
Partner	0.3154***	0.3194***	0.3194***	0.3194***	0.3158***
	(0.0862)	(0.0863)	(0.0863)	(0.0863)	(0.0863)
Constant	3.6546***	3.6897***	3.6152***	3.8357***	3.6643***
	(0.4976)	(0.4999)	(0.5094)	(0.5099)	(0.5029)
Observations	8,203	8,203	8,203	8,203	8,203
Individuals	3,042	3,042	3,042	3,042	3,042
R-squared	0.03	0.04	0.04	0.04	0.04

* significant at 10%; ** significant at 5%; *** significant at 1%
Standard errors (clustered by individual) in parentheses
Year dummies included as additional controls.

on peer working time, while the conspicuous work model would predict the opposite. Peer working time appears to be negatively associated with happiness, therefore supporting the latter model. This effect holds even if peer income is included in the model, so it does not capture a relative income effect only[17]. In column 5, we introduce the ratio of own to peer income, in order to test the "ratio comparisons" version of the model. We find a positive and significant relationship between the hours ratio and happiness, again supporting the conspicuous work model.

Because we only have a rather imprecise measure of peer income, we are not willing to make hard conclusions about the relative influence of peer working time and peer income on happiness. Own and peer working time could also influence well-being because they are a predictor of good career perspectives, and therefore of lifetime income, or because they are associated with consumption on the job (in the form of additional material benefits, e.g. a lease car, etc.). We tried to test for these mechanisms, but our data was insufficient to allow us to draw any conclusions. The evidence suggests that peer working time and peer income are both used by individuals to evaluate their own status. Interestingly, only the working time of male peers is significantly associated with happiness. The working time of female peers is not significant when taken up in the regression (results available from the authors).

Clark and Oswald (1998) show that if utility is sufficiently concave in status, individuals will tend to follow the behaviour of their peers. The positive relationship found between a man's own working time and the number of hours worked by his peers suggests that this should be the case here. In order to verify this, we estimate models in which status (as measured by the difference or the ratio between own and peer hours) is taken up in a non-linear way in the happiness regression (cf. Table 14 in the Appendix). When taking up a quadratic status term (columns 1 and 3), it seems like individuals' utility is convex in status, since the sign on the quadratic term is positive. However, when taking up the log of the status variable in the model (columns 2 and 4), the positive sign on the log variable suggests comparison-concave utility. These results seem contradictory. Taking up a cubic term of the status variable in the model confirms that the utility function of individuals is not unambiguously concave or convex over the whole range of observed status (results available from the authors). A local polynomial smooth of happiness on status also confirms this idea (see Figure 4). It is worth noting that the high correlations between the hours variables and the status variables drive the individual significance of the variables down, but that they are jointly very significant.

The estimations using a quadratic term in status clearly do not support following behaviour, since they suggest comparison-convex utility, which should lead to deviant behaviour according to Clark and Oswald (1998). However, the

[17] In fact, the coefficient on peer working time does not change much upon inclusion of peer income, while the coefficient of peer income loses its significance when peer working time is included. This seems to suggest that a negative effect of peer working time on happiness is a partial explanation for the negative effect of peer income on happiness. However, we are not willing to push this interpretation too hard, given the limitations of our peer income variable.

estimations using the log of the status variables do support following behaviour. In the case of the additive comparison models (column 2), we can see it with the naked eye since concavity is sufficient and it is supported by the positive sign on the log of the status variable. In the ratio comparisons model (column 4), we find that the utility function is concave enough to generate following behaviour for two thirds of the individuals[18].

To conclude, it seems like specifications which give more weight to high values of status (i.e. specifications with quadratic terms) support deviant behaviour, while specifications which put less weight on those extreme values (i.e. specifications using the log of status) find more evidence of concavity in the utility function and therefore more support for following behaviour. The regressions using quadratic terms seem excessively influenced by extreme values. This becomes clear when having a look at the local polynomial smooth graphs for which the top and bottom percentile of the status distributions have been excluded (see Figure 5): the shape of the function looks clearly smoother, and more concave, when zooming in on the range in which most individuals are concentrated. Interestingly, for the range around 0, the relationship between status and happiness looks almost linear, which would support almost no peer effects at all according to Clark and Oswald (1998). Taken together, this evidence explains why we find evidence of peer effects, but only of very small magnitude, in our labour supply regressions.

Robustness checks

We conduct a number of robustness checks in order to exclude factors which may cause a spurious relationship between peer working time and happiness and to eliminate other potential sources of bias. All robustness checks are conducted on the model for "additive comparisons" (column 4 in Table 4) because it is the simpler formulation of the conspicuous work model. Table 5 presents an overview of the checks conducted.

First, as in the case of labour supply, we want to control for the influence of peer characteristics other than working time and income. We therefore estimate a model controlling for the peer characteristics which are measured in our dataset. The estimation results are presented in Table 15. The coefficients on the additional controls are not significant, and the coefficient on peer working time does not change, which indicate that exogenous effects do not bias our estimation results.

Second, we argued above that the use of individual fixed-effects brings us closer to estimating a causal relationship because it eliminates potential time-invariant confounding factors. To check this argument, we also estimated a pooled version of our models (see Table 16 in the Appendix). The effect of own

[18] In a ratio comparisons model, concavity in itself is not enough to explain following behaviour. For each individual in our sample, we compute $-u''(h/\bar{h})(h/\bar{h}) - u'(h/\bar{h})$, where $u = \beta ln(h/\bar{h})$ is the contribution of status to utility, using the estimated coefficient on the log of the hours ratio and the individual values of h and $\bar{h}$. This gives us the sign of the effect of peers' hours on own hours for each individual (cf. Clark and Oswald (1998), eq. (10)).

Table 5: Overview of robustness checks for the happiness estimations

Potential source of bias	Estimation method	Coefficient on peer working time
	Fixed-effects model (baseline)	-0.0041**
Influence of other peer characteristics (Exogenous effects)	Control for other observed peer characteristics	-0.0041**
Time-invariant unobservables (Correlated effects 1)	Pooled model for comparison with fixed-effects model	0.0006
Remaining correlated effects (e.g. reverse causality)	Instrumental variables	-0.0340** (p-value of Hausman test: 0.240)
Endogenous controls	Drop potentially endogenous controls	-0.0043**
Job change as potential confounding factor	Control for tenure	-0.0041**
Selection bias	Include non-working individuals and those with non-working peers for comparison purposes	-0.0021*

working time seems to be overestimated in the pooled model, since the quadratic hours term is insignificant, and since taking the coefficients from the pooled model at face value suggests an optimal working time of 85 hours a week. This suggests the presence of unobserved characteristics which raise both hours and happiness. Peer working time turns out to be insignificant in the pooled model (column 2). This also hints towards the presence of unobserved characteristics shared with peers which have a positive influence on both peer working time and individual happiness. In the pooled model, the peer hours variable takes up both the positive effect of these characteristics on happiness and the negative effect of peer hours due to conspicuous work. Once we introduce fixed-effects, only the latter effect is left to be captured by the model.

A further potential source of endogeneity could be reverse causality. It would play a role if happier people were likely to choose or report different own working hours and peer working hours. We attempt to tackle this problems by using instrumental variables for own and peer working hours. As instruments for own working time, we use the constraints on respondents' labour supply, measured as the difference between the desired weekly working time reported by respondents and their actual weekly working time[19] . The exclusion restriction is that constraints on working time do not influence happiness other than through actual working time. The extent to which people are able to realize their desired working time is taken to be determined by exogenous factors, and not by individual characteristics which relate to individual happiness. Also, it seems plausible that people are made happier or unhappier by their actual working time, and

[19]The question about desired hours is phrased as follows: "How many hours per week WOULD YOU LIKE to work in total? If you have more than one job, give the sum total for all jobs." Underemployment is the amount by which actual working time falls short of desired working time. Overemployment is the extent to which actual working time exceeds desired working time.

not so much by whether they obtained what they wanted or not. We cannot completely exclude the latter effect, but we assume that it is negligible. The instrument we use for peer working time is peer age (see section 4.1). The exclusion restriction is that peer age affects happiness only through peer working time. In particular, we assume that an individual's happiness does not cause him to choose peers of a specific age and does not affect the way he reports peer age. Admittedly, peer age might affect an individual's happiness through the relationship between peers' age and one's own. However, as we control for individuals' age in the regression, we hope to have taken away most of this effect[20]. We use both peer age and its squared value as instruments, as the effect of age on working time is likely to be non-linear. The results of the IV regressions are presented in Table 17 in the Appendix. The instruments appear to be strong enough, as indicated by the different F-tests. The instruments also pass the overidentification test. When own working time is instrumented, it loses its significance. The values of the coefficients indicate a happiness-maximizing working time which is lower than in the OLS estimations, just above 40 hours a week. Peer working time, when instrumented, remains negative and significant. The endogeneity test cannot reject exogeneity of the working time variables.

One might further be worried that other variables in the models estimated are endogenous (income, peer income, job satisfaction, health, partner, number of children), and that this endogeneity biases the coefficients on our variables of interest. However, when the model is estimated without these potentially endogenous control variables, the estimated coefficients on own and peer working time remain similar (results available from the authors).

Another potential source of concern is the idea that a job change could affect own working time, peer working time and happiness at the same time, therefore driving a spurious relationship between these variables. We do not directly observe job changes in our data, but we can construct a measure of job tenure. Including this measure as a control in our model, or a dummy for recent job changers (with job tenure shorter than a year or shorter than two years) does not affect the coefficient on own and peer working time (results available from the authors).

For the reader worried that focussing on only working men with working peers might distort the results somehow, we also estimated our main models including non-working men and men with non-working peers. The results remain qualitatively the same (results available from the authors).[21]

To conclude, the negative coefficient on peer working time which we found

[20] Controlling for a dummy indicating that an individual belongs to the same age category as his peers age in the IV regression, in an attempt to reduce the correlation between the instrument and the error term to a minimum, does not modify our main results. The "same age" dummy itself does not appear to be significantly associated with happiness. In addition, peer age itself does not appear to affect happiness significantly when taken up as a control in the baseline model (cf. Table 15). While this is not entirely clean evidence, it is still encouraging. It also suggests that peer age is not too strongly related to time-varying unobservables which might affect happiness and that an individual could share with his peers.

[21] In addition, peer income has a negative and significant coefficient, which might be due to increased power since we win about a thousand observations.

in our main model remains when we use different methods aiming at excluding different sources of spuriousness or bias. We conclude that the "conspicuous work" model is not invalidated. It has to be stressed, however, that both own and peer working time are measured by answers of the respondents to survey questions. Strictly speaking, we can therefore only say that men are happier if they have the feeling that they work more than other men around them.

5 Conclusions

In this paper, we have used a unique measure of peer working time in order to better understand how peer working time enters an individual's utility function, and therefore to shed light on the background of social interactions in labour supply. We used the Dutch CentER panel and focussed on working-age men. We used the respondents' answer to the question: "If you think of the men among your acquaintances, how many hours per week do they work on average?". A first descriptive look at the data confirms that the use of this unique measure of peer working time has added value compared with constructs based on individual characteristics, because individuals often enough report peer characteristics which differ from their own.

We presented three different models of the role peer working time can play in an individual's utility function. In a first model, individuals imitate their peers' labour supply because peer working time generates externalities for them in the sense that it directly affects the marginal utility they get from work or leisure. In the second model, people derive utility from conforming to others' labour supply behaviour because the latter constitutes a social norm. In the third model, individuals derive status from the difference between their peers' working time and their own. This third model can take two forms: in the "conspicuous leisure" model, individuals derive status from working less than others because this is interpreted as evidence of affluence. At the opposite, in the "conspicuous work" model, status is derived from working a lot, and therefore individuals derive utility from working more than their peers. All three models predict a positive effect of peer labour supply on own labour supply, but they differ with respect to their predictions about the effect of peer working time on happiness.

In line with all three models, we found evidence of peer effects on men's working time, in the sense that a man works more hours the longer his male peers work. This evidence is in line with earlier results of Aronsson et al. (1999), Weinberg et al. (2004) and Grodner and Kniesner (2008). In order to distinguish between the three models, we then studied the link between peer labour supply and happiness. We found that peer labour supply is negatively related to men's happiness, controlling for own working time, own income and peer income. This is consistent with the "conspicuous work" model. The evidence suggests that the relationships we find are robust to a number of potential sources of bias or spuriousness.

Our results are in line with a conspicuous work model with comparison con-

cave utility (i.e. decreasing marginal utility of status), convex costs of working time and non-increasing marginal private utility of working time (cf. Clark and Oswald, 1998). A preference for status derived from work induces men to follow their peers' labour supply, but because of the decreasing marginal utility of status and the increasing marginal net costs of working more, they do not engage in an explosive rat race. It is worth noting that our results do not necessarily imply an increasing trend in working time at the macro-level. The fact that individuals tend to follow their peers can also explain a downward trend in working time. In fact, average usual weekly hours worked by men on the main job decreased in the Netherlands from 38.1 hours in 1994 to 35.7 hours in 2011 (OECD stats). In the conspicuous work model, a decrease in peer working time allows men to decrease their own working time without losing status.

These results shed light on the motivations behind following behaviour in terms of working time. A better understanding of such motivations can be important for the design of incentives. For instance, Aronsson and Johansson-Stenman (2013) examine the implications for taxation of taking into account not only the role played by relative consumption, but also the implications of conspicuous leisure. If at least some individuals are motivated by conspicuous work, the implications for taxation are potentially different.

Further research could improve on the results presented here by collecting better data on peer income, and by finding better instruments for own and peer working time than we had at our disposal, in order to consolidate the suggestive evidence we provide here.

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Table 6: Peer income: parameter estimates of an ordered logit model

Peer age	0.5974***
	(0.0831)
Peer age^2	-0.0190***
	(0.0062)
Peer household size	0.2109***
	(0.0227)
Most peers self-employed	-0.1205
	(0.0836)
Peer education level	0.5754***
	(0.0166)
Male peers' weekly working time	0.0347***
	(0.0039)
Female peers' weekly working time	0.0012
	(0.0012)
Observations	7326

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Year dummies included as additional controls.

Figure 1: Histograms of the variables of interest

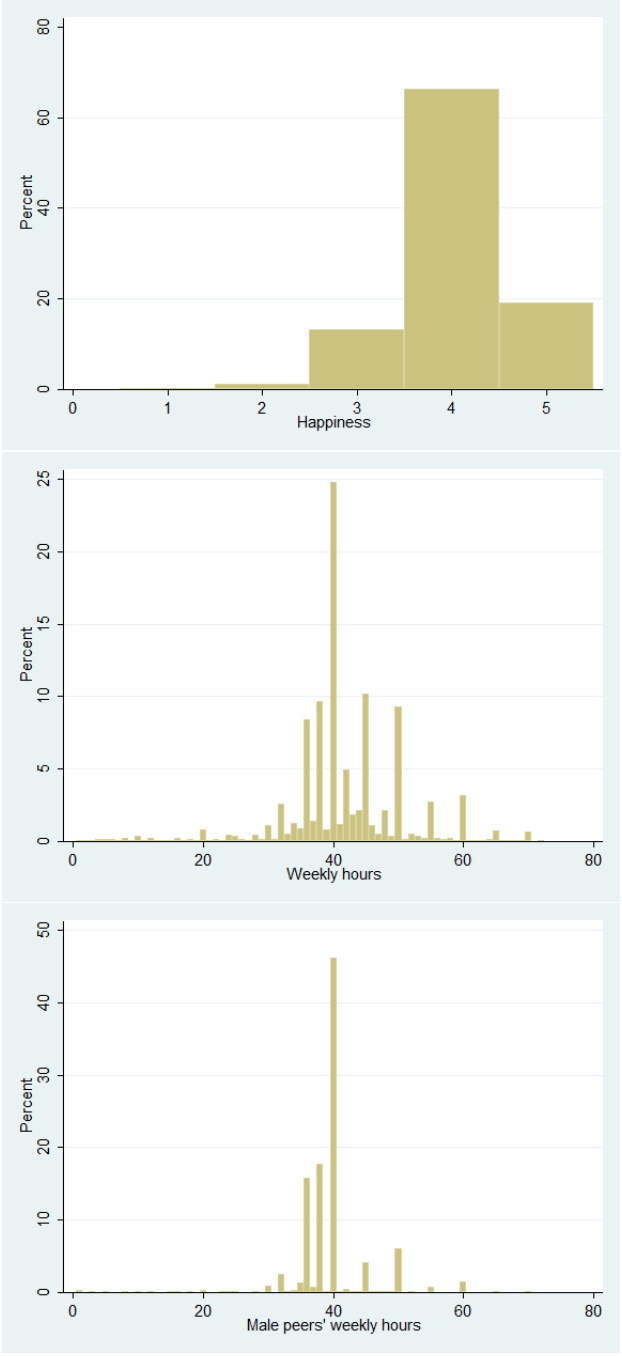


Figure 2: Scatterplots of happiness against own and peer hours

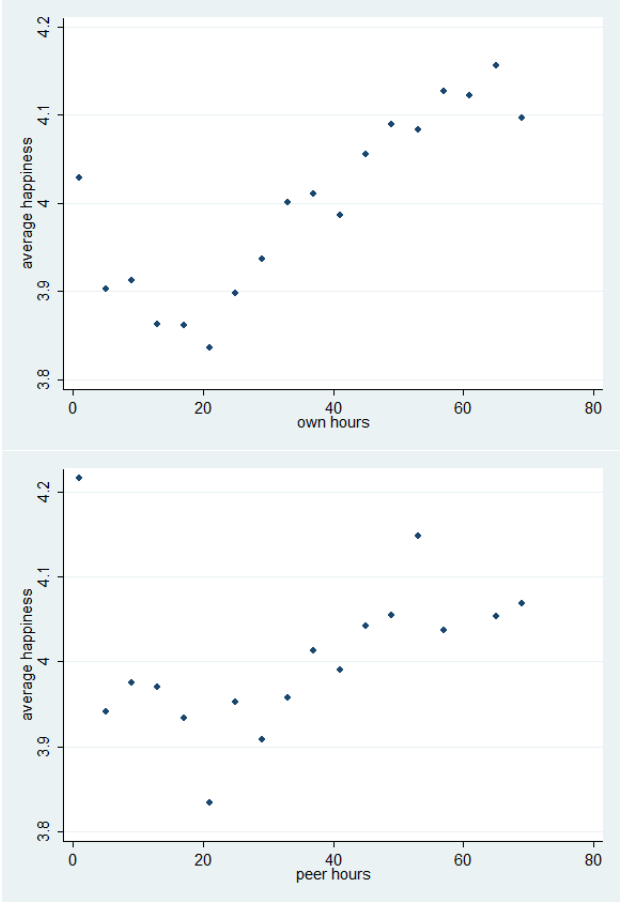


Figure 3: Scatterplot of peer hours against own hours

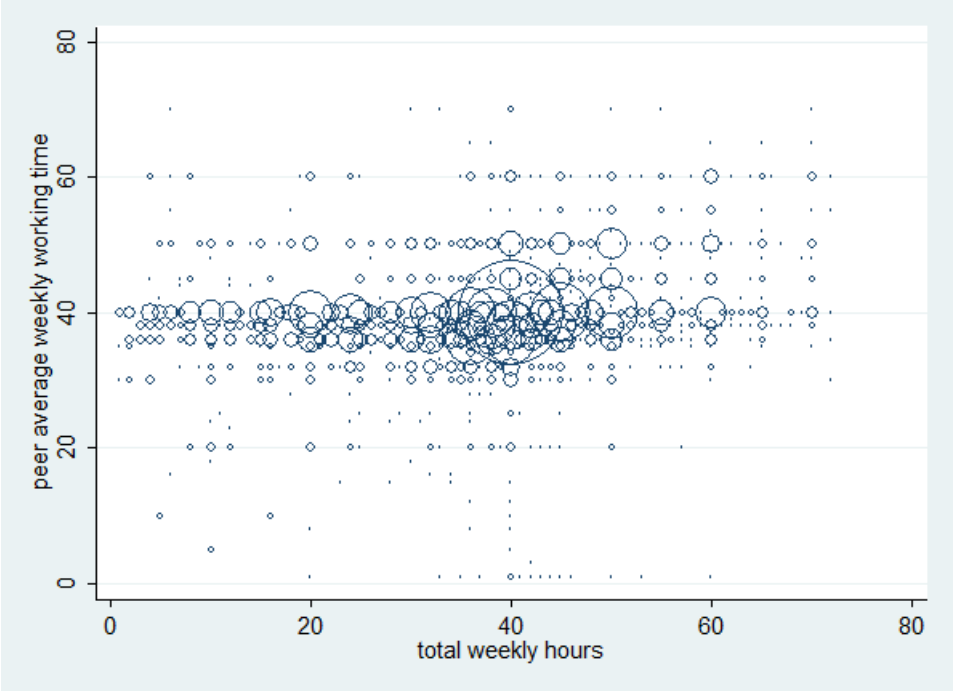


Table 7: Correlations between own and peer characteristics

Own / Peer Characteristics	Age	Household Size	Education Level	Weekly Hours	Self-employed
Age	0.8169				
Household Size		0.5207			
Education Level			0.6078		
Weekly Hours				0.2832	
Self-employed					0.2037

Table 8: Cross-tables of own and peer characteristics

Panel A - Cross-table of age groups

Own / Peer Age	< 25	25-34	35-44	45-54	>= 55	Total
< 25	53	8	1	0	0	62
25-34	93	1,259	87	8	3	1,450
35-44	24	699	1,817	65	6	2,611
45-54	18	105	1,213	1,499	46	2,881
>= 55	9	19	136	763	272	1,199
Total	197	2,090	3,254	2,335	327	8,203

Panel B - Cross-table of education level

Own / Peer Level	Low	Middle	High	Total
Low	916	865	99	1,880
Middle	403	1,686	493	2,582
High	111	930	2,359	3,400
Total	1,430	3,481	2,951	7,862

Table 9: Weekly hours worked: parameter estimates of an OLS model with fixed-effects controlling for endogenous and exogenous effects

	(1)	(2)
Male peers' weekly hours		0.0857***
		(0.0289)
Lag of male peers' weekly hours	0.0611**	
	(0.0276)	
Peer age		-0.0285
		(0.0825)
Peer household size		-0.0499
		(0.1210)
Peer education level		0.1571
		(0.1928)
Most peers self-employed		1.0979***
		(0.3725)
Log net peer household income	1.8320**	0.6901
	(0.7632)	(0.6109)
Age	1.0839***	0.8594***
	(0.3676)	(0.2720)
Age^2	-0.0137***	-0.0110***
	(0.0038)	(0.0029)
Number of children	-0.4338	-0.0807
	(0.3202)	(0.2597)
Partner	-0.5024	0.4209
	(0.6006)	(0.7810)
Constant	16.3611*	20.7639***
	(9.1062)	(6.3027)
Observations	5,005	8,203
Individuals	1,840	3,042
R2	0.04	0.03

Standard errors (clustered by individual) in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Year dummies included as additional controls.

Table 10: Weekly hours worked: parameter estimates of a pooled OLS model

	(1)	(2)
Male peers' weekly hours	0.4158***	0.2036***
	(0.0184)	(0.0167)
Lag weekly hours		0.5345***
		(0.0083)
Log net peer household income	1.4661***	0.4784
	(0.4625)	(0.4292)
Age	0.6462***	0.0260
	(0.1049)	(0.0968)
Age^2	-0.0083***	-0.0011
	(0.0012)	(0.0011)
Number of children	0.0820	0.1189
	(0.0931)	(0.0837)
Partner	0.4964*	0.0235
	(0.2833)	(0.2483)
Constant	9.8510***	11.5127***
	(2.3787)	(2.1970)
Observations	8203	5692
R-squared	0.11	0.49

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Year dummies included as additional controls.

Table 11: Desired working time: parameter estimates of an OLS model with fixed-effects

Male peers' weekly hours	0.0677*
	(0.0363)
Log net peer household income	0.3271
	(0.8677)
Age	0.7113**
	(0.3307)
Age^2	-0.0109***
	(0.0036)
Number of children	-0.7424
	(0.4942)
Partner	0.5076
	(0.9786)
Constant	23.2999***
	(7.4174)
Observations	8203
Individuals	3042
R-squared	0.02

* significant at 10%; ** significant at 5%; *** significant at 1%
Standard errors (clustered by individual) in parentheses
Year dummies included as additional controls.

Table 12: Weekly hours worked: parameter estimates of a two-stage least squares model with fixed-effects

	Second stage	Reduced form	First-stage
	Weekly hours	Weekly hours	Male peers' weekly hours
Male peers' weekly hours	0.0238		
	(0.1312)		
Log net peer household income	0.9780	1.1169*	4.9183***
	(0.9080)	(0.5771)	(0.7200)
Age	0.6767	0.8448***	-0.3834**
	(0.4739)	(0.2843)	(0.1950)
Age^2	-0.0111***	-0.0110***	0.0018
	(0.0030)	(0.0031)	(0.0020)
Number of children	-0.1034	-0.1074	-0.1307
	(0.2662)	(0.2667)	(0.2159)
Partner	0.3963	0.3957	0.0521
	(0.7816)	(0.7841)	(0.3269)
Peer age		0.0585	2.6062***
		(0.3407)	(0.6396)
Peer age^2		-0.0065	-0.1883***
		(0.0260)	(0.0441)
Observations	8203	8203	8203
Number of id	3042	3042	3042
Overidentification test	0.130		
	[0.718]		
Endogeneity test	0.311		
	[0.577]		
F-statistic			9.44
			[0.000]

Standard errors (clustered by individual) in parentheses; p-values in squared brackets.
* significant at 10%; ** significant at 5%; *** significant at 1%
Year dummies included as additional controls.

Table 13: Happiness: parameter estimates of ordered logit models with fixed-effects

	(1)	(2)	(3)	(4)
	BUC	BUC	FCF	FCF
Weekly working time	0.0583**	0.0628**	0.0519*	0.0506*
	(0.0269)	(0.0286)	(0.0290)	(0.0291)
Weekly working time^2	-0.0006*	-0.0006*	-0.0005	-0.0005
	(0.0003)	(0.0004)	(0.0004)	(0.0004)
Male peers' weekly working time		-0.0228**		-0.0255***
		(0.0100)		(0.0096)
Log net peer household income		-0.1858		-0.2938
		(0.2302)		(0.2272)
Log net household income	0.1558*	0.1725**	0.1402	0.1501*
	(0.0865)	(0.0863)	(0.0870)	(0.0875)
Looking for another job	-0.3604***	-0.3598***	-0.3809***	-0.3980***
	(0.1211)	(0.1214)	(0.1135)	(0.1140)
Subjective health	0.4760***	0.4853***	0.4937***	0.5073***
	(0.0924)	(0.0926)	(0.0933)	(0.0937)
Age	-0.2281*	-0.2214*	-0.2320**	-0.2145**
	(0.1180)	(0.1185)	(0.0933)	(0.0939)
Age^2	0.0029**	0.0028**	0.0030***	0.0028***
	(0.0013)	(0.0013)	(0.0010)	(0.0010)
Number of children	-0.0210	-0.0313	0.0024	0.0070
	(0.1323)	(0.1324)	(0.1086)	(0.1091)
Partner	1.5152***	1.5237***	1.5210***	1.5353***
	(0.4133)	(0.4122)	(0.2947)	(0.2952)
Observations	4252	4252	3722	3722
Individuals	777	777	777	777

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

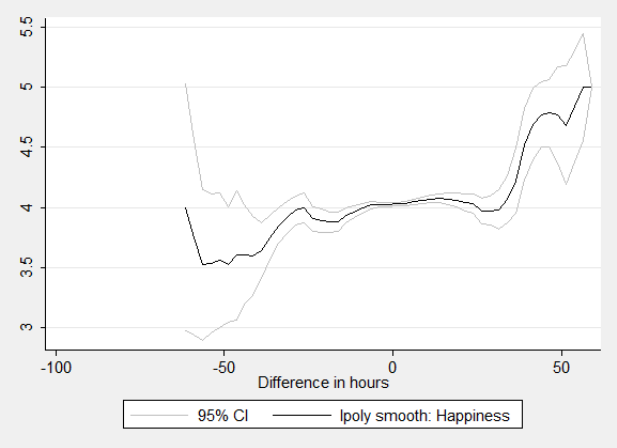
Table 14: Happiness: parameter estimates of an OLS model with fixed-effects including hours difference and hours ratio in a non-linear way

	(1)	(2)	(3)	(4)
Weekly hours	0.0151**	0.0046	0.0093**	0.0018
	(0.0076)	(0.0060)	(0.0043)	(0.0069)
Weekly hours^2	-0.0002**	-0.0001	-0.0001*	-0.0000
	(0.0001)	(0.0001)	(0.0000)	(0.0001)
Difference in hours	0.0034			
	(0.0021)			
Difference in hours^2	0.0001**			
	(0.0001)			
Log difference in hours		0.1831		
(constant added to ensure diff >0)		(0.1266)		
Hours ratio			0.0038	
			(0.0243)	
Hours ratio^2			0.0002	
			(0.0004)	
Log hours ratio				0.0933*
				(0.0546)
Log net household income	0.0255*	0.0265*	0.0247*	0.0260*
	(0.0148)	(0.0146)	(0.0148)	(0.0148)
Log net peer household income	-0.0184	-0.0546	0.0034	-0.0247
	(0.0455)	(0.0441)	(0.0529)	(0.0495)
Looking for another job	-0.0530***	-0.0526***	-0.0527***	-0.0527***
	(0.0197)	(0.0198)	(0.0198)	(0.0198)
Subjective health	0.0823***	0.0822***	0.0820***	0.0824***
	(0.0154)	(0.0154)	(0.0154)	(0.0154)
Age	-0.0343*	-0.0329	-0.0352*	-0.0339*
	(0.0204)	(0.0204)	(0.0204)	(0.0204)
Age^2	0.0004*	0.0004*	0.0004*	0.0004*
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Number of children	-0.0031	-0.0040	-0.0041	-0.0047
	(0.0206)	(0.0206)	(0.0205)	(0.0206)
Partner	0.3191***	0.3188***	0.3156***	0.3173***
	(0.0864)	(0.0863)	(0.0863)	(0.0864)
Constant	3.6247***	3.0725***	3.6629***	3.8771***
	(0.5317)	(0.6239)	(0.5025)	(0.5192)
R2	0.04	0.04	0.04	0.04
N	8,203	8,203	8,203	8,203
Individuals	3,042	3,042	3,042	3,042
p-value for joint significance of the terms containing own hours	0.0020	0.0163	0.0000	0.0108

* significant at 10%; ** significant at 5%; *** significant at 1%
Standard errors (clustered by individual) in parentheses
Year dummies included as additional controls.

Figure 4: Local polynomial smooths of happiness on status, whole estimation sample

(a) Local polynomial smooth of happiness on the difference between own and peer hours, whole estimation sample



(b) Local polynomial smooth of happiness on the ratio of own to peer hours, whole estimation sample

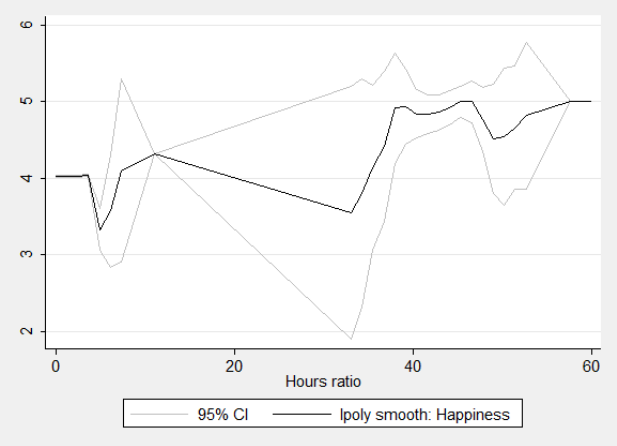


Figure 5: Local polynomial smooths of happiness on status, reduced sample

(a) Local polynomial smooth of happiness on the difference between own and peer hours, without the top and bottom percentile of the difference distribution

(b) Local polynomial smooth of happiness on the ratio of own to peer hours, without the top and bottom percentile of the ratio distribution

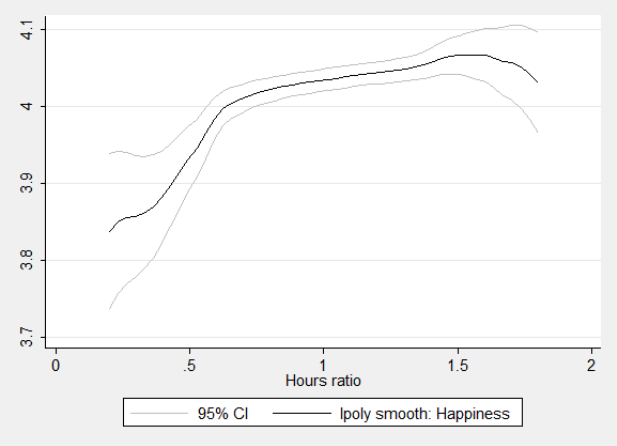


Table 15: Happiness: parameter estimates of an OLS model with fixed-effects, controlling for exogenous effects

Weekly hours	0.0095**
	(0.0042)
Weekly hours^2	-0.0001*
	(0.0000)
Male peers' weekly hours	-0.0041**
	(0.0020)
Peer age	-0.0021
	(0.0091)
Peer household size	-0.0028
	(0.0099)
Peer education level	0.0256
	(0.0158)
Most peers self-employed	-0.0090
	(0.0344)
Log net household income	0.0269*
	(0.0147)
Log net peer household income	-0.0508
	(0.0446)
Looking for another job	-0.0530***
	(0.0197)
Subjective health	0.0818***
	(0.0154)
Age	-0.0318
	(0.0205)
Age^2	0.0004*
	(0.0002)
Number of children	-0.0028
	(0.0206)
Partner	0.3192***
	(0.0862)
Constant	3.7742***
	(0.5123)
Observations	8,203
Individuals	3,042
R2	0.04

* significant at 10%; ** significant at 5%; *** significant at 1%
Standard errors (clustered by individual) in parentheses
Year dummies included as additional controls.

Table 16: Happiness: parameter estimates of pooled OLS models

	(1)	(2)
Weekly hours	0.0060**	0.0061**
	(0.0028)	(0.0028)
Weekly hours^2	-0.0000	-0.0000
	(0.0000)	(0.0000)
Male peers' weekly hours		0.0006
		(0.0013)
Log net household income	0.0309***	0.0324***
	(0.0110)	(0.0113)
Log net peer household income		-0.0192
		(0.0316)
Looking for another job	-0.0860***	-0.0859***
	(0.0164)	(0.0164)
Subjective health	0.2721***	0.2722***
	(0.0102)	(0.0102)
Age	-0.0111	-0.0106
	(0.0070)	(0.0071)
Age^2	0.0001	0.0001
	(0.0001)	(0.0001)
Number of children	-0.0231***	-0.0232***
	(0.0062)	(0.0062)
Partner	0.4162***	0.4173***
	(0.0189)	(0.0190)
Constant	2.4249***	2.4120***
	(0.1851)	(0.1901)
Observations	8203	8203
R-squared	0.16	0.16

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Year dummies included as additional controls.

Table 17: Happiness: parameter estimates of a two-stage least squares model with fixed-effects

	2SLS	Reduced form	First stage	First stage
	Happiness	Happiness	Weekly hours	Male peers' weekly hours
Weekly hours	0.0166			
	(0.0128)			
Weekly hours^2	-0.0002			
	(0.0002)			
Male peers' weekly hours	-0.0340**			
	(0.0167)			
Log net household income	0.0271*	0.0279*	0.3822*	0.0088
	(0.0150)	(0.0147)	(0.2070)	(0.1720)
Log net peer household income	0.1331	-0.0346	1.1041**	4.9150***
	(0.1063)	(0.0440)	(0.5248)	(0.7212)
Looking for another job	-0.0532***	-0.0544***	-0.2852	-0.0238
	(0.0204)	(0.0199)	(0.2101)	(0.1672)
Subjective health	0.0856***	0.0822***	0.0161	0.1146
	(0.0161)	(0.0155)	(0.1598)	(0.1296)
Age	-0.0428	-0.0166	0.7765***	-0.3818**
	(0.0487)	(0.0222)	(0.2459)	(0.1924)
Age^2	0.0003	0.0002	-0.0108***	0.0018
	(0.0002)	(0.0002)	(0.0027)	(0.0020)
Number of children	-0.0037	-0.0035	-0.3323	-0.1331
	(0.0223)	(0.0206)	(0.2340)	(0.2190)
Partner	0.3180***	0.3200***	0.3696	0.0402
	(0.0876)	(0.0869)	(0.6163)	(0.3282)
Overemployment		-0.0006	0.1602***	0.0045
		(0.0008)	(0.0133)	(0.0069)
Underemployment		-0.0026	-0.4606***	-0.0042
		(0.0021)	(0.1067)	(0.0229)
Peer age		-0.0897**	-0.2083	2.6028***
		(0.0432)	(0.2913)	(0.6404)
Peer age^2		0.0066**	0.0091	-0.1881***
		(0.0031)	(0.0227)	(0.0441)
Constant		3.8093***	23.3074***	34.5682***
		(0.4970)	(5.9205)	(4.2980)
N	8,203	8,203	8,203	8,203
Individuals	3,042	3,042	3,042	3,042
Overidentification test	0.039			
	[0.843]			
Endogeneity test	4.207			
	[0.240]			
F-statistic			47.73	4.74
			[0.000]	[0.000]

Standard errors (clustered by individual) in parentheses; p-values in squared brackets.
* significant at 10%; ** significant at 5%; *** significant at 1%
Year dummies included as additional controls.