The problematic and unproblematic second job*

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* My warmest thanks go to Eija Savaja whose expertness in computer programming was of invaluable assistance at different stages of this work.

Helsinki 1991

ISBN 951-9282-49-1
ISSN 0357-9603

1. Introduction

Multiple jobholding is a phenomenon that has grown in importance in Finland as elsewhere. Yet little is known about factors that underlie multiple jobholding. Is holding a second job an indication that a jobholder is unable to supply his or her desired hours of work in his or her main job? Or is dual jobholding just an implication of an optimal response to available mix of different job opportunities? Depending on whether or not a dual jobholder is able to work desired hours in his or her main job, one can either claim that holding a second job reflects inflexible working hours in the main job or that dual jobholding implies flexible working opportunities in the labour market. Clearly, these two cases provide distinctively different views of the flexibility of working hours in any particular labour market and have different policy implications.

In 1989 about 8 per cent of Finnish employed men and 5 per cent of women, totalling to over 160 000 persons, held a second job. It appears from previous research on dual jobholding in Finland that, on the one hand, either a substantial economic necessity or, on the other hand, an ease to get a second job determine whether or not a person is a dual jobholder.[1] Dual jobholders seem to be a heterogeneous group of people whose status in the labour market ranges from low-pay, part-time workers to high-pay, upper level senior officials.

It is relatively easy to relate the documented heterogeneity of the dual jobholders to differences in the labour market status of men and women. In fact, one cannot help wondering if it could be possible that dual jobholding of men and women is determined by different underlying behaviour. In other words, could it be the case that the motivation for holding a second job differs between male

and female dual jobholders in Finland? To what extent constraints in working hours in the main job and to what extent available job opportunities characterize the behaviour of men and women? These are questions on which we try to shed some light in this paper. Subsequent empirical work is based on the individual panel data from the Finnish Labour Force Survey covering the period from the end of 1987 until the beginning of 1989.

The paper is organised as follows. In chapter 2 the theoretical framework and its implications for empirical research are highlighted. In chapter 3 the data and results are discussed. Finally, in chapter 4 concluding remarks are made.

2. Modelling labour supply under dual jobholding

In the labour supply literature multiple jobholding has been a rather periferial issue.[2] It is, however, relatively easy to model labour supply when hours in different jobs are not assumed to be perfect substitutes. Let us characterize the choice of labour supply hours in the case of two potential jobs with a simplified example. Firstly, let us study the determination of optimal hours in the second job when a person has been free to choose working hours in the main job. Secondly, let us compare this optimal solution with the case in which a person has faced binding constraints in his or her labour supply in the main job.

A person's i optimisation problem in the case of two available jobs can be represented by the following simple model:

$$(1) \qquad \underset{c_i, h_{mi}, h_{si}}{\text{Max}} \quad u(c_i, h_{mi}, h_{si})$$

$$(2) \qquad \text{s.t. } p_i c_i = w_{mi} h_{mi} + w_{si} h_{si} + A_i,$$

where c_i represents a composite consumption good, h_{mi} is labour supply hours in the main job, and h_{si} is labour supply hours in the second job. In maximizing the utility function u person i faces the budget constraint (2), where p_i is the price of composite good, w_{mi} is the wage rate in the main job, w_{si} is the wage rate in the second job, and A_i represents nonlabour income.

Further, let us assume that the utility function has the following additive form:

$$(3) \qquad u(c_i, h_{mi}, h_{si}) = a_1 \ln c_i - a_2 \ln h_{mi} - a_3 \ln h_{si}$$

$$(4) \qquad 0 \leq a_1 \leq 1, \; a_2 \geq 1, \; a_3 \geq 1,$$

where a_1, a_2, and a_3 are parameters, which are restricted by the concavity conditions of the utility function in equation (4). A person facing the maximization problem (1)-(4) obtains the following function for the optimal hours in the second job:

(5) $$h_{si} = (a_3/(a_1-a_2-a_3))(1/w_{si})A_i,$$

where hours supplied in the second job depend on the hourly wage rate in the second job and on nonlabour income.

How does the solution for optimal hours change when a person has been restricted in his or her labour supply in the main job? In this case a person faces the following additional constraint:

(6) $$h_{mi} = \bar{h}_{mi},$$

and he or she maximizes utility function (3) with respect to c_i and h_{si} subject to the conditions (2),(4) and (6). Solution to this problem provides the following function for the hours in the second job

(7) $$h_{si} = (a_3/(a_1-a_3))(1/w_{si})(w_{mi}\bar{h}_{mi}+A_i).$$

It appears from (7) that when a person has faced binding constraints in his or her labour supply in the main job supplied hours in the second job depend, in addition to hourly wage rate in the second job and nonlabour income, also on the total earnings in the main job.

Equations (5) and (7) suggest that a test on the fact whether or not total earnings in the main job are exogenous to hours in the second job can provide information on a dual jobholder's potential constraints in the main job. In other words, if hours in the second job reflect optimal response to available mix of job opportunities, equation

(5) should be the proper model specification, but if chosen hours in the second job are determined under binding constraints in the main job, equation (7) should be the valid model.

To test whether or not a person has faced binding constraints in his or her labour supply when choosing hours in the second job in subsequent empirical work the following log-linear model for hours in the second job is specified:

$$(8) \qquad \ln h_{si} = \alpha_0 + \alpha_1 \ln w_{si} + \alpha_2 exi_i + \beta' \mathbf{x}_i + u_i,$$

$$E(u_i) = 0 \qquad E(u_i u_i') = \sigma_u^2 I_N \qquad i=1,\ldots,N$$

where α_0, α_1, and α_2 are parameters, β is a vector of parameters, $exi_i=(w_{mi}h_{mi}+A_i)$ is total earnings from the main job plus nonlabour income,[3] $\mathbf{x}_i$ is a vector of different taste variables affecting person i's decision to supply hours in the second job, u_i is an error term representing unobserved characteristics with the covariance matrix $\sigma_u^2 I_N$ (N is the number of observations). The crucial question here is whether or not the variable "extended income" exi_i is exogenous in equation (8). This can be checked by using Hausman's misspecification test.[4] It requires estimating the following equation

$$(9) \qquad \ln h_{si} = \alpha_0 + \alpha_1 \ln w_{si} + \alpha_2 exi_i + \alpha_3 \hat{exi}_i + \beta' \mathbf{x}_i + u_i,$$

where $\hat{exi}_i$ is the fitted value of variable exi_i from instrumental variables regression in which all exogenous variables in equation (9) together with some other exogenous variables have been used as instruments for exi_i. A test H_0: $\alpha_3=0$ provides an answer to whether or not exi_i is exogenous; under H_0 exi_i is exogenous. Thus, a simple t-test for the parameter α_3 is sufficient in this procedure to provide the desired answer.

In addition to estimating equation (9) a model based on the joint determination of working hours in the main and second job as suggested by the equation (5) is estimated for comparison. In subsequent empirical work this model has the following form:

(10) $\ln h_{si} = \alpha_0 + \alpha_1 \ln w_{si} + \alpha_2 as_i + \beta' \mathbf{x}_i + u_i,$

$$E(u_i) = 0 \quad E(u_i u_i') = \sigma_u^2 I_N \qquad i=1,\ldots,N$$

where as_i is asset income of the family (nonlabour income) and other variables are as before.

A problem that one faces in estimating equations (9) and (10) comes from the fact that some individuals have decided not to hold a second job. Thus, hours in a second job will be estimated conditional on the decision of holding a second job. Let the following model describe the decision of holding a second job:

(11) $P_i^* = \gamma' \mathbf{z}_i + v_i \qquad i=1,\ldots,N^* \qquad N^* > N$

(12) $$P_i = \begin{cases} 1 \text{ if } P_i^* > 0 \\ 0 \text{ otherwise} \end{cases}$$

$$E(v_i) = 0 \qquad E(v_i v_i') = \sigma_v^2 I_{N^*}$$

where P_i^* is a latent variable obtaining the value greater than zero if a person holds a second job and less than zero if he or she is not a dual jobholder. The dichotomous variable P_i obtains the value one if the person is seen to be a dual jobholder and the value zero if not. The model (11)-(12) specifies the relationship between the observable variables and the latent variable that determines the criterion for holding a second job. Because the parameter vector γ is only estimable to a scale factor $1/\sigma_v$, to simplify the notation we assume that $\sigma_v=1$.

Furthermore, we assume that errors u_i and v_i are jointly normally distributed with a zero mean vector and a covariance term σ_{uv}. Under these conditions we can write the expected value for hours of work in the second job (using model (10) as an example) conditional on the decision of holding a second job as follows:

(13) $E(\ln h_{si} \mid \ln w_{si}, as_i, x_i, P_i^* > 0) =$

$$\alpha_0 + \alpha_1 \ln w_{si} + \alpha_2 as_i + \beta' x_i + E(u_i \mid v_i > -\gamma' z_i)$$

(14) $$E(u_i \mid v_i > -\gamma' z_i) = \sigma_{uv} \varphi(\gamma' z_i) / \Phi(\gamma' z_i) = \sigma_{uv} imr_i,$$

where φ and Φ are the density and distribution functions for the standard normal. The measure imr_i, the inverse of Mills' ratio, represents the change in the error distribution resulting from the fact that the sample does not include individuals who do not hold second jobs. Using equations (13) and (14) the hours of work equation (10) can be written as follows:[5]

(15) $$\ln h_{si} = \alpha_0 + \alpha_1 \ln w_{si} + \alpha_2 as_i + \beta' x_i + \sigma_{uv} imr_i + e_i$$

(16) $$E(e_i \mid v_i > -\gamma' z_i) = 0$$

(17) $$E(e_i^2 \mid v_i > -\gamma' z_i) = \sigma_u^2 [(1-\rho^2) + \rho^2 (1 - \gamma' z_i imr_i - imr_i^2)]$$

(18) $$0 < 1 - \gamma' z_i imr_i - imr_i^2 < 1,$$

where $e_i = u_i - \sigma_{uv} imr_i$ and $\rho^2 = \sigma_{uv}^2 / \sigma_u^2$.

It appears from above that OLS estimators for the parameters of the labour supply model (15) would be unbiased but inefficient due to the fact that the error term e_i is heteroscedastic. Thus, in subsequent empirical work we calculate GLS estimators for the labour supply models involving the above procedure of correcting for the sample selection bias.[6]

3. Data and results

Panel data from the Finnish Labour Force Survey are used as a data base in this study. Our sample is based on the interviews of those 15-64 years of age who were included in the annual 1987 interview that was collected in the connection of 4 different monthly interviews from September to December in 1987. The survey contains 5 interviews of each individual over a period of 15 months. It covers altogether the period from the beginning of September 1987 until March 1989.

Our subsample is restricted to include only those individuals who were salaried employees or wage earners during the whole panel period. This subsample can be thought of representing potential dual jobholders. The sample consists of 1744 men and 1849 women.[7]

The Labour Force Survey is constructed in such a way that during the annual interview, which is the first one of the 5 interviews, a rather substantial set of questions are asked from the interviewees concerning their labour market status. In the following monthly interviews somewhat smaller set of questions are covered. In addition, information about different sources of income for the year 1987 is collected separately from tax registers for each individual in the survey.

We have utilised the data from the Labour Force Survey in the following way. Using the annual interview combined with tax registers we have constructed measures of hourly wage in the main and in the second job. For calculating hourly wage in the main job total earnings in the main job during the year 1987 from tax registers were divided by the total annual hours of work in the main job.[8] Due to the fact that for the year 1987 information about the hours in the second job was available only for the period of one survey

week we used information from the whole panel period (5 interviews) in order to obtain a more stable measure for total annual hours in a second job.[9] Hourly wage in a second job was calculated by dividing annual earnings in other than main job (obtained from tax registers) by the estimated annual hours.

To be able to utilise the hourly wage data in estimations in which the whole panel period is covered imputed wages were calculated for each observation. By definition all the individuals in the sample have a main job but only some have a second job. This causes sample selection problems when imputed hourly wages in a second job are estimated. In fact, to be able to calculate an hourly wage in a second job one must find positive hours in a second job at some point during the panel period as well as positive earnings in a second job from the tax register.[10] To correct for this kind of a sample selection bias both the probability that there have been positive hours and the probability that positive earnings in a second job have been reported has been estimated separately. Inverse of Mills' ratio has been calculated from each one of the estimations and has been added to the hourly wage equation on the second job. In Appendix 1 estimation results for the hourly wage equation in the main job and in Appendix 2 results for the hourly wage in a second job are reported.

Data on whether or not a person has been holding a second job and hours in a second job are collected throughout the panel period. Altogether there are 5x1744=8720 observations for men and 5x1849=9245 observations for women in the sample. During the 15 months panel period a same person may have been a dual jobholder in one of the interviews and may not have held a second job in another interview. These data points are treated as separate observations in subsequent empirical work. There were 537 reported cases of dual jobholding for men and 484 cases for women during the panel period. In Appendix 3 a more detailed description of the variables in the panel data set is reported.

To be able to look at the determination of hours in a second job we must first estimate the probability that a person holds a second job. In table 1 estimation results from a probit model on the probability of holding a second job are reported for men and women separately. Different background variables reflecting a person's individual characteristics, family status, status in the main job as well as area of residence are included as explanatory variables in the analyses. Table 1 reports estimation results for models which at a final stage included only those explanatory variables which had statistically significant (at a 5 per cent significance level) coefficients in estimation.

It appears from table 1 that the chosen background variables were able to characterize the choice of holding a second job rather well; the log-likelihood ratio test clearly rejects the hypothesis that explanatory variables have no influence on the probability of holding a second job. According to table 1 somewhat different factors affect the decision to hold a second job among men and women.

A man has a smaller tendency of having a second job if his wife is on disability pension (or she has long-term illness) whereas a man's probability of having a second job increases if his wife is a housewife. What comes to women it appeared in estimations that spouse played no role in her choice of holding a second job. This is somewhat surprising when one considers the evidence from international labour supply studies. For example, in other countries married women have a tendency to reduce their hours of work if their husband's salary increases. In Finland a woman with employed husband has the same probability of holding a second job as the one with unemployed husband or even as the one with no husband. Do we learn something about family budgeting in Finnish households from these figures?

Table 1. Propensity to hold a second job; probit model
(Estimation results using panel data)

Independent variables	Coefficients* Men N=8720		Women N=9245	
Intercept	-2.012	(0.205)	-2.484	(0.213)
Family background:				
Spouse on disability pension	-0.856	(0.369)	-	
Spouse housewife	0.413	(0.096)	-	
Child less than 7 years of age in the family	-		0.216	(0.052)
Asset income (in thousands)	0.008	(0.002)	-	
Other background:				
Age	-0.043	(0.007)	-0.023	(0.007)
Years of work experience	0.036	(0.006)	0.027	(0.007)
Hourly wage (main job)	0.020	(0.004)	0.021	(0.005)
Public sector employee (main job)	0.142	(0.067)	0.220	(0.050)
Some days off from the main job during the survey week	0.363	(0.108)	0.545	(0.127)
Level of education:				
High school graduate	-		0.192	(0.068)
University graduate	0.513	(0.094)	0.309	(0.100)
Educational specialization:				
Humanities & aesthetics	0.337	(0.130)	-0.336	(0.165)
Teacher training	0.327	(0.122)	-	
Transport & communications	-		0.558	(0.223)
Medical & health	0.575	(0.090)	-	
Agriculture & forestry programmes	0.482	(0.137)	0.360	(0.124)

* Standard deviations are in parentheses

Continued overleaf

Table 1. Propensity to hold a second job, cont'd

Independent variables	Coefficients* Men N=8720		Women N=9245	
Socieconomic status (main job):				
Upper management & related	-0.448	(0.114)	-	
Clerical or sales worker	-0.218	(0.076)	-	
Part time worker	0.698	(0.084)	0.687	(0.089)
Occupation (main job):				
Technical & related	-		-0.138	(0.074)
Agricultural & related	-		-0.279	(0.114)
Transport & communication	0.267	(0.093)	-	
Industry (main job):				
Agriculture, hunting, forestry, fishing	0.708	(0.141)	-	
Public, social & personal services	0.190	(0.075)	-	
Area of residence:				
Southern Finland	-		-0.212	(0.059)
Northern Finland	-0.265	(0.075)	-0.127	(0.076)
Urban locality	-0.166	(0.049)	-0.147	(0.050)
Log-Likelihood	-1764.0		-1766.8	
Restricted (Slopes=0) Log-Likelihood	-2016.9		-1898.8	
Chi-Squared	505.8		264.0	
Significance level	0.32E-13 (21)		0.32E-13 (17)	

* Standard deviations are in parentheses

Women with young children seem to be more likely than the others to hold a second job. This result partly reflects the fact that at the time when young people start their families the need for extra income can be substantial. Economic necessities may make women start working already during the maternity leave in which case the job is registered as a second job. In addtion, while working it may turn out to be beneficial for women to work additional hours if child care involves large fixed costs.

The higher the asset income of the family the more probable it is for a man to have a second job. Clearly some other factors than the received money in markkas dominate this outcome. It is possible that the nature of second jobs that men with wealth receive are more attractive than the jobs that their less well-off neighbours obtain increasing the probability of holding a second job. Or maybe wealthy men are just more diligent than the others? For women the amount of asset income of the family does not affect the probability of holding a second job.

The older one gets the less likely one is to hold a second job whereas longer work experience increases the probability of holding a second job. Higher wages in the main job make both men and women more likely to work in a second job. This outcome may reflect the fact that a high wage in the main job is related to a position which brings along attractive job opportunities.

Public sector employees are more likely to have a second job than those in the private sector. There are many potential explanations why this is the case. It is possible that due to their positions public sector employees are more likely than the others to be involved in activities which are registered as second jobs. It is also possible that simply due to shorter regular hours of work public sector employees have more time for a second job than those in the private sector.

It appears from table 1 that a person's probability of holding a second job increases when he or she has some days off from the main job during the survey week. In normal circumstances a worker has some days off during a period of one week (about 92 per cent of the workers in our sample did) and not having days off reflects somewhat peculiar circumstances. For example, it is hard to have a second job if you have not been able to work in your main job due to illness. It seems that holding a second job is closely related to regular working patterns in the main job and that in abnormal situations there is a tendency to refrain from working in a second job.

People with higher education are more likely to hold a second job than the others. It appears that there are also differences in the probability of holding a second job among people in different fields of specialization. These outcomes may, again, be related to the differences in the sort of job offers that individuals with different training receive.

Furthermore, it appears that, in the case of men, senior officials in upper management or in research and planning or employees in routine clerical and sales work are less likely than the others to have a second job. One common factor (and possibly the only one) among these two groups of employees seems to be the time. For senior officials hours of work are not regulated and in sales work hours can be very inconvenient. If you do not have time, holding a second job is difficult. In the case of both men and women, it appears that part-time workers are more likely than the others to be dual jobholders. It is not clear to what extent this outcome reflects the fact that part-time workers are possibly restricted in their hours of work and to what extent the fact that part-time workers just prefer to have many jobs. We will return to this point later.

The probability of holding a second job varies also according to one's occupation and industry in the main job. For example, men working in agriculture and related industries are more likely than the others to hold a second job. In rural areas people are more likely to be dual jobholders than in cities, other things being equal. Again one explanation to these results can be related to the types of activities people tend to do in different industries and areas. For example, one is more likely to find a person picking up berries for sale (registered as a second job) or milking cows (also registered as a second job when milk is used to feed other animals) in rural areas than in urban localities.

Let us now turn to the question of the determination of hours of work in a second job. In table 2 estimation results for models (9) and (10) specified in the previous section are reported for men (models 1 and 2, respectively). In explaining the hours in a second job imputed hourly wage in a second job, an asset income variable, as well as some background variables catching up individual differences in opportunities and tastes were used as explanatory variables in estimation.

Due to the fact that errors seemed to follow AR1 structure in initial estimations heteroscedasticity and autocorrelation (AR1) consistent covariance matrix by Newey and West (1987) was calculated for the parameters. It appears from table 2 that, overall, we have been able to explain the variation in the hours relatively well with adjusted R^2's exceeding 0.35 in both models.

The asset income variable in model 1 "extended income" is the sum of total earnings in the main job and the asset income of the family. This variable is crucial in testing whether or not a person has been constrained in his labour

Table 2. Supply of hours in a second job, men

Regression model, dependent variable: log(hours)

Independent variables	Coefficients* Model 1 N=537		Model 2 N=537	
Intercept	2.896	(0.367)	3.089	(0.371)
Log(hourly wage) in a second job	-0.092	(0.077)	-0.142	(0.064)
Education:				
Upper secondary school	-0.228	(0.101)	-0.245	(0.104)
Teacher training	-0.683	(0.127)	-0.715	(0.133)
Occupation (main job):				
Agricultural & related	-0.532	(0.160)	-0.539	(0.162)
Industry (second job):				
Agriculture, hunting, forestry, fishing	0.435	(0.151)	0.342	(0.150)
Construction	0.733	(0.175)	0.637	(0.167)
Public, social & personal services	-0.279	(0.123)	-0.280	(0.128)
Area of residence:				
Uusimaa	0.303	(0.146)	0.258	(0.130)
Rest of Southern Finland	0.248	(0.081)	0.224	(0.082)
Inverse of Mills' ratio	-0.203	(0.109)	-0.275	(0.118)
Extended income (in 1000s)	-0.293	(0.049)		
Instrumented ext. income	0.195	(0.090)		
Asset income (in 1000s)			-0.218	(0.060)
$\bar{R}^2$	0.398		0.353	
F	30.515	(12,524)	27.594	(11,525)

* Standard deviations (in parentheses) are calculated from heteroscedasticity and autocorrelation (AR1) consistent covariance matrix by Newey and West (1987).

supply in the main job. If labour supply in the main job is constrained "extended income" should be an exogenous variable in the model but if labour supply in different jobs reflects optimal choice among existing opportunities "extended income" should be endogenous. Hausman's misspecification test is used to test this matter; if the parameter estimate of instrumented "extended income" is not significantly different from zero the variable "extended income" is exogenous otherwise it is endogenous.[11]

It appears from table 2 that the coefficient of instrumented "extended income" is positive and significantly different from zero (at a 3 per cent level of significance). This result suggests that, for men, supply of hours in a second job reflects an optimal choice between different available working hours. Thus, men do not seem to have second jobs because they cannot work required amount of hours in the main job but because working in different jobs gives them pleasure.

What comes to other results, let us concentrate on model 2, which is the appropriate specification when the choice of hours in different jobs is simultaneous as suggested by the Hausman test. It appears from table 2 that the wage in a second job has a statistically significant and negative effect on hours. Table 2 suggests that a 10 per cent increase in the hourly wage reduces working hours in a second job by 1,4 per cent.

It also appears that men with higher education tend to work less hours than the others. For example, men with upper secondary school education seem to work about 25 per cent less than other men with similar characteristics. It appears that also asset income has a negative sign on hours of work. Let us relate these results with the ones we obtained from the probit model of holding a second job. It seems that while well educated and wealthy men tend to take

second jobs more often than the others they tend to work less hours while working. This result could potentially reflect different characteristics of jobs which men with high education and wealth have as second jobs compared with the others.

If a man's second job involves agriculture, hunting, forestry, fishing or construction work he tends to work longer hours than otherwise. Maybe the reason is that in these industries the quality of second jobs differs from the others as well? For example, fishing and hunting as a second job takes possibly longer hours than other activities and more than average hours in construction may reflect the fact that some men build their own houses as a second job. On the other hand, in public or social and personal services hours tend to be shorter than otherwise. The fact that in Southern Finland men tend to work more than in the rest of the country may also reflect the different quality of second jobs in different areas.

The inverse of Mills' ratio is negative suggesting that men who are more likely than the others to hold second jobs tend to work less hours in a second job.

Let us next look at the results on women's labour supply in a second job reported at table 3. Overall, it seems that in the women's models there are more explanatory factors affecting the chosen hours even though the explanatory power of the models seems to be somewhat weaker than that of men. The adjusted R^2 for model specifications 1 and 2 ranges around 0.30.

It appears from model 1 that the parameter estimate for the instrumented "extended income" is not significantly different from zero (the standard deviation of the parameter is five times larger than the point estimate). This outcome refers to the fact that "extended income" is an exogenous variable in the model and that, therefore,

Table 3. Supply of hours in a second job, women

Regression model, dependent variable: log(hours)

Independent variables	Coefficients* Model 1 N=484		Model 2 N=484	
Intercept	3.204	(0.419)	3.145	(0.411)
Log(hourly wage) in a second job	-0.073	(0.029)	-0.084	(0.030)
Age	-0.023	(0.014)	-0.038	(0.011)
Years of work experience	0.021	(0.015)	0.031	(0.013)
Education:				
University undergraduate	-0.313	(0.207)	-0.391	(0.180)
Training in sciencies	-0.279	(0.115)	-0.277	(0.118)
Socieconomic status (main job):				
Clerical or sales worker	-0.345	(0.157)	-0.301	(0.152)
Occupation (main job):				
Agricultural & related	-1.117	(0.369)	-1.065	(0.394)
Mining & quarrying	-0.613	(0.219)	-0.593	(0.284)
Transport & communication	0.578	(0.134)	0.642	(0.136)
Industry (second job):				
Construction	0.614	(0.192)	0.645	(0.197)
Financing & related	-0.377	(0.166)	-0.405	(0.174)
Public, social & personal services	-0.251	(0.135)	-0.317	(0.125)
Area of residence:				
Southern Finland (excluding Uusimaa)	-0.305	(0.104)	-0.312	(0.102)
Inverse of Mills' ratio	0.205	(0.190)	0.242	(0.195)
Extended income (in 1000s)	-0.254	(0.104)		
Instrumented ext. income	-0.041	(0.209)		
Asset income (in 1000s)			2.011	(1.035)
$\bar{R}^2$	0.311		0.294	
F	14.608	(16,467)	14.413	(15,468)

* Standard deviations (in parentheses) are calculated from heteroscedasticity and autocorrelation (AR1) consistent covariance matrix by Newey and West (1987).

women must have been constrained in their main jobs when supplying hours of work. This result is in sharp contrast with that of men reported above. Holding a second job for a woman is an implication of not being able to produce desired hours in the main job whereas for a man it is an implication of flexible job opportunities in the labour market.

What comes to other factors affecting hours supplied in the second job we will refer to model 1, which appears to be the appropriate empirical specification for women. The own wage effect is significant and negative on hours supplied suggesting that a 10 per cent increase in the hourly wage reduces a woman's working hours by 0,7 per cent in a second job. This own wage elasticity was twice as high for men.

The negative coefficient of "extended income" suggests that women tend to work less hours in a second job if their earnings in the main job together with family's asset income increases. This result shows what a second job means to a woman; if her earnings in the main job increase (the negative sign is due to earnings in the main job rather than asset income, since according to model 2 of table 3 pure asset income has a positive effect on hours) she reduces her hours in the second job. Second job is an economic necessity to a woman.

Older women tend to work less hours whereas women with longer work experience tend to work longer hours. University undergraduates work less hours in a second job than graduates and those with no university training. Those women who have training in natural sciences and technology work less than the others. All these results reflect the various characteristics of second jobs which women with different qualifications and training receive and accept.

If a woman works in her main job in industries like agriculture or mining with odd hours of work she supplies

less hours in her second job than other women. Only 2-3 per cent of women in our sample did work in these industries and our result shows the particular position that these women have in the labour market. On the other hand, if a woman works in transport and communications in her main job she has a tendency to work longer hours in her second job than otherwise similar women.

It appears from table 2 that if a second job is in construction a woman supplies more hours than in other industries. This result may again be related to the possibility that women as well as men are building their own houses as second jobs. If a second job is in financing and services a woman works less hours than on average.

Contrary to the results for men, the coefficient of the inverse of Mills' ratio for women suggests that a woman who has a larger probability of holding a second job also has a tendency to work more hours in a second job. This outcome seems to reflect the different motivations of holding second jobs between men and women as well.

4. Concluding remarks

In principle, one can distinguish two main reasons why someone is observed to be a dual jobholder. Firstly, holding a second job may be due to the fact that a jobholder is unable to supply his or her desired hours of work in his or her main job. Secondly, dual jobholding may be an implication of an optimal response to available mix of job opportunities. It is clear that depending on which one of the explanations holds true in any particular labour market one can get very different view of the functioning and flexibility that the labour market in question exhibits.

In 1989 about 8 per cent of Finnish employed men and 5 per cent of women held a second job. In this paper we have wondered whether or not the observed dual jobholding of Finnish men and women is determined by the same underlying behaviour. We have asked to what extent constraints in working hours in the main job and to what extent available job opportunities characterize the behaviour of male and female dual jobholders in Finland. To answer these questions we have used in our analyses a labour supply framework in which hours in the main and second job are modelled separately. In empirical estimations individual panel data from the Labour Force Survey covering the period from the end of 1987 until the beginning of 1989 have been used.

It appears from our analyses that holding a second job implies different things for men and women. Our results suggest that men seem to have second jobs because working in different jobs is optimal for them not because they cannot work required amount of hours in the main job. Holding a second job is, for a man, an implication of flexible job opportunities available for him in the labour market. This result is in sharp contrast with the one obtained for women. It seems that, for a woman, holding a second job is an indication that she is not able to produce

desired hours in the main job. In other words, difficulties in making ends meet with the earnings from the main job seem to be the motivating force behind dual jobholding of Finnish women rather than the mere possibility of supplying hours in different kinds of jobs.

It is clear from our results for Finnish men and women that dual jobholding can reflect very different labour market status of a dual jobholder even in the same labour market. It is also clear that policy implications vary from one case to another. If dual jobholding is an implication of optimal choice among different job alternatives, policy intervention is unnecessary. Whereas if dual jobholding indicates inflexibilities, policy intervention may improve the functioning of the labour market.

Footnotes

[1] See Santamäki-Vuori and Sauramo (1991), pp. 52-65.

[2] For example, in the Handbook of Labor Economics neither Pencavel (1986) nor Killingsworth and Heckman (1986) took multiple jobholding under discussion in their surveys on labour supply.

[3] Due to the fact that exi_i equals 0 for some observations the linear rather than the logarithmic form was chosen for this variable.

[4] Hausman (1978).

[5] Heckman (1979).

[6] Newey and West (1987).

[7] Some observations were lost due to missing data on some key variables as well.

[8] Annual earnings in the main job include salary and wage income and the monetary value of fringe benefits. Annual working hours in the main job have been evaluated combining the data on a person's regular weekly hours, on average weekly overtime hours in a person's profession and on his or her number of months in full-time or part-time employment in 1987. We used average rather than actual overtime hours in our calculations due to the fact that the data for the year 1987 was based on the information about one survey week and it therefore contained too much random variation to be used as a basis when annual hours were estimated. The average annual hours obtained for our sample correspond well with those from other statistics.

[9] In fact, we calculated the average weekly hours from the five interviews and multiplied it with the number 52 to obtain average annual hours. This was the only way to obtain somewhat more reliable measure for the annual hours and as such is still very rough.

[10] These two sets of information do not necessarily coincide due to the fact that in the survey there were people who had had a second job in some other time in 1987 than during the survey weeks covered by the panel study, and due to the fact that some activities (such as building one's own house) are registered as a second job even though no taxable income is received from them.

[11] In instrumenting "extended income" we have used all exogenous variables in the hours equation in addition to variables such as age, work experience, socioeconomic status, industry and occupation in the main job in the model. The adjusted R^2 in the extended income equation was as high as 0.51 for men and 0.41 for women.

Appendix 1. Hourly wage in the main job

Regression model, dependent variable: log(wage)

Independent variables	Coefficients* Men N=1711		Women N=1783	
Intercept	2.882	(0.095)	2.837	(0.089)
Family background:				
Married or cohabitating	0.045	(0.012)	-	
Child less than 7 years of age in the family	0.059	(0.017)	-	
Other background:				
Age	0.033	(0.005)	0.025	(0.005)
Age squared (x100)	-0.034	(0.007)	-0.026	(0.006)
Years of work experience	0.001	(0.001)	-	
Socieconomic status:				
Senior official in upper management or in research and planning	0.497	(0.023)	0.231	(0.042)
Senior official in education and training	0.423	(0.029)	0.334	(0.024)
Supervisor, employee working independently	0.133	(0.020)	0.063	(0.018)
Clerical or sales worker in routine work	0.150	(0.035)	-	
Occupation:				
Technical & related	-		0.179	(0.019)
Managerial & related	-		0.149	(0.019)
Transport & communication	-		0.155	(0.037)

* Standard deviations are in parentheses. The number of observations in these estimations are somewhat smaller than the number of observations in the whole sample due to the fact that we have included only those observations for which the hourly wage equals or exceeds 18 markkas, which in 1987 was approximately the minimum wage paid to employees.

Continued overleaf

Appendix 1. Hourly wage in the main job, cont'd

Regression model, dependent variable: log(wage)

Independent variables	Coefficients* Men N=1711		Women N=1783	
Industry:				
Agriculture & related	-0.166	(0.041)	-	
Trade, restaurants, hotels	-0.129	(0.023)	-0.042	(0.021)
Transport & related	-0.056	(0.023)	-	
Public, social & personal services	-0.085	(0.021)	-	
Financing & related	-		0.065	(0.023)
Area of residence:				
Uusimaa	0.155	(0.018)	0.095	(0.020)
Rest of Southern Finland	0.049	(0.017)	0.048	(0.019)
Northern Finland	-		0.063	(0.024)
Urban locality	-		0.027	(0.015)
Adjusted R^2	0.397		0.293	
F	75.902	(15,1695)	53.744	(14,1768)

* Standard deviations are in parentheses

Appendix 2. Hourly wage in the second job

Regression model, dependent variable: log(wage)

Independent variables	Coefficients* Men N=181		Women N=118	
Intercept	3.907	(0.719)	4.137	(0.632)
Education:				
University undergraduate	-		-1.038	(0.494)
Socieconomic status:				
Senior official	0.806	(0.372)	-	
Occupation: (main job)				
Commercial work	-		2.022	(0.634)
Industry: (main job)				
Trade, restaurants, hotels	-		-1.306	(0.465)
Transport & related	-1.289	(0.507)	-	
Industry: (second job)				
Agriculture & related	-1.852	(0.490)	-3.906	(0.685)
Construction	-1.843	(0.538)	2.481	(1.413)
Trade, restaurants, hotels	-1.564	(0.838)	-	
Inverse of Mills' ratio (positive hours)	-0.384	(0.548)	0.068	(0.446)
Inverse of Mills' ratio (positive earnings)	0.075	(0.576)	-0.486	(0.541)
Adjusted R^2	0.216		0.258	
F	8.098	(7,173)	6.807	(7,110)

* Standard deviations are in parentheses. The inverse of Mills' ratio has been calculated separately from a probit model for positive hours in a second job and for positive earnings from a second job. In these estimations variables such as family background, age, level of education, socieconomic status, occupation and industry in the main job, and area of residence were used as explanatory factors.

Appendix 3. Means of variables

Descriptive statistics are provided both for the whole panel data and for the subsample of dual jobholders.

Variables	Men N=8720	N=537	Women N=9245	N=484
Family background:				
Spouse on disability pension	0.024	0.019	0.016	0.012
Spouse housewife	0.038	0.086	0.046	0.072
Child less than 7 years of age in the family	0.240	0.289	0.239	0.316
Other background:				
Age*	37.76	37.87	37.34	38.19
Years of work experience*	17.12	17.02	17.07	17.80
Hourly wage (main job)*	48.43	46.76	38.54	37.58
Hourly wage (imputed, second job)*		54.29		173.87
Asset income (1000's)*	1.06	4.37	0.61	0.62
Working hours (second job)*		11.43		12.51
Public sector employee (main job)	0.358	0.534	0.313	0.475
Some days off from the main job during the survey week	0.917	0.959	0.918	0.977
Level of education:				
High school graduate	0.235	0.395	0.233	0.339
University graduate	0.058	0.197	0.047	0.122
Educational specialization:				
Humanities & aesthetics	0.020	0.060	0.020	0.023
Teacher training	0.029	0.071	0.021	0.048
Transport & communications	0.005	0.006	0.006	0.014
Medical & health	0.071	0.156	0.058	0.087
Agriculture & forestry programmes	0.019	0.048	0.026	0.048

* Continuous variables

Continued overleaf

Appendix 3. Means of variables, cont'd

Variables	Men N=8720	N=537	Women N=9245	N=484
Socieconomic status (main job):				
Upper management & related	0.076	0.086	0.068	0.107
Clerical or sales worker	0.157	0.145	0.146	0.130
Part time worker	0.051	0.128	0.040	0.107
Occupation (main job):				
Technical & related	0.213	0.328	0.206	0.260
Agricultural & related	0.073	0.050	0.070	0.033
Transport & communication	0.066	0.076	0.065	0.103
Industry (main job):				
Agriculture, hunting, forestry, fishing	0.021	0.050	0.028	0.035
Public, social & personal services	0.332	0.512	0.284	0.442
Area of residence:				
Southern Finland	0.646	0.670	0.664	0.595
Northern Finland	0.151	0.095	0.143	0.169
Urban locality	0.670	0.628	0.689	0.618

Note: Indicator variables obtain the value of one if the quality attached to them is true and the value of zero otherwise. For example, the indicator variable "High school graduate" obtains the value of one if the person in question is high school graduate and the value of zero if he or she is not. Thus, the mean of an indicator variable represents the percentage share of observations with the quality attached to the indicator in question.

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