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Multiple job holding in the changing labour market - evidence from Finland ★

Merja Kauhanen★★

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★★ Merja Kauhanen, Labour Institute for Economic Research, merja.kauhanen@labour.fi

Abstract

Multiple job holding concerns a considerable share of workers in the Finnish labour market, yet there is still only scarce research on its determinants and even less research that would take into account the heterogeneity within the group of multiple job holders. Utilising large register-based panel data from the 2010's this paper studies determinants of multiple job holding treating multiple job holders as one group and of different types of multiple job holding, and also investigates its permanence. The paper finds that men, younger, more educated and living in countryside are more likely to hold multiple jobs relative to the reference groups. For wage and salary earners having temporary contract and part-time work are strongly positively associated with multiple job holding. Economic necessity seems to be an important driver for multiple job holding albeit not for all groups. There is also quite a lot of heterogeneity in the determinants of different types of multiple job holding.

JEL Classification: J22, J23

Keywords: multiple job holding, types of multiple job holding, determinants

Tiivistelmä

Vaikka monimuotoisen ansiotyön tekemisessä on kyse merkittävästä työelämän ilmiöstä Suomessa, sitä on tutkittu vielä varsin vähän. Tässä tutkimuksessa selvitetään rekisteriaineistoja hyödyntäen, ketkä tekevät monimuotoista ansiotyötä Suomessa. Analyyseissa tarkastellaan monimuotoista ansio-työtä tekeviä yhtenä ryhmänä sekä jaoteltuna eri alatyyppeihin. Tulosten mukaan miehet, nuoret, korkeasti koulutetut sekä maaseudulla asuvat tekevät todennäköisemmin monimuotoista ansiotyötä verrokkiryhmiinsä verrattuna. Palkansaajien osalta osa- ja määräaikaista työtä tekevillä on suurempi todennäköisyys tehdä useaa työtä samanaikaisesti verrattuna kokoaikatyötä ja pysyvässä työsuhtees-sa työskenteleviin. Taloudelliset tekijät näyttäytyvät tärkeinä työntötekijöinä, joskaan ei kaikille ryhmille.

Avainsanat: monimuotoinen ansiotyö, alatyypit

Palkansaajien tutkimuslaitos
Labour Institute for Economic Research
Arkadiankatu 7
00100 Helsinki

www.labour.fi

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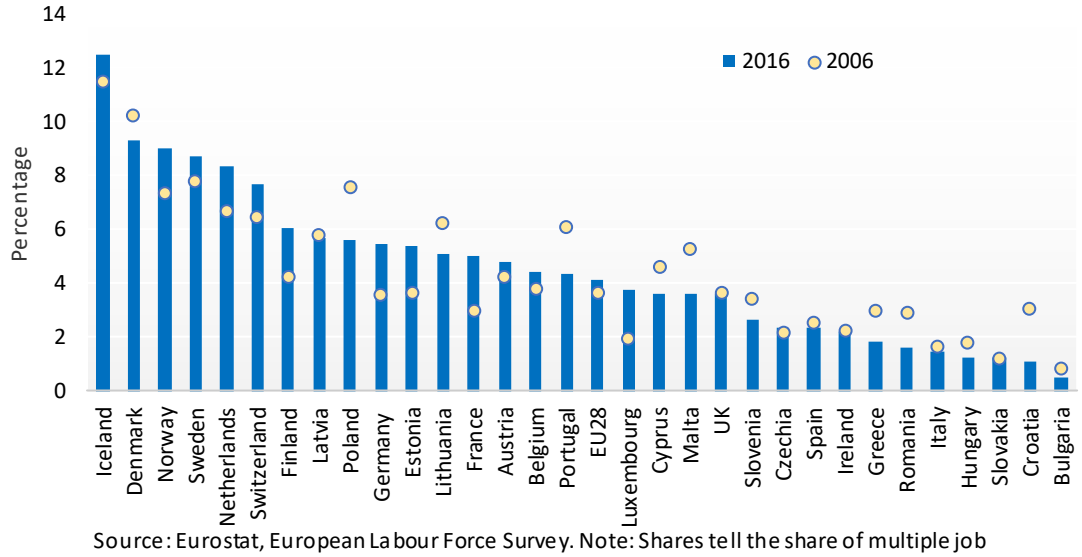
1. Introduction

As a result of variety of factors, such as rapid technological development and globalisation, the nature and organisation of work have transformed and led to more flexible and fragmented labour markets in many advanced economies. The changes taking place in labour market have been accompanied by changing employment patterns and a hybridisation of work in many European countries (Conen, 2020). Many countries have witnessed increase in part-time and temporary employment but also increase in multiple or hybrid forms of employment, i.e. working simultaneously in more than one dependent jobs or in a combination of dependent employment and self-employment. Multiple job holding (MJH) is partly interrelated to the growth of part-time work and the growth of casual jobs and increase in underemployment (Bamberry and Campbell, 2012). It is also interrelated to the upsurge of new forms of work brought by digitalization and the rise of the gig or platform economy (Pouliakis, 2017). But it has also links to the individualisation of work arrangements and the ability of so called 'free' workers' to increasingly choose their position in the labour market (Guest et al., 2006)

According to the European labour force survey statistics Finland has one of the highest shares of multiple holding in Europe (Figure 1). Higher shares are found only in other Nordic countries, Switzerland and the Netherlands. There is a lot of variety in the prevalence and the direction of the change of MJH across European countries, but Finland also belongs to those countries that have witnessed rise in multiple job holding. From year 2006 to 2016 the share of multiple job holders in Finland rose from 4.2 to around 6 percent and the number of employed persons with multiple job holders increased by around 40 percent.

Figure 1. Multiple job holding rates in Europe 2006 and 2016, %



Source: Eurostat, European Labour Force Survey. Note: Shares tell the share of multiple job holders of 15-64-year-old employed persons.

Despite multiple job holding being a significant characteristic of labour markets in Finland which has grown in prevalence there is still very scarce research on the determinants and income and career consequences of multiple job holding concerning Finland, with the exceptions of Haataja and Kauhanen (2015) and Lilja (1991). There is even more limited research that would acknowledge the heterogeneity of multiple job holders and would provide evidence on the determinants and consequences of different types of multiple job holding even considering the research related to different countries (Pouliakas, 2017).

Given its increasing prevalence studying determinants and consequences of MJH and its different types are also very relevant for a range of government policies such as employment and welfare policy (Saunders, 2011; Bamberry and Campbell, 2012) and employment regulation (Quinlan, 2003). For example, the current system of social security against unemployment does not fit well for those combining salaried and entrepreneurial work. Paying attention to MJH type is important because it can affect not only workers' social protection coverage but also coverage by working time provisions and employment protection legislation (Eurofound, 2020).

The main goal of this paper is three-fold. First, treating multiple job holders as one group, this paper focuses on the determinants of multiple job holding and examines in this regard the role of personal characteristics and job-related variables while controlling for individual unobserved heterogeneity.

Second, the determinants are also explored for different types of multiple job holders. In addition, the aim is to elucidate the dynamics of multiple job holding by examining entry and exit from dual job holding.

My research contributes to the existing literature on the determinants of multiple job holding in several ways. First, I provide fresh evidence of the determinants of multiple job holding in the changing labour market using data from the 2010's in contrast to many of the previous international papers on the topic presenting evidence dating back to the 1990s and beginning of 2000s. Second, I use very large rich register-based panel data in the empirical analysis, which makes the results reliable and representative. Third, I also include self-employed in the analysis in contrast to many studies that only focus on salaried workers. Fourth, majority of the previous literature has treated multiple job holders as one group without taking into account the heterogeneity within the group of multiple job holders. In this paper I study the determinants of different types of multiple job holding. In addition, in the statistical models I am also able to take into account unobserved heterogeneity.

The rest of the paper is organized as follows. Section 2 summarises the main theoretical explanations and empirical findings regarding the determinants of multiple job holding. Section 3 presents the data used in the empirical analyses and gives the definitions of multiple job holding and its different types. Section 4 introduces the empirical models used and the results. Finally, section 5 presents concluding remarks.

2. Previous literature

The literature on the motives why workers hold multiple jobs has identified several potential reasons (e.g. Kimmel and Conway, 2001; Böheim and Taylor, 2004; Heineck and Schwarze, 2004). One of the main explanations offered is hours constraints in the main job (Shishko and Rostker, 1976; Paxson and Sicherman, 1996). According to this motive employees take on a second job when they would like to work more hours at their prevailing primary wage rate but these hours are not available through the primary job. This might be due to the employer restrictions or institutional factors such as working time legislation.

The standard theoretical framework that is usually employed in the analysis of multiple job holding is based on the assumption of an hours-constrained worker. The employee is hours constrained and needs to work in a second job if she wants to optimise her labour supply. The decision to have a second job depends on the second job wage (if exceeds the reservation wage) and the marginal utili-

ty of working in the second job. If leisure is a normal good, then hours in the second job fall as income from other sources increases (Böheim and Taylor, 2004). Closely connected to the hours constraints motive is that low or insufficient wages in the first job may also encourage second job holding. In this case the second job holders should have on average lower wage from the primary job compared to single job holders.

The second main motive given for multiple job holding is the heterogeneous job motive (Conway and Kimmel, 1998). Individuals may derive utility from their second job that is different from that received from the primary employment, i.e. they have personal preference for job differentiation. For example, the second job may offer job satisfaction that workers do not get from their primary job. This motive suggests that it is other amenities or benefits that come along that matter most. The primary and secondary jobs may be complements offering desirable bundles of characteristics (Paxson and Sicherman, 1996). In the case of heterogeneous job motive theoretically, unlike in the case of hours constrained worker, the worker can freely choose any working time on the first job and the second job wage can be higher or lower than first job wage (Heineck, 2009). In the literature this motive has also been called as job portfolio approach (Renna and Oaxaca, 2006).

The literature has also stated motive for multiple job holding related to job insecurity (Bell et al., 1997; Böheim and Taylor, 2004; Livanos and Zangelidis, 2012). Job insecurity motive suggests that multiple job holding is used as a form of insurance due to a high level of employment or income uncertainty in the main job. Workers who fear losing their first job may hedge their chances by diversifying their human capital into new jobs (Bell et al., 1997). In addition, workers wanting to switch occupations or employers may use a second job as a source of on-the-job training that can facilitate a transition to a different occupation (Panos et al., 2014). Motives for multiple job holding may also arise if individuals are facing financial difficulties that are temporary.

According to Atherton et al. (2016) the above main motives given in the previous literature for multiple job holding do not adequately explain the rationale for the self-employed to hold a second job, even though they offer credible explanations of second job holding in some regards. In their research Atherton et al. (2016) find that among the self-employed second jobs supplement incomes either to help build a business or to smooth out uncertain and volatile incomes, and/or the amenity value of self-employment is greater than the value of being employed, even if the financial benefits are insufficient to support self-employment without supplementary dual job holding/moonlighting.

The previous empirical literature, mainly concerning USA and UK, have found evidence on the existence of both hours constraints and heterogenous job motives. The early studies focused more on hours constraints motive and to it closely interconnected financial motive, and found a negative relationship between the likelihood of multiple job holding and earnings in the primary job (e.g. Hamel, 1967; Guthrie, 1969; Shisko and Rostker, 1976; Krishnan, 1990). More recent research has presented empirical evidence on the heterogenous job motive as a rationale for multiple job holding (e.g. Averett (2001) for USA, Panos et al. (2014) for UK) and also evidence on both these main motives (e.g. Conway and Kimmel, 1998; Heineck, 2009; Choe et al., 2018).

The motive for multiple job holding can also influence its duration. The results suggest that MJH is quite permanent (e.g. Böheim and Taylor, 2004; Paxson and Sicherman, 1996), but for those dual job holders who are hours constrained might have on average shorter tenure in the second job than those who are not constrained in their primary job. This is due to the fact that hours constrained workers will eventually switch employers to get a wage-hours bundle that corresponds to their labour supply preferences (Böheim and Taylor, 2004). MJH duration might also be shorter for those workers who use MJH for career development. There is evidence suggesting that second job holding can promote job changes and start of new work careers, and especially transitions to self-employment (Panos et al.,2014; Guariglia and Kim, 2006).

Business cycle also seems to have impact on MJH, but the results by gender and country are varied (e.g. Amuédo-Dorantes and Kimmel, 2009; Zangelidis, 2014; Choe et al., 2018).

The previous literature on the determinants of MJH has also paid special attention to gender differences. Concerning U.S. Averett (2001) finds that factors leading men and women to multiple job holding are similar. Heineck's (2009) study concerning UK and Germany also find only few differences in multiple job holding correlates between genders. On the other hand, Lilja (1991) found evidence on the diverging motives between genders with Finnish data where for women hours constraint motive appears as the main motive and for men the heterogeneous jobs motive. Studying multiple job holding in several EU countries Haataja and Kauhanen (2014) also find gender differences in multiple job holding suggesting that for women there might exist more duality in the motives than for men.

The few notable exceptions that have included different combinations of MJH in their research on MJH among employees are Bouwhuis et al. (2017), Klinger and Weber (2020) and above mentioned Atherton et al. (2016). Bouwhuis et al. (2017) focuses on investigating transitions to combi-

nation multiple jobholding (MJH) (multiple jobs as an employee) and hybrid MJH (being an employee and self-employed) among older employees in The Netherlands and controls, among other things, also health related factors in this. With German data Klinger and Weber (2020) study determinants of three combinations of MJH: workers having two employment contracts subject to social security, two marginal jobs (mini-jobs) and a mixture of these two.

3. Data and definitions

The main data source utilised in the empirical analyses is the register-based FOLK data modules of Statistics Finland. Individual level FOLK modules data are highly representative as they cover all working age persons with permanent residence in Finland and have rich data contents from different registers, including information among other things on the individual's different background characteristics, primary and second employment relationship, earnings and income. In addition, the exploited data include additional information on the type of individual's primary employment relationship (permanent/temporary) and full-time/part-time status from the earnings structure data and more detailed information on earnings from the primary and second job from the income distribution data. In this paper the analyses of multiple job holding are restricted to 18-64-year-olds employed persons and the results concern the period 2010-2016, i.e. the data from the 2010's. The empirical analyses were made with the random 30 percent sample of the total data.

Multiple job holding (MJH) is defined as individual having simultaneously multiple paid jobs, either as an employee or as being self-employed. The identification of multiple job holding is based on the variable 'second employment relationship' (sivu in Finnish) included in the FOLK module data which tells that in addition to the primary job the person has other job. An additional condition for the identification is that there must be an overlap of the primary and second job employment relationships. This can be checked as there is information on the starting and ending dates of the main and second jobs in the data. Those second jobs the duration of which is less than eight days are excluded. Using this definition the average share of multiple job holders during the same year was 8,1 % over the period 2010-2016. This is a slightly larger share than the share given by labour force survey statistics, which can be explained by differences in measuring multiple job holding (see also Abraham et al., 2013; Hirsch et al., 2017).

Descriptive analysis

Table 1 presents summary frequency distributions of personal and main job characteristics of multiple job holders (as one group) in comparison to single job holders and all workers over the period 2010-2016. This descriptive information suggests that multiple job holding is slightly more common among women than men although not statistically significantly. Compared to all employed multiple job holders are on average younger, have a higher education, have more often Swedish or other language as their native language, and live more often in rural municipalities.

As for job related characteristics multiple job holders have on average lower monthly salaries in their main job than workers having only one job. They are overrepresented especially among professionals and service and sales workers which are the two biggest occupational groups of multiple job holders and represent together 45 percent of the multiple job holders in the sample. In addition, of occupational groups multiple job holders are also overrepresented among agricultural, forestry and fishery workers. By industry second job holding is common in agriculture and forestry, accommodation and food services, education, and other services.

Table 1. Frequency distribution of multiple job holders vs. single job holders and all employed, %

	Multiple job holders	**Single job holders**	**All employed**
Personal characteristics			
Female	50.5	50.4	50.3
Male	49.5	49.6	49.7
Age 18-24	15.8	9.3	9.8
Age 25-54	70.6	71.4	71.4
Age 55-64	13.6	19.3	18.7
Primary education	11.8	13.0	12.9
Secondary education	46.3	46.6	46.5
Tertiary education	41.9	40.3	40.6
Finnish language	86.2	90.1	89.7
Swedish language	7.6	5.2	5.4
Other language	6.1	4.7	4.8
Married	44.4	49.5	49.1
Children under 18	37.4	38.7	38.6
Urban municipality	69.7	71.6	71.5
Semi-urban municipality	14.2	15.3	15.2
Rural municipality	16.1	13.0	13.2
Characteristics of the main job			
Av. monthly wage	2695.7	2938.8	2919.1
Managers	3.3	3.9	3.8

Professionals	23.2	18.5	19.0
Technicians and associate professionals	15.6	18.3	18.1
Clerical support workers	5.5	6.6	6.6
Service and sales workers	21.9	20.3	20.3
Skilled agricultural, forestry and fishery workers	4.2	2.7	2.8
Craft and related trades workers	6.7	10.7	10.4
Plant and machine operators and assemblers	7.9	8.8	8.7
Other occupations*	7.4	7.1	7.2
Agriculture, forestry, fishing and mining	8.5	3.7	4.1
Manufacturing, electricity, gas and water supply	5.9	15.1	14.4
Construction	4.2	6.7	6.5
Wholesale trade and retail trade	8.0	12.2	11.9
Accommodation and food services activities	4.8	3.5	3.6
Transportation and storage	6.9	5.8	5.9
Services**	18.2	18.7	18.7
Public administration and defence	5.1	5.1	5.1
Education	9.1	6.9	7.1
Human health and social service activities	16.1	16.4	16.4
Other services***	12.8	5.6	6.2
Number of observations	387,203	4,401,774	4,788,977

Notes: *other occupations - biggest category elementary occupations, **services include information and communication, financial and insurance activities, real estate activities, professional, scientific and technical activities and administrative and support service activities, *** other services include arts, entertainment and recreation, other service activities and activities of households as employers; goods/services for own use.

Different types of multiple job holding

To take into account the heterogeneity within multiple job holders in the statistical analyses multiple job holders are classified into four different types: (i) wage and salary work (main activity) combined with wage and salary work in the second job (MJH1), (ii) wage and salary work (main activity) combined with self-employment (MJH2), (iii) self-employment (main activity) combined with wage and salary work (MJH3), and (iv) self-employment (main activity) combined with another entrepreneurial work (MJH4). This classification resembles the classification used e.g. in Eurostat's labour force survey statistics concerning dual job holders.

There are distinct differences in the prevalence of these different types of multiple job holding in the data. The most common type by far is MJH1, i.e. combination of wage and salary work in the primary job with another salaried job. Over 80 percent (80.5%) of multiple job holders have this kind of dual job holding type. The second most common dual job holding type is the combination of a salaried work in the primary job and self-employment in the second job (MJH2) with a share of 10.3 percent. The combination of self-employment in the main job and another entrepreneurial job (MJH4) comes in third (share 5.4 %) and the combination of self-employment and wage and salary work (MJH3) in fourth place (share 3.7 %).

A corresponding frequency distribution as in Table 1 are presented in Table in the Appendix for these different types of multiple job holding. The heterogeneity of different multiple job holding types shows well when looking at the personal and job-related characteristics across the types. In MJH1 majority of workers are females (share 54 %) whereas all other MJH types are clearly male dominated. Youngest age group comprises almost one fifth of MJH1 workers, whereas in all other MJH types their share is only around 1-3 percent. MJH4 workers are on average slightly older than other types of MJH workers. Those having foreign language as their native language have a higher relative share among MJH1 and those having Swedish as their native language have highest relative share among MJH4. Whereas majority of MJH1 workers live in cities, nearly 40 percent of MJH4 workers live in the countryside.

There are also differences between different type multiple job holders in occupational as well as industry distribution. As to occupations among MJH1 workers professionals and service and sales workers are the largest groups with about equal size shares, in MJH2 group professionals and technicians are the largest groups and among MJH3 and MJH4 skilled agricultural, forestry and fishery workers comprise the largest group. On average MJH2 workers have the highest monthly wage from primary job, whereas MJH workers have the lowest monthly wage. In addition, MJH1 wage and salary earners work more often in temporary and part-time jobs compared to MJH2.

Table 2 gives additional information of the breakdown of different types of MJH by gender, education level and age group. For female MJHs it is more typical than for male MJHs to combine wage and salary work in the main job with a salaried second job (MJH1 shares 86.8 % vs. 74.6%). In contrast, dual job holding men more often than women combine wage and salary work in the primary job with self-employment (MJH2 shares 12.8% vs. 7.4%) and self-employment with another entrepreneurial job (MJH3 shares 6.1 % vs. 1.3 %). The higher the education level the lower the share of MJH1 and the higher the share of MJH2, i.e. the combination of wage and salary work in the prima-

ry job and self-employment in the second job. By age group there are also distinct differences in the distribution of MJHs. Whereas almost all young multiple job holders combine salaried jobs, i.e. have type MJH1 (98.1 %), for the 25-54-year-olds and 55-64-year-old multiple job holders the share of MJH1 is clearly lower, i.e. 79.1 and 69.2 percent.

Table 2. Distribution of multiple job holding types by gender, education level and age group, %

Type	Female	Male	Primary	Secondary	Tertiary	Age18-24	Age25-54	Age55-64
MJH1	86.8	74.6	82.5	80.9	80.1	98.1	79.1	69.2
MJH2	7.4	12.8	6.7	9.1	12.4	0.8	11.2	15.2
MJH3	4.4	6.4	5.0	5.4	5.4	0.9	6.0	7.5
MJH4	1.3	6.1	5.8	4.5	2.1	0.1	3.6	8.0
Total	100	100	100	100	100	100	100	100

4. Empirical specification and results

Empirical specification

Utilising panel data from 2010-2016 the determinants of MJH are studied by applying a random effects probit model which is of the following form:

$y_{it}^* = \boldsymbol{x_{it}}'\beta + v_{it} \quad i=1,2,...,n$ and $t=1,...,T$

and

$v_{it} = \alpha_i + u_{it}$

and

$y_{it} = 1$ if $y_{it^*} > 0$ and $= 0$ else,

where y^* denotes the unobservable variable, y is the observed multiple job holding, $\boldsymbol{x}$ is observable time varying and time invariant vector of strictly exogenous characteristics which influence y^*, β is the vector of coefficients associated with the $\boldsymbol{x}$, α_i denotes the individual specific unobservable effect and the u_{it} is a random error. In the case of random effects probit (RE) it is also assumed that $u_{it} \sim \text{IN}(0,\sigma^2_u)$.

The vector x includes personal background characteristics and primary job characteristics that are associated with having more than one job simultaneously, i.e. gender, age group (18-24,25-54,55-64), education level (primary, secondary, tertiary), native language (Finnish, Swedish, other), marital status, having underaged children, type of municipality (urban, semiurban, rural), log of monthly wage from the primary job, temporary job, part-time job (for employees only), occupation (ten categories), and industry (11 categories). In addition, x also includes an indicator variable showing if a person has debt.

To study the determinants of different types of multiple job holding, i.e. where there are more than two unordered outcome categories, a multinomial logit model is employed. In the model the outcome variable is classified into five categories: (a) only one job, (b) wage and salary work (main activity) combined with self-employment, (c) self-employment (main activity) combined with wage and salary work, and (d) self-employment (main activity) combined with another entrepreneurial work.

A stringent assumption of multinomial logit model is that the outcome categories for the model have the property of the independence of irrelevant alternatives (IIA). This assumption implies that the inclusion or exclusion of categories does not affect the relative risks in the remaining categories, i.e. all alternatives are assumed to be independent of each other.

The multinomial logit model is of the following form:

$$P(y = m \mid x) = \frac{\exp(x'\beta_m)}{1 + \sum_{j=1}^{J} \exp(x'\beta_j)} \quad \text{for m= 1, ..., J.}$$

where y is the dependent variable denoting the type of multiple job holding numbered from 1 to J (1=only one job). x is the vector of K independent variables plus a constant for the intercept. The vector $\beta_m = (\beta_{0m} \ldots \beta_{km} \ldots \beta_{Km})$ includes the intercept β_{0m} and coefficients β_{km} for the effect of x_k on outcome m. The vector x includes the same explanatory variables that are used in estimating binary choice multiple job holding models.

Results

Multiple job holders as one group

Let us first look at the results for determinants of multiple holding (Table 3) from the estimated random probit effects models. For ease of interpretation the average marginal effects are presented in the table. The results in column 2 concern all employed persons and in column 3 wage and salary earners. The results for all employed persons suggest that women have a slightly lower probability of multiple job holding compared to men when controlling for the other personal and primary job characteristics and unobserved heterogeneity. By age group the probability of multiple job holding is highest among the youngest age group and lowest for the eldest age group.

Higher educated are also more likely to have multiple jobs. Compared to the primary level educated the highest educated workers have 2.2 percentage points higher probability of MJH. Similar result has been received from other studies as well and challenges the conventional wisdom that the majority of dual job holders would only be low-wage earners or people from financially strapped households (see Pouliakas, 2017). In addition, those speaking Swedish or other language as their native language and those living in the countryside have a slightly higher probability of MJH compared to Finnish speakers and those living in urban cities. The result confirming a larger probability of MJH in nonurban areas is similar that has been received by Hirsch et al. (2016) for U.S. As for the difference between urban and nonurban areas in MJH probabilities, in rural labour markets employment opportunities and options available of workers might be more limited and in these surroundings multiple job holding emerges as an important survival strategy (Jensen et al, 1995).

As for primary job characteristics the main job's monthly wage is negatively associated with multiple job holding, i.e. the higher the main job's wage the lower MJH. This can be interpreted as a support to the hours constraints motive behind MJH and is similar result which has been received from many previous studies. Not related to primary job characteristics but related to financial strain I also controlled for debts in the estimated model. The results suggest that having debt has a small positive relationship with MJH. It is, however, noteworthy that this is an imperfect variable because people having debt do not necessarily experience difficulties in paying them.

The occupation and industry of the primary job is also relevant. Professionals are more likely to hold multiple jobs relative to managers. Relative to other industries, those working in agriculture, forestry and fishery industry have the highest probability of dual job holding.

The results concerning determinants of multiple job holding for wage and salary earners (column 3) are very similar albeit there are some slight differences in the sizes of the effects. Worth noticing is the impact of type of employment contract on multiple job holding which was additionally controlled in the model for wage and salary earners. The results suggest that employees whose primary employment is part-time or temporary are distinctly more likely to be multiple job holders. Compared to full-time employees the probability of a part-time employee to have more than one job is four percentage points higher. Similarly, a temporary employee's likelihood of multiple job holding is 4.4 percentage point higher compared to a permanent employee. The positive impact of part-time employment in the main job on MJH can be interpreted also giving some support for the hours constraints motive in particular if the part-time work is involuntary (Heineck, 2009) and the positive impact of temporary employment giving support to the association between job insecurity and MJH.

Corresponding estimations were also made using dynamic random effects probit models that account for initial conditions a la Wooldridge (Wooldridge, 2005) and the estimated models provided similar types of results (Table not shown here).

The determinants of multiple job holding as one group were also separately studied for the different subgroups by gender, age group and educational level to see whether differences in the determinants can be detected. These subgroup analysis results are reported in Appendix 1.

Table 4. Average marginal effects of a probability of multiple job holding

	All employed persons	Wage and salary earners*
Individual characteristics:		
Female	-0.0117***	-0.0207***
Language:		
Swedish	0.0287***	0.0209***
Other	0.0249***	0.0278***
Age:		
25-54	-0.0348***	-0.0225***
55-64	-0.0559***	-0.0391***
Education level:		
Secondary	0.0108***	0.0075***
Tertiary	0.0217***	0.0195***
Married	-0.0102***	-0.0068***
Under18 children	-0.0054**	-0.0024***

Municipality group:		
Semi-urban	0.00003	0.0012*
Rural	0.0113***	0.0082***
Has debt	0.0068***	0.0112***
Primary job characteristics		
Ln monthly wage	-0.0117***	-0.0098***
Part-time	-	0.0405***
Temporary	-	0.0448***
Occupation:		
Professionals	0.0089***	-0.0008
Technicians and associate professionals	-0.0066***	-0.0175***
Clerical and support workers	-0.0108***	-0.0251***
Service and sales workers	0.00008	-0.0129***
Skilled agricultural, forestry and fishery workers	-0.0155***	-0.0560***
Craft and related trades workers	-0.0048***	-0.0164***
Plant and machine operators and assemblers	0.0022**	-0.0196***
Elementary occupations + other	-0.0047***	-0.0217***
Industry:		
Manufacturing, electricity, gas and water supply	-0.1211***	-0.2344***
Construction	-0.0898***	-0.2075***
Wholesale trade and retail trade	-0.0710***	-0.2183***
Accommodation and food services activities	-0.0730***	-0.1814***
Transportation and storage	-0.0460***	-0.1889***
Services	-0.0423***	-0.1962***
Public administration and defence	-0.0527***	0.2024***
Education	-0.0497***	-0.2000***
Health and social services	-0.0419***	-0.1958***
Other services	-0.0479***	-0.1174***
Year		
2011	-0.0036***	-0.0040***
2012	-0.0044***	-0.0045***
2013	-0.0054**	-0.0048**
2014	-0.0041***	-0.0027***
2015	-0.0037***	-0.0026***
2016	-0.0001	-0.0006
Number of observations	3,528,744	1,916,579

Notes: * significant at 10 %, **significant at 5% and *** significant at 1%;; random effects probit (2010-2016). Reference groups: male, 15-24, primary level education, Finnish native language, not married, no under18 children, urban municipality, managers, agriculture, forestry, fishing and mining.

Results concerning different types of multiple job holding

Determinants for different types of multiple job holding types were studied employing a multinomial logit model, where single job holding was the base outcome. The results from this multinomial

logit model are presented in Table 4. For the ease of interpretation marginal effects are reported instead of model coefficients. Marginal effects give the difference in probability of each of the outcome level associated with a unit change in each covariate. For categorical variables, the effects of discrete changes are computed, i.e., they show how a probability of choosing a particular MJH is predicted to change as Xk changes from 0 to 1 holding all other Xs equal. It is noteworthy that marginal effects for a particular covariate sum to zero across all outcomes and the sum of marginal effects for multiple job holding outcomes yield the marginal effects of single job holding but with an opposite sign.

The results show the heterogeneity in the determinants of different types of multiple job holding. Exploring the effects of demographic control variables the probability of MJH1 for the older age groups is lower compared to the youngest age groups, whereas for the other MJH types the older age groups have a higher probability of that particular type of MJH compared to the youngest age group. Those workers who have as their native language Swedish or other language have a higher probability of MJH1 compared to those who have Finnish as their native language. The difference is biggest for other language speakers. In contrast, those of foreign origin having other language as their native language have a lower likelihood of MJH2 and MJH4 relative to workers having Finnish as their native language. In addition, of personal characteristics not being married and not having children under 18 years of age increase the probability of MJH1 whereas for other types of MJH being married and having children under 18 increases the probability of that particular type of MJH. Males, those having higher education and living in countryside have a higher probability of MJH in all types of multiple job holding compared to females, those having primary level education and living in cities.

In regard to primary job characteristics the higher the monthly wage in primary job is decreases the probability of MJH1, MJH3 and MJH4, whereas it increases the probability of MJH2. In other words, the hours constraints motive or insufficient income behind MJH get support for three types of MJH including those multiple job holding types where main activity is self-employment. Similarly to Atherton et al. (2016), the results suggest that also among self-employed insufficient income from main activity is an important driver of dual job holding. For MJH2 the primary job wage seems to increase the probability of MJH which can be interpreted as a support of job portfolio or heterogeneous motive behind this type of MJH. For this type MJH workers dual job holding might be related to other amenities or benefits that come along with second job that matter most. As an additional ‘financial’ push factor having debt was also found to increase the likelihood of having more than one job for all types of multiple job holders compared to not having debt. Similar type of

economic hardship variable mortgage payment was used by Atherton et al. (2016) who found that it increased second job holding both for employees and self-employed. Financial and job portfolio/ psychological fulfilment motives however, need not necessarily be substitutes but they can also complement each other. E.g. Atherton et al. (2016) point out that for self-employed MJH can be a means of staying in self-employment and enjoy the life-style gains of it.

According to the results concerning occupation and industry of the main job there exists differences in their impact for the probability of different types of MJH. E.g. for both MJH1 and MJH2 where wage and salary work is the primary job professionals' probability of MJH is higher compared to managers. For both MJH3 and MJH4 where self-employment is the primary job being skilled agri-cultural, forestry or fishery workers increases the likelihood of MJH.

Table 5. Average marginal effects - different types of multiple job holding

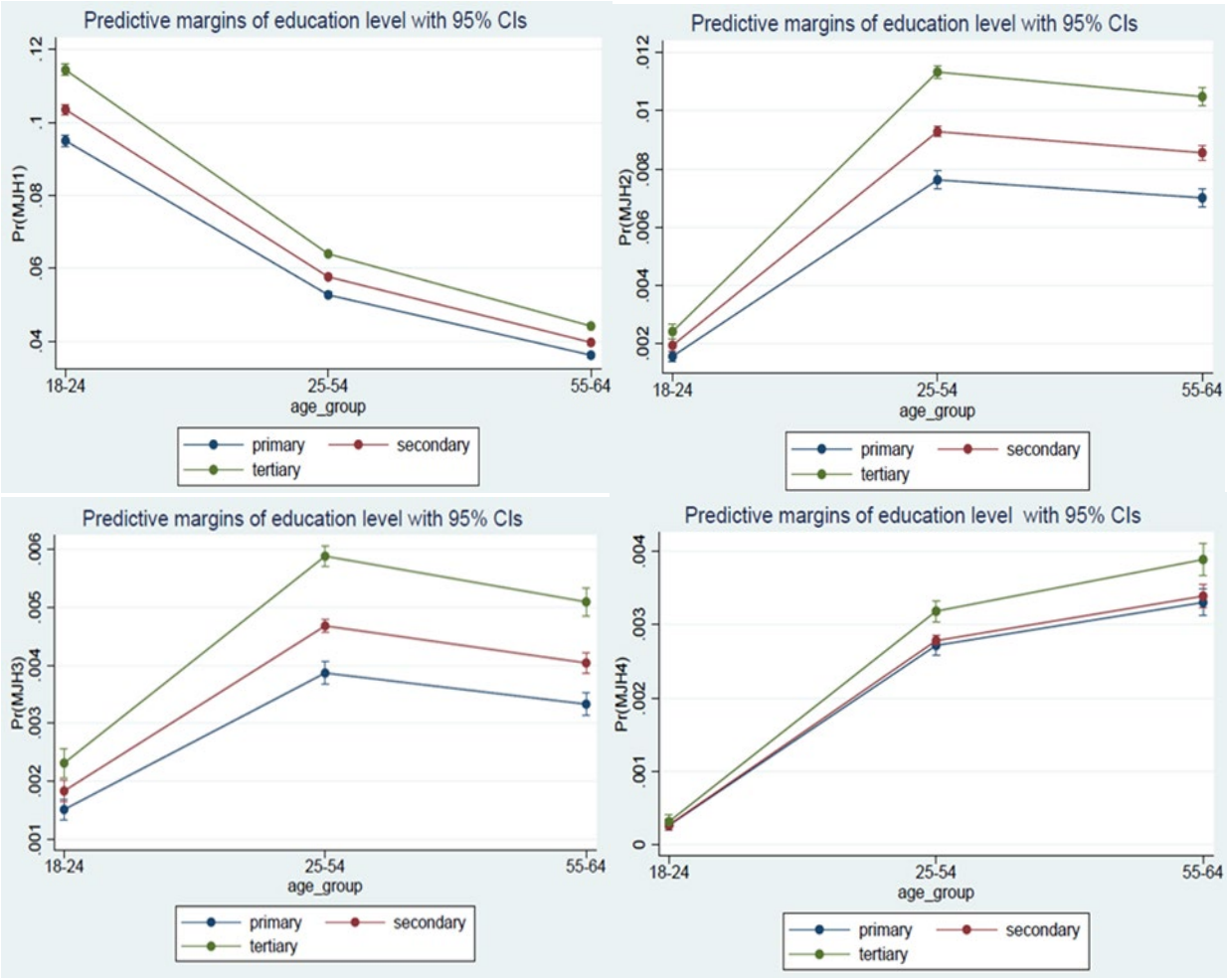
	Alternatives				
	Single job	MJH1	MJH2	MJH3	MJH4
Individual characteristics					
Female	0.0191***	-0.0141***	-0.0025***	-0.0006***	-0.0017***
Age group					
Age 25-54	0.0034***	-0.0474***	0.0078***	0.0030***	0.0026***
Age 55-64	0.0533***	-0.0066***	0.0071***	0.0023***	0.0032***
Education level					
Secondary education	-0.0073***	0.0049***	0.0015***	0.0007***	0.00006***
Tertiary education	-0.0017***	0.0113***	0.0035***	0.0018***	0.0004***
Language					
Swedish language	-0.0264***	0.0181***	0.0043***	0.0025***	0.0014***
Other language	-0.0217***	0.0263***	-0.0025***	0.0004***	-0.0024***
Married	0.0070***	-0.0116***	0.0026***	0.0007***	0.0012***
Children under 18	0.00380***	-0.0047***	0.0003***	0.0018***	0.0002***
Municipality group					
Semi-urban municipality	-0.0024***	-0.0046***	0.0039***	0.0009***	0.0022***
Rural municipality	-0.0134***	0.0020***	0.0051***	0.0023***	0.0039***
Has debt	-0.0109**	0.0075***	0.0013***	0.0017***	0.0003***
Characteristics of the main job					
ln monthly wage	0.0121***	-0.0133***	0.0026***	-0.0009***	-0.0005***
Occupational group:					
Professionals	-0.0155***	0.0114***	0.0099***	-0.0036***	-0.0022***
Technicians and associate professionals	0.0124***	-0.0091***	0.0041***	-0.0045***	-0.0017***
Clerical support workers	0.0203***	-0.0141***	0.0041***	-0.0073***	-0.0029***
Service and sales workers	0.0057***	-0.0062***	0.0064***	-0.0041***	-0.0017***
Skilled agricultural, forestry	-0.0783***	-0.0484***	-0.0087***	0.0652***	0.0702***

and fishery workers					
Craft and related trades workers	0.0064***	-0.0081***	0.0054***	-0.0021***	-0.0016***
Plant and machine operators and assemblers	0.0043***	-0.0027***	0.0003	-0.0032***	0.0012***
Other occupations*	0.0134***	-0.0073***	0.0042***	-0.0074***	-0.0029***
Industry					
Manufacturing, electricity, gas and water supply	0.2360***	-0.0292***	-0.2101***	-0.0001***	0.0035***
Construction	0.2150***	-0.0240***	-0.2062***	0.0023***	0.0125***
Wholesale trade and retail trade	0.2170***	-0.0154***	-0.2094***	0.0022***	0.0053***
Accommodation and food services activities	0.1773***	0.0206***	-0.2088***	0.0042***	0.0066***
Transportation and storage	0.1759***	0.0174***	-0.2063***	0.0071***	0.0058***
Services**	0.1946***	0.0019**	-0.2076***	0.0050***	0.0059***
Public administration and defence	0.1805***	0.0267***	-0.2102***	0.0032***	-0.0003***
Education	0.1807***	0.0288***	-0.2116***	0.0015***	0.0004***
Human health and social service activities	0.1832***	0.0179***	-0.2069***	0.0039***	0.0018***
Other services***	0.0976***	0.0850***	-0.2010***	0.0091***	0.0100***
Year dummies	yes	yes	yes	yes	yes
Number of observations	3,528,731				

Notes: * significant at 10 %, **significant at 5% and *** significant at 1%; random effects probit (2010-2016). Reference groups: male, 15-24, primary level education, Finnish native language, not married, no under18 children, urban municipality, managers, agriculture, forestry, fishing and mining. The average probability of MJH of 8.1 % can be divided into average probability of 6.55% of MJH2, 0.8% of MJH2, 0.4% of MJH3 and 0.3% of MJH4.

Figure 2 presents estimated average marginal effects of holding different types of multiple jobs by education level and age group. The figure shows that the highest probability of combining wage and salary work in the primary job with wage and salary work in the second job (MJH1) is among the youngest age group across all education levels. The highest probability for MJH2 and MJH3 at all educational levels is among the middle age group and for MJH4 among the oldest age group. The largest gaps in the probabilities by education level are detected among the middle age group for all other types of MJH except for MJH4 where the gap is biggest among the oldest age group. It is also noteworthy that for MJH4, i.e. combining self-employment in the primary job with another entrepreneurial job, the probabilities are practically the same across all age groups.

Figure 2. Average marginal effects of holding different types of multiple job holding by education level and age group



Persistence and mobility from multiple job holding

From workers' perspective it is also relevant how permanent secondary job holding is. Let us first have a look at the persistence of multiple job holding over two consecutive years. Of the workers holding multiple jobs in year t a majority, 57.4 percent, held multiple jobs also in the next year. Multiple job holding therefore seems to be quite persistent among the MJHs. The older the multiple job holders the higher the share being multiple job holders during both consecutive years (not shown in Table). Of those workers having only single job in year t around 3.6 percent had started a second job in year t+1. Starting a dual job holding was most common for the youngest age group and rarest for the oldest age group (not shown in Table)[1].

[1] There are also differences in the persistence across different MJH types. By MJH type shares having multiple jobs in two consecutive years is highest among those workers who combine self-employment in the main job with another

Table 5. Starting and ending multiple job holding between year t and t+1, %

MJH in year t	MJH in year t+1	
	Yes	No
Yes	57.4	42.5
No	3.6	96.4

Notes: Sample is restricted to those workers who are employed in two consecutive years.
In year t Yes(N=305,983) No(N=3,408951).

Table 6 presents average marginal effects from random effects probit models where starting and quitting multiple job holding were dependent variables. As for starting multiple job holding males, younger, having Swedish or other language as native language, and workers living in rural cities are more likely to start dual job holding compared to the reference groups. Of occupational groups professionals have a slightly higher probability compared to managers. The main job's wage has a negative impact on starting MJH, whereas having debt slightly increases MJH probability which suggests that economic necessity factors are relevant push factors to MJH.

With regard to the determinants of quitting MJH females, younger, primary level educated, not married and not having underaged children have a higher probability of ending working in multiple jobs relative to reference groups. Across occupational groups there are also interesting differences. Professionals and agricultural, forestry and fishery workers are clearly less likely to exit MJH compared to managers, whereas over a range of other occupations the probability of quitting MJH is higher. The persistence of MJH in agriculture and forestry is also confirmed by the fact that quitting probabilities are higher in all other industries compared to agriculture and forestry. Interestingly, main job's wage is also negatively related to stopping MJH which might suggest that for MJHs for whom financial needs are not the main motive second job holding might be more persistent.

In the model, an additional covariate denoting whether the worker changed employer between year t and t+1 was also included. The results suggest that quitting multiple job holding is linked to changing employer quite strongly. Those changing employers had around nine percentage points higher probability to end holding multiple jobs. This might reflect the unsatisfaction felt by hours constrained workers who seek to find new main jobs that better match their working hours or wage preferences, and when they find these kinds of new jobs they end working in second jobs.

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entrepreneurial job (MJH4) and lowest among MJHs combining wage and salary work in the main job with another wage and salary work (MJH1). More detailed results are available from the author upon request.

Similar estimations were made for wage and salary earners where the type of employment contract in the main job was also controlled for in the estimations[2]. According to the results having temporary main job and working parttime increases the likelihood of starting MJH compared to permanent workers and to full-time workers. Having temporary primary job also increases the likelihood of stopping MJH compared to permanent workers, but, in contrast, having part-time job considerably decreases the likelihood compared to full-time workers. The results concerning part-time workers might mirror the fact that for part-time workers economic necessity factors as a driver of MJH are of more permanent nature.

Table 6. Average marginal effects – starting and quitting MJH

Year t	Starting MJH in year t+1	Quitting MJH in year t +1
Personal characteristics:		
Female	-0.0073***	0.0476***
Language:		
Swedish	0.0106***	-0.0250***
Other	0.0110***	-0.0074***
Age:		
25-54	-0.0435***	-0.0022***
55-64	-0.00586***	-0.0024***
Education level:		
Secondary	-0.0009***	-0.0679***
Tertiary	0.0028***	-0.1183***
Married	-0.0066***	-0.0185***
Under18 children	0.0020**	-0.0055**
Municipality group:		
Semi-urban	-0.0011**	-0.0201***
Rural	0.0037***	-0.0440***
Has debt	0.0036***	-0.0038
Primary job characteristics		
Ln monthly wage	-0.0121***	-0.00003
Occupation:		
Professionals	0.0031***	-0.0121*
Technicians and associate professionals	-0.0097***	0.0152***
Clerical and support workers	-0.0145***	0.0151***
Service and sales workers	-0.0070***	0.0214***
Skilled agricultural, forestry and fishery workers	-0.0154***	-0.0487***

[2] These results are not reported and are available from the author upon request.

Craft and related trades workers	-0.0116***	0.0718***
Plant and machine operators and assemblers	-0.0009***	0.0164***
Elementary occupations + other	-0.0101***	0.0126
Industry:		
Manufacturing, electricity, gas and water supply	-0.0618***	0.1831***
Construction	-0.0506***	0.2220***
Wholesale trade and retail trade	-0.0538***	0.2031***
Accommodation and food services activities	-0.0322***	0.1696***
Transportation and storage	-0.0415***	0.1421***
Services	-0.0450***	0.1789***
Public administration and defence	-0.0409***	0.1057***
Education	-0.0351***	0.1494***
Health and social services	-0.0372***	0.1877***
Other services	-0.0185***	0.1013***
Change employer t+1	-	0.0909***
Year		
2011	-0.0015***	0.0420***
2012	-0.0016***	0.0401***
2013	-0.0045**	0.0644***
2014	-0.0051***	0.0793***
2015	-0.0060***	0.0511***
Number of observations	3,458,243	215,424

Notes: * significant at 10 %, **significant at 5% and *** significant at 1%; random effects probit model (2010-2016). Reference groups: 15-24, primary level education, Finnish native language, urban municipality, managers, agriculture, forestry, fishing and mining, not change employer t+1.

5. Concluding remarks

This paper studies multiple job holding in the Finnish labour market. The paper focuses on the determinants of MJH as one group and on the determinants of different types of MJH. In addition, persistence and transitions from and to MJH between two consecutive years are examined. According to the results, males, younger, highest educated, those having Swedish or other language as their native language and living in rural municipalities have a higher probability of MJH (treated as one group) compared to the reference groups. Of job characteristics professionals have a high propensity of MJH, which together with high probability of highest educated to held multiple jobs relative to the lowest educated challenges the conventional wisdom that MJH would concentrate only on low income and economically constrained workers (Pouliakas, 2017). The results also show heterogeneity in the determinants of different types of multiple job holding. In particular, as regards the effects of demographic variables such as age, marital status, having underaged children and type of municipality MJH1 deviates from the other types of MJH.

The results also suggest that economic necessity seems to be an important driver of multiple job holding in Finland across different types of MJH except for MJH2. For MJH2 the primary job wage is positively associated with MJH which can be interpreted as a support of job portfolio or heterogeneous motive behind this type of MJH. Financial and job portfolio/psychological fulfilment motives however, need not necessarily be substitutes but they can also complement each other. E.g. Atherton et al. (2016) points out that for self-employed MJH can be a means of staying in self-employment and enjoy the life-style gains of it. The motives behind MJH may also influence how persistent MJH is and the willingness to stop or start MJH.

The policy relevance of multiple job holding lies both in its causes and in its consequences (Eurofound, 2020). More research is needed to understand the different facets (both positive and negative) of MJH and its consequences.

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APPENDIX

Table. Frequency distributions of different types of multiple job holders, %

		Type of multiple job holding			
	All MJH	MJH1	MJH2	MJH3	MJH4
Personal characteristics					
Female	50.5	54.4	36.8	40.8	18.5
Male	49.5	45.6	63.2	59.2	81.4
Age 18-24	15.8	19.3	1.2	2.8	0.5
Age 25-54	70.5	69.0	78.4	78.3	70.3
Age 55-64	13.6	11.6	18.7	20.5	29.1
Primary education	11.8	12.0	7.8	11.1	18.0
Secondary education	11.9	46.5	40.7	47.0	57.1
Tertiary education	46.3	41.5	51.4	42.3	24.9
Finnish language	86.2	85.9	88.6	86.3	86.9
Swedish language	7.6	6.9	9.7	9.7	12.7
Other language	6.2	7.1	1.7	3.9	0.3
Married	44.4	39.1	66.8	61.5	70.1
Children under 18	37.4	35.0	47.5	47.2	45.3
Urban municipality	69.7	76.1	45.0	52.2	24.0
Semi-urban municipality	14.2	12.1	23.2	18.9	26.3
Rural municipality	16.1	11.6	31.7	28.8	49.5
Characteristics of the main job					
Av. monthly wage	2695.7	2572.4	3675.8	2880.9	2386.2
Managers	3.3	2.8	4.2	6.8	4.8
Professionals	23.2	23.7	28.8	17.2	3.8
Technicians and associate professionals	15.6	16.1	17.1	13.1	5.7
Clerical support workers	5.5	6.3	4.7	0.1	-
Service and sales workers	21.9	24.2	13.7	14.3	5.1
Skilled agricultural, forestry and fishery workers	4.2	0.9	3.4	28.7	42.2
Craft and related trades workers	6.7	6.2	11.0	8.3	8.8
Plant and machine operators and assemblers	7.9	7.3	8.4	6.7	15.9
Other occupations*	7.4	3.7	4.3	-	-
Agriculture, forestry, fishing and mining	8.5	2.1	46.8	22.0	21.1
Manufacturing, electricity, gas and water supply	5.9	5.8	5.4	4.9	10.2
Construction	4.2	3.3	5.1	6.3	18.8
Wholesale trade and retail trade	8.0	8.6	4.4	6.8	6.3
Accommodation and food services activities	4.8	5.6	1.0	2.4	1.4
Transportation and storage	6.9	7.3	3.0	6.5	8.2
Services**	18.2	19.2	12.4	18.6	11.1
Public administration and defence	5.1	5.8	2.1	3.5	0.3

Education	9.1	10.4	2.1	4.2	0.5
Human health and social service activities	16.1	17.7	11.0	12.1	2.3
Other services***	12.8	13.5	6.3	12.5	17.2

Notes: *other occupations - biggest category elementary occupations, **services include information and communication, financial and insurance activities, real estate activities, professional, scientific and technical activities and administrative and support service activities, *** other services include arts, entertainment and recreation, other service activities and activities of households as employers; goods/services for own use.

Subgroup results for the determinants of multiple job holding as one group

The determinants of multiple job holding were also separately studied for the different subgroups by gender, age group and educational level to see whether differences in the determinants can be detected. The separate analyses for women and men show some differences in the determinants of MJH albeit for the main part the determinants that lead to multiple job holding seem to be similar. For women the differences by the age group in the likelihood of multiple job holding are larger than for men. For women having children under 18 decreases the probability of dual job holding but not for men which might be due to the fact that for women care responsibilities make it more difficult having multiple jobs at the same time.

With regard to separate age group analyses also interesting differences emerge. In contrast to older age groups, young women have a higher likelihood of MJH compared to young men. A notable difference is also detected on the impact of living place: among the young the likelihood of MJH is larger in cities compared to rural areas whereas for the older age groups the likelihood is larger in rural areas. By educational attainment the determinants are quite similar and most notable differences are found in the size and statistical significance by occupation and industry.

Table Suhgroup analyses - average marginal effects of a probability of multiple job holding for each subgroup

	Female	Male	18-24	25-54	55-64	Primary	Secondary	Tertiary
Individual characteristics:								
Female	-	-	0.0193***	-0.0162***	-0.0162***	-0.0121***	-0.0123***	-0.0113***
Language:								
Swedish	0.0311***	0.0245***	0.0418***	0.0257***	0.0214***	0.0261***	0.0340***	0.0205***
Other	0.0212***	0.0249***	0.0178***	0.0241***	0.0248***	0.0139***	0.0203***	0.0341***
Age:								
25-54	-0.0468***	-0.0165***	-	-	-	-0.0292***	-0.0320***	-0.0431***
55-64	-0.0736***	-0.0311***	-	-	-	-0.0519***	-0.0571***	-0.0609***
Education level:								
Secondary	0.0112***	0.0115***	0.0206***	0.0086***	0.0045***	-	-	-

Tertiary	0.0257***	0.0168***	0.0296***	0.0191***	0.0195***	-	-	-
Married	-0.0163***	-0.0035***	-0.0121***	-0.0084***	-0.0029**	-0.0055***	-0.0105***	-0.0104***
Under18 children	-0.0109***	-0.0006	-0.0122**	-0.0067***	0.0081**	-0.0008	-0.0037***	-0.0089***
Municipality group:								
Semi-urban	-0.0034***	0.0041***	-0.0153**	0.0004	0.0093***	-0.0013***	-0.0008	0.0008
Rural	0.0201***	0.0212***	-0.0069***	0.0126***	0.0208***	0.0109***	0.0093***	0.0117***
Has debt	0.0066***	0.0079***	0.0047***	0.0075***	0.0093***	0.0066***	0.0075***	0.0083***
Primary job characteristics								
Ln monthly wage	-0.0139***	-0.0128***	-0.0290***	-0.0131***	-0.0044***	-0.0105***	-0.0166***	-0.0107***
Occupation:								
Professionals	0.0117***	0.0049***	0.0075	0.0111***	0.0025*	0.0155***	0.0192***	0.0055***
Technicians and associate professionals	-0.0075***	-0.0074***	-0.0032	-0.0042***	-0.0144***	0.0079***	-0.0059***	-0.0141***
Clerical and support workers	-0.0165***	-0.0038**	-0.089	-0.0081***	-0.0211**	-0.0015***	-0.0012	-0.0205**
Service and sales workers	-0.0025	-0.0014	-0.0006	0.0013	-0.0106**	-0.0151	0.0074***	0.0001
Skilled agricultural, forestry and fishery workers	-0.0206***	0.0038***	-0.0262	0.0010	0.0098***	0.0141***	0.0034	-0.0010
Craft and related trades workers	-0.0088***	-0.0016	-0.0108	-0.0022*	-0.0106***	0.0051*	0.0023	-0.0097***
Plant and machine operators and assemblers	-0.0056***	0.0047***	0.0015	0.0024*	-0.0051**	0.0157***	0.0068***	0.0038
Elementary occupations + other	-0.0086***	-0.0010	-0.0116	-0.0022*	-0.0153***	0.0120***	-0.0013	-0.0021
Industry:								
Manufacturing, electricity, gas and water supply	-0.1565***	-0.1039***	-0.0493***	-0.1328***	-0.1103***	-0.0647***	-0.1056***	-0.1761***
Construction	-0.1154***	-0.0868***	-0.0454***	-0.1118***	-0.0910***	-0.0473***	-0.0903***	-0.1510***
Wholesale trade and retail trade	-0.1419***	-0.0897***	-0.0450***	-0.1144***	-0.0996***	-0.0532***	-0.0928***	-0.1517***
Accommodation and food services activities	-0.1228***	-0.0454***	-0.0045	-0.0821***	-0.0872***	-0.0237***	-0.0628***	-0.1219***
Transportation and storage	-0.1077***	-0.0550***	0.0078	-0.0824***	-0.0718***	-0.0213***	-0.0598***	-0.1186***
Services	-0.1254***	-0.0612***	-0.0053	-0.0933***	-0.0859***	-0.0215	-0.0656***	-0.1394***
Public administration and defence	-0.1360***	-0.0455***	0.0394***	-0.0898***	-0.0872***	-0.0063	-0.0559***	-0.1386***
Education	-0.1211***	-0.0404***	0.0575***	-0.0804***	-0.0889***	-0.0075***	-0.0402***	-0.1294***
Health and social services	-0.1286***	-0.0131***	-0.0151***	-0.0847***	-0.0833***	-0.0187***	-0.0720***	-0.1224***
Other services	-0.0730***	-0.0144***	0.0572***	-0.0266***	-0.0374***	-0.0730***	-0.0215***	-0.0573***
Year								
2011	-0.0001	-0.0001	0.0016	-0.0038***	-0.0070***	-0.0019	-0.0024***	-0.0055***
2012	-0.0020***	-0.0020***	-0.0009	-0.0042***	-0.0104***	-0.0027**	-0.0029***	-0.0066***
2013	-0.0460***	-0.0460***	-0.0039*	-0.0056***	-0.0122***	-0.0047***	-0.0044***	-0.0069***
2014	-0.0029***	-0.0029***	0.0017	-0.0059***	-0.0093***	-0.0062***	-0.0027***	-0.0058***
2015	-0.0028***	-0.0028***	0.0036*	-0.0047***	-0.0121***	-0.0043***	-0.0025***	-0.0044***
2016	-0.0009	-0.0009	0.0046***	-0.0015**	-0.0102*	-0.0024*	-0.0012*	-0.0018***
Number of observations	1,804,270	1,653,973	273,017	1,653,973	629,102	398,109	1,556,093	1,504,041

Notes * significant at 10 %, **significant at 5% and *** significant at 1%; random effects probit model (2010-2016)
Reference groups: male, 15-24, primary level education, Finnish native language, not married no under18 children, urban municipality, managers, agriculture, forestry, fishing and mining.