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JEL: E24, J32
DOI: 10.5937/industrija42-7074
UDC: 331.101.32 330.566.22
Original Scientific Paper

Work-from-Home Impact on Income Satisfaction⁴

Article history:

Received: 24 April 2014
Sent for revision: 3 May 2014
Received in revised form: 17 July 2014
Accepted: 1 August 2014
Available online: 1 November 2014

Abstract: *In this paper authors have attempted to discover if working from home influences person's income satisfaction. In the paper there has been given review of the issue of working from home impact as well as some results from other research. Methodology used in empirical section is based on factor analysis which has been used to reduce number of variables to a single one described as "Importance of work from home". Moreover there have been done several regression analyses which aimed to show what impact different factors have on the income satisfaction level. Results from the research show that WFH has two-fold impact on income satisfaction both in the form of subjective perspective of the WFH as well as on the objective fact on whether person is currently working-from-home.*

Keywords: *Work-from-Home, Income satisfaction, Factor analysis, Regression.*

Uticaj „rada od kuće“ na zadovoljstvo prihodima

Apstrakt: *U ovom radu autori su pokušali da istraže da li rad od kuće ima uticaj na zadovoljstvo prihodom zaposlenih lica. U radu je dat pregled literature o pitanju rada od kuće, kao i uticaja rezultata iz nekih drugih istraživanja. Metodologija koja je korišćena u empirijskom delu se zasniva na faktorskoj analizi koja je korišćena da se redukuje broj varijabli na jednu koja*

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⁴ This paper is a part of the research on the projects supported by the Ministry of Education, Science and Technology of Republic of Serbia (ID numbers 179001 and 179015)

je nazvana "Važnost rada od kuće". Takođe je urađeno nekoliko regresionih analiza koje su imale za cilj da se pokaže uticaj različitih faktora na nivo zadovoljstva prihodima. Rezultati iz istraživanja pokazuju da rad od kuće ima dvostruki uticaj kako u vidu subjektivnog sagledavanja značaja rada od kuće, tako i objektivne činjenice o tome da li osoba trenutno radi od kuće.

Ključne reči: Rad od kuće, Zadovoljstvo prihodima, Faktorska analiza, Regresija.

1. Introduction

Work-from-home (WFH) is becoming increasingly conventional way of employment. According to SIPP the share of population working from home has tripled in the period of 3 decades and in the period 1997-2010 there is recorded an increase of over 4 Million in home-based workers (Mateyka et al, 2012). Researchers worldwide have been widely discussing on the effectiveness and the impact of WFH on several factors, among which one is the income satisfaction. Employees will leave organizations where they cannot achieve the desired work life balance (SHRM, 2008). Experiences have shown that employees have a higher level of commitment to their organisation and to their work in situations where they have an opportunity to choose flexible work hours, to work from home, to decide on their own when their work hours will be day by day during their work week (Halpern, 2005). Similar situation is with business managers: by making deliberate choices about which opportunities they'll pursue and which they'll decline, rather than simply reacting to emergencies, leaders can and do engage meaningfully with work, family, and community (Groysberg and Abraham, 2014).

According to Laura Shin, Forbes contributor, the top industries offering remote work opportunities include healthcare, information technology, education, non-profit and philanthropy, and sales and marketing. A wide spectrum of jobs is available for home-based workers, ranging from job titles such as sales representative, senior analyst, nurse case manager, accountant, account executive, to Web or software developer, and virtual teacher (Shin, 2014). Telework Research Network states that home-based employees save between \$1,600 to \$6,800 and 15 days of time. Also almost 50% of them are very satisfied. For organizations they save more than \$10,000 per employee per year, increase productivity, reduce facility costs, lower absenteeism, and reduced turnover (Rapoza, 2013). For example Bloom et al (2013) have conducted an experiment in China showing that there is a highly significant 13% increase in performance from home-working persons as compared to control group.

In this paper we are testing the impact of WFH on wage satisfaction in Serbia, which is conducted by a randomized survey of 394 employed persons. We have assumed that apart from other factors influencing satisfaction with income, important role belongs to capability for working from home at least 1 day per week and other variables which will be reduced to factors necessary to conduct regression analysis.

Paper is structured in the following way. Initially there has been presented the methodology used in conducting the research. Further on there is a literature review about the work/life balance and work from home. That is followed by descriptive statistic on the sample data used for econometric testing. Eventually there are results from the test presented which are accompanied by the discussion on the findings from the research. Paper is closing with a brief conclusion about what authors have found during the research.

2. Methodology

Initially there has been presented a detailed theoretical overview of the work from home as a factor of personal life. That includes work-life balance, impact of modern organisations and growth of ITC as well as on the value of working from home.

Empirical section of the paper is based on econometric analysis of the survey results. In this paper, we have used factor analysis, the method of multivariate analysis for determining how to group factors in determining their impact of income satisfaction. Factor analysis here is used on six variables dealing with the issues describing advantage of work from home with an aim of their reduction to only 1 factor. Similar methodology was used by Zubović and Bradić-Martinović (2014), while the number of variables has been reduced from 121 to just 6. All exploration in this paper was calculated by using SPSS software. Initial step in the analysis was use of the Kaiser-Meyer-Olkin's test (KMO test), which is a measure of sampling adequacy. That was followed by generating the correlation matrix of Principal Components Analysis. Based on PCA matrix we have determined one factor. There was no need to and eliminate any variables which were not possible to assign to unique factor since all have had loading values of over 0.4. Decision on a number of factors was based on eigenvalues comparison, Scree test (Catell, 1966, Kovacic, 1994), and Horn's Parallel Analysis (Horn, 1965). The rationale underlying PA is that factors from real data with a valid underlying factor structure should have larger Eigenvalues than those derived from random data having the same sample size and number of variables. There was no need to use rotated component matrix since there exist only one factor with 59% loading.

After reduction of 6 variables to one factor there has been conducted regression analysis with a dependant variable being a question from the survey giving the information about the satisfaction with the amount of disposable income. In determining which independent variables are statistically reliable, there have been conducted several tests leading to a conclusion that only three variables apart from the factor detected in PCA process. Hence total of 4 variables were used in regression analysis.

3. Literature review on work-life balance, changing organisations and WFH

In today's modern society issue of balance between professional and private life became very important. Many of different trends, such are aging of workforce on the global level and increased competition, made this problem even more relevant (Friedman, Greenhaus, 2000).

In the twenty-first century, employees have a great need to establish a balance between their work and family life. According to some estimation, employees from all demographic, cultural and social groups have reported that the motto "live in order to work" is not popular any more (SHRM, 2008).

Term 'work-life balance' can be defined as a state of equilibrium between demands within an organisation and those at home (Friedman, Greenhaus, 2000). To better understand the term, two aspects should be taken in consideration (Swift, 2002): conflicts experienced by an individual who is trying to establish a balance between duties at work and at home, and, 'work-life balance' from the viewpoint of the employer who considers that every employee must fulfil all organizational tasks. But, emerging issue for every organization will be to respect their employees as individuals and to help them to harmonise professional and private duties. In other words, they have to give them flexibility.

A large number of organisations are structured in a way to suite management and to achieve organisational goals, thus the problem of balancing between work and family becomes even more complex. According to author MacDermid, there are more than 200 published articles about this topic, and all of them study how to make clear distinction between professional and private life and to reduce very harmful tension that individuals feel (MacDermid, 2005). Until today organisations have not created an effective set of measures that would help both sides to achieve desirable state of mentioned balance (Cummings, Jones, 2003).

Modern business shows that the traditional workplace is a matter of the past; there is no more Weberian way of thinking. Accordingly, organisations must

found ways to reduce the feeling of pressure that are on the back of employees. Most of the researches shows that the most popular in practice are the following (Kersley et al., 2005): flexible work hours, working from home; the possibility to share the entire amount of work with a colleague; programs of paid leave and financial participation of the organisation in their employees' childcare or care of elderly family members. Which approach will be adopted depends upon many factors and organisation will implement the most suitable one (Halpern, 2005).

However, the behaviour of employees is not always as expected. It has been confirmed that there is a large number of employees who do not feel the need to show their appreciation to the organisation for the benefits they get. Instead, they treat everything that the organisation provides like something they automatically deserve. Then, there are employees who are not willing to use the benefits of these programs. For example, male part of the population, especially those who are labelled as "career men" very rarely take leaves. In their opinion, such behaviour indicates a lack of commitment to the job. The situation is quite different when it comes to working women (Lewis, Smithson, 2001).

In the era when the work-life balance is being promoted extensively, working from home starts to be everyday life for the majority of professions. The motto of "live in order to work" has been completely modified over the years into its opposite - "work in order to live". Working from home seems to be a better solution in the situation when an individual "plays" more than one role on a daily basis.

Today's technological changes have generated two categories of employees working from home (Fredriksen-Goldsen, Scharlach 2001). Firstly, there are employees who sell different types of services (i.e. telemarketers). Their work is under the constant supervision of their management and they work the same shifts at home as they would work in an organisation. Other categories of employees are independent and highly educated professionals. Their type of work gives them greater flexibility and autonomy in their work. They also have higher incomes in comparison to their counterparts from the first category. In order to work, they need peace and privacy since their work involves planning and analysing; therefore, they have no fixed work hours. Also, some trends suggest that the employees in the domain of information technology are the best candidates for working from home.

The most common categories of employees that are willing to work from home are as follows (Hakim, 2000): individuals who begin to work from home after they have finished raising children (forty years old); young people who have just finished college, but have always wanted to start their own business; people who are about to retire and who believe that working from home will give them more in every sense of the word than finding a new job, which is

quite difficult at their age. A lot of people have decided to work from home because they did not like the atmosphere in their office. In their opinion, they often stayed in their offices and did nothing after they had finished their job, while such a thing rarely happens at home.

Since obligations at home and at work are intertwined, three types of conflict arise in the twenty-first century employees: a conflict related to time, a conflict related to a high level of stress and a conflict related to behaviour (Grover, Crooker, 1995).

The educated employees who choose to work from home indeed reduce the potential for the outbreak of the first type of conflict given that their working from home, as already mentioned, allows greater flexibility when it comes to the way of doing job. However, in this case, there are some disadvantages. If they add some new obligations at home to the existing responsibilities (it usually happens when working woman are concerned), excessive stress is unavoidable again. The same phenomenon occurs in cases when the work is too demanding, when working from home means longer hours and so on.

Therefore, in order to manage their time successfully, the employees working from home need to set some clear boundaries between family and business commitments. The aforementioned issues are gaining more and more importance, so some authors have even defined and elaborated so-called theory of setting boundaries (Ashforth, Kreiner, Fugate 2000). In their opinion, the individuals working from home must constantly balance in order not to provoke the disagreeable role conflict.

The employees engaged in some kind of highly professional expert work can face a particular problem related to the role conflict. They are expected to work with more dedication, and their work hours are often very long and flexible. This profile of employees is distinctive also because they are very committed to their work which prevents them, on the other hand, from dedicating themselves to their home and family even if they are physically present.

4. Descriptive statistics

In order to provide good insight into the issue of relationship between work/life balance and satisfaction with the level of income measured subjectively we have conducted a survey on the sample of employed 937 persons in Serbia. Population included all employees working in service sector companies which have the opportunity to work from home at least one portion of their workload. According to latest labour force survey conducted in Serbia in 3rd quarter 2014 there is an estimated number of 1,357,140 people working in service sector.

Using a sample size calculator, which is commonly available in any statistical software we have determined that for the confidence level of 95% and confidence interval of 5 there is required sample size of 384. The survey contained 15 questions. Two of them were open ended which served just as an indicator to show needs for further research and results from those questions are not being presented in this paper. Other questions are discussed in the following section. Survey has been completed by 394 persons, therefore indicating the satisfactory statistical reliability of the sample. Descriptive statistics from the survey is presented in table 1.

Table 1. Descriptive Statistics

| | | N | Minimum | Maximum | Mean | Std. Deviation |
|----|---------------------|-----|---------|---------|------|----------------|
| 1 | Sex | 394 | 1 | 2 | 1,46 | 0,501 |
| 2 | Age | 394 | 1 | 4 | 2,12 | 0,774 |
| 3 | Marital status | 394 | 0 | 4 | 2,55 | 1,818 |
| 4 | Education | 394 | 2 | 7 | 4,19 | 1,306 |
| 5 | Kids | 394 | 0 | 1 | 0,54 | 0,501 |
| 6 | Enough money | 394 | 0 | 1 | 0,32 | 0,469 |
| 7 | Working from home | 394 | 0 | 3 | 1,09 | 1,114 |
| 8 | More roles | 394 | 1 | 5 | 3,52 | 1,161 |
| 9 | Optimal balance | 394 | 1 | 5 | 3,19 | 1,281 |
| 10 | Lower stress | 394 | 1 | 5 | 3,14 | 1,250 |
| 11 | Less illness | 394 | 1 | 5 | 2,73 | 1,369 |
| 12 | Reduced abstinence | 393 | 1 | 5 | 3,02 | 1,251 |
| 13 | Flexibility at work | 394 | 1 | 5 | 3,79 | 1,311 |
| | Valid N (listwise) | 393 | | | | |

Source: Author's calculation

Question 1 is related to gender – value 1 representing male and 2 female. Answers to this question are evenly distributed. Question 2 refers to the age of a person. Age groups have been divided in 4 cohorts ranging from 20-30; 31-40; 41-50 and 51-65. Marital status has been divided in 5 major groups. Number 0 represented not married, 1-widows, 2-divorced, 3-common law marriage, 4-married. Education levels were grouped according to the level attained with number 3 representing high school and 7 doctorates. Average level of education is above faculty. Question about kids is dummy variable taking value 0 for no kids and value 1 for one or more kids. "Enough money"

is the question which the surveyees needed to give as their subjective opinion about the disposability of sufficient funds to live as they want to. Results from that question showing only 32% being satisfied were used as a dependant variable in regression analysis later on. Question 7 has given information about the type of work from home performed by a person where 0 indicated no work from home, 1 some other type, 2 partly and 3 fully working from home. Questions 8-13 are the questions which have been replied on the Likert scale in the range 1-5 with 1 representing completely disagree and 5 completely agree. These 6 questions were used as variables in factor analysis.

5. Results and discussion

As explained in the previous section in the first phase we have conducted a factor analysis using results from the survey questions 8-13. All those questions have indicated how people observe work from home as a facilitator for different aspects of life. We have assumed that it was possible to reduce 6 questions to one common factor indicating importance of work from home.

The first step in the empirical analysis was to apply KMO test on the initial set of 6 variables. The results are shown in the table 1, in the column named "Initial". Since the KMO value is greater than 0.6 we were able to continue with the testing. The Bartlett's test value of $p=0.000$ points out that the correlation matrix is not unit matrix. Observing the correlation matrix and by the means of explorative testing we have detected that there is no need to eliminate any of 6 variables since none have had loading on more than one factor.

Table 2. KMO and Bartlett's Test of data quality

| | | |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | ,797 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 184,253 |
| | df | 15 |
| | Sig. | ,000 |

Source: Author's calculation

There can be applied three different methods for selecting the number of factors that will be distinguished as principal. As shown in Zubović&Braedić (2014) it has been shown that the method based on the characteristic root (eigenvalue) proved to give the best results as compared to Scree test (Catell, 1966, Kovacic, 1994), and Horn's Parallel Analysis (Horn, 1965). However in

this case Horn's test has shown that it is more reliable to use 1 factor instead of 2 shown by eigenvalue scores (Table 3).

Table 3. Total variance explained

| Factors | SPSS PCA eigenvalues | Monte Carlo PCA eigenvalues |
|---------|----------------------|-----------------------------|
| 1 | 3,117 | 1,3519 |
| 2 | 1,040 | 1,1721 |
| 3 | 0,646 | 1,0564 |
| 4 | 0,497 | 0,9252 |

Source: Author's calculation

There was no need to conduct rotation of the component (factor) matrix, since all the loadings were above 0.3 as shown in table 4.

Table 4. Unrotated component matrix

| | |
|---------------------|------|
| More roles | ,419 |
| Optimal balance | ,813 |
| Lower stress | ,811 |
| Less illness | ,761 |
| Reduced abstinence | ,767 |
| Flexibility at work | ,674 |

Source: Author's calculation

As a result of PCA test we were able to reduce the number of factors to only one. This factor may be named "Importance of work from home" which will be called Factor 1 in the rest of the paper. Factor 1 values in the sample range from -2.2 up to +2.0. Along with that variable we have included questions 2-7 from table 1 in a regression analysis. Results from question 6 were used as a dependant variable. We have tried to detect whether it is possible to find statistically reliable answer to what is affecting answer to this question to be positive.

In table 5 there are results from the first test in which there have been included 6 independent variables.

Results from table 5 indicate that there may be a problem if we want to continue constructing our model by using 6 named variables. If we observe last column to the right showing the significance level, it is to confirm that

variables Age and Education are being statistically insignificant in this regression analysis. For that reason we have excluded them and conducted a test again. Results are shown in table 6.

Table 5. Regression analysis with 6 variables

| Coefficients ^a | | | | | | |
|---------------------------|-------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | ,221 | ,216 | | 1,023 | ,309 |
| | Factor 1 | -,072 | ,049 | -,152 | -1,462 | ,147 |
| | Age | ,048 | ,072 | ,079 | ,664 | ,509 |
| | Marital status | ,079 | ,041 | ,305 | 1,907 | ,060 |
| | Education | -,030 | ,037 | -,084 | -,816 | ,417 |
| | Kids | -,264 | ,159 | -,281 | -1,662 | ,100 |
| | Working from home | ,064 | ,044 | ,151 | 1,452 | ,150 |

a. Dependent Variable: Enough money

Source: Author's calculation

Table 6. Regression analysis with 4 variables

| Coefficients ^a | | | | | | |
|---------------------------|-------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | ,178 | ,093 | | 1,921 | ,058 |
| | Factor 1 | -,069 | ,048 | -,147 | -1,425 | ,158 |
| | Marital status | ,079 | ,041 | ,306 | 1,930 | ,057 |
| | Kids | -,227 | ,149 | -,242 | -1,530 | ,130 |
| | Working from home | ,062 | ,044 | ,146 | 1,413 | ,161 |

a. Dependent Variable: Enough money

Source: Author's calculation

Observed results in table 6 give significantly more reliable results as compared to initial regression test. Significance levels are not very low, but still good enough to confirm that we can construct regression formula as:

$$EM = 0.178 - 0.059 * F1 + 0.079 * MS - 0.227 * K + 0.062 * WfH \quad (1)$$

where the following represent:

EM – Enough money to live as they want

F1 – Factor 1 representing “Importance of work from home”

MS – Marital status

K – Having kids

WfH – Currently working from home

6. Conclusions

At this time it is interesting to have a comment on the regression formula. Firstly it is necessary to note that EM in the survey can take only values 0 or 1. Despite that we were able to construct a formula that may estimate precise value of each person’s satisfaction with the level of disposable income. Two out of 4 variables having impact on the EM score are related to work from home. The first has been derived through a PCA test with generated one factor that gives information about the person’s subjective view of the Importance of work from home. The second one is dealing with the issue of whether a person is currently working from home and to what extent. It is not possible to select one from four factors as the most important one despite the coefficient of “Having kids” variable is the highest due to a fact that K variable can take values 0 or 1. Other three variables can take higher values therefore having capacity to improve the level of wage satisfaction.

To conclude, Work-from-Home represents statistically important factor that affects the level of income satisfaction in two ways. Factor 1 values in the sample range from -2.2 up to +2.0 and they can have both positive and negative impact as long as current ability to work from home has positive impact.

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