Working from home before and after the Covid-19 outbreak

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Abstract

The recent trend of working from home has only grown bigger after the Covid-19 outbreak. What characteristics do people who work more from home have? We came to a conclusion that female, university graduates and people from the services and manufacturing sectors work more from home.

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Introduction

Working from home percentages have been increasing over the last 5 years, with more and more people choosing this option which helps them work more freely and more focused in their own comfort. With the recent Covid-19 outbreak this type of working has seen a rapid increase with people unable to return to their work office due to government policies and lockdowns and the fear of getting infected from the virus. In this paper we are estimating the factors that affect people to work from home before and after Covid-19.

Data

The data we use in this paper were obtained from the European Social Survey in 2021-2022 for several European Countries. For the purpose of this research we are going to use data for Greece containing information about how many people worked from home before covid (wfh) and after (wfhc), how many of the sample are female (female), how many are married (married), how many are foreign(foreign), how many have a university degree(university), how many people use the internet every day (internetuse_high), how many of the work establishments are less than 10 square meters(sizel10), how many have been vaccined(vaccine) and how many had covid(hadcovid).

Table 1: Frequency Distribution

	Yes	No	Percent of yes	Percent of no	Total
wfh	224	812	21.62	78.38	1,036
wfhc	286	750	27.61	72.39	1,036
female	460	576	44.40	55.60	1,036
married	70	966	6.76	93.24	1,036
foreign	34	1,002	3.28	96.72	1,036
university	449	587	43.34	56.66	1,036
internetuse_high	976	60	94.21	5.79	1,036
sizel10	784	252	75.68	24.32	1,036
vaccine	922	114	89.00	11.00	1,036
hadcovid	256	780	24.71	75.29	1,036

Source: European Social Survey (2021-2022)

In our sample the majority of people have no children aged 12 or over with only 25.48% having 1 to 4 kids over 12.

Table 2: Number of children aged 12 or over

Number of children	Frequency	Percent
0	772	74.52
1	121	11.68
2	124	11.97
3	17	1.64
4	2	0.19
Total	1,036	100.00

Source: European Social Survey (2021-2022)

The main region of residence in our sample is Attica with 35.14% and Central Macedonia with 22.20% with the others sharing the remaining 42.66%.

Table 3: Region Frequency Distribution

Region	Frequency	Percent
Attica	364	35.14
North Aegean	20	1.93
South Aegean	30	2.90
Crete	62	5.98
East Macedonia, Thrace	63	6.08
Central Macedonia	230	22.20
Western Macedonia	29	2.80
Epirus	30	2.90
Thessaly	84	8.11
Ionian Islands	15	1.45
Western Greece	31	2.99
Central Greece	33	3.19
Peloponnese	45	4.34
Total	1,036	100.00

Source: European Social Survey (2021-2022)

In this data sample, most of the people work on the sector of Services (50.48%) and Trade (24.71%).The rest work on the Manufacturing sector (10.52%), the Accomodation sector (10.23%) and the Agricultural sector (4.05%).

Table 4: Sector Workers Distribution

Sector	Frequency	Percent
Agricultural	42	4.05
Manufacturing	109	10.52
Trade	256	24.71
Accomodation	106	10.23
Services	523	50.48
Total	1,036	100.00

Source: European Social Survey (2021-2022)

Empirical Model

The Empirical Model that was used to estimate the probability of which factors push people to work from home is the following

$$W_i = b_0 + b_1^k X_i^k + u_i$$

i=1,...,1,036.

k=1,...,10.
where W is working from home, X^k is the matrix of the dependent variables containing the person's age,gender,marital status,country of birth, education, skill level, internet access, sector of work, vaccine status and region of residence and u_i the disturbance term.

Empirical Results

In Table 5 and 6 , it is clear that women work from home more than men (4%) with a university degree increasing that percentage by 14%. People from mostly the services and manufacturing sector work more from home while people who have been vaccined work less from home.

Table 5: Work from home Probability Models

VARIABLES	(1) reg1 wfh	(2) probit1 wfh	(3) logit1 wfh
Age of respondent	0.003	0.003	0.003
	(0.002)	(0.002)	(0.002)
female	0.037	0.047**	0.039*
	(0.025)	(0.024)	(0.022)
married	0.043	0.049	0.054
	(0.048)	(0.049)	(0.047)
foreign	0.058	0.082	0.092
	(0.070)	(0.089)	(0.097)
university	0.137***	0.141***	0.132***
	(0.031)	(0.031)	(0.030)
sizel10	0.070**	0.058**	0.057***
	(0.030)	(0.023)	(0.020)
skill = 2	0.038	0.046	0.053
	(0.036)	(0.041)	(0.038)
skill = 3	0.225***	0.193***	0.187***
	(0.050)	(0.053)	(0.052)
internetaccess = 2	-0.027	-0.074	-0.088
	(0.143)	(0.201)	(0.231)
internetaccess = 3	-0.194**	-0.265**	-0.269*
	(0.088)	(0.131)	(0.150)
internetaccess = 4	-0.139	-0.198	0.212
	(0.091)	(0.133)	(0.152)
sector = 1	0.132**	0.165**	0.143*
	(0.051)	(0.775)	(0.080)
sector = 2	0.150***	0.186***	0.176***
	(0.040)	(0.046)	(0.046)
sector = 3	0.050*	0.060**	0.055**
	(0.028)	(0.025)	(0.024)
sector = 5	0.173***	0.202***	0.190***
	(0.032)	(0.027)	(0.027)
vaccine	-0.070*	-0.098**	-0.084*
	(0.039)	(0.049)	(0.049)
Region	ϒes	Yes	Yes
Observations	1,036	1,036	1,036
R-squared	0.214	-	-
Pseudo R-squared	-	0.225	0.225

Source:European Social Survey(2021-2022)
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Work from home after Covid-19 Probability Models

	(1)	(2)	(3)
	reg2	probit2	logit2
VARIABLES	wfhc	wfhc	wfhc
Age of respondent	0.003	0.003	0.003
	(0.002)	(0.002)	(0.013)
female	0.023	0.030	0.024
	(0.026)	(0.029)	(0.027)
married	0.029	0.042	0.040
	(0.053)	(0.059)	(0.058)
foreign	0.153	0.461*	0.170
	(0.075)	(0.101)	(0.112)
university	0.190***	0.207***	0.203***
	(0.032)	(0.033)	(0.034)
sizel10	0.060*	0.062**	0.061**
	(0.032)	(0.030)	(0.027)
skill = 2	0.034	0.055	0.052
	(0.039)	(0.049)	(0.047)
skill = 3	0.246***	0.237***	0.222***
	(0.053)	(0.061)	(0.060)
sector = 1	0.086*	0.047	0.037
	(0.045)	(0.067)	(0.070)
sector = 2	0.106**	0.144***	0.138***
	(0.042)	(0.049)	(0.045)
sector = 3	0.070**	0.097***	0.090***
	(0.033)	(0.035)	(0.032)
sector = 5	0.221***	0.269***	0.262***
	(0.036)	(0.035)	(0.033)
internetaccess = 2	0.245*	0.335*	0.348*
	(0.144)	(0.184)	(0.207)
internetaccess = 3	0.069	0.091	0.082
	(0.077)	(0.068)	(0.067)
internetaccess = 4	0.136*	0.171**	0.161**
	(0.080)	(0.068)	(1.106)
vaccine	-0.053	-0.066	-0.063
	(0.040)	(0.052)	(0.053)
Region	Yes	Yes	Yes
Observations	1,036	1,036	1,036
R-squared	0.271	-	-
Pseudo R-squared	-	0.254	0.255

Source:European Social Survey(2021-2022)
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Conclusion

Working from home will just continue to increase over the years with the covid-19 outbreak being the boost to this type of work. In this paper we presented the factors that increase this phenomenon. We came to a conclusion that the most important aspects that increase the percentage of people working from home are the gender,the working sector and the education of a person with university being a major factor to be able to work from home.

References

Bloom, N., Liang, J., Roberts, J., & Ying, Z. J. (2015). Does working from home work? Evidence from a Chinese experiment. The Quarterly Journal of Economics, 130(1), 165-218.