FROM WORKPLACE ATTACHMENT AND DETACHMENT TO COMMUTER SATISFACTION

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Abstract: Commuting to and from work can be stressful, tedious and unenjoyable. Previous research has demonstrated the positive/negative relationship between duration of commuting and life satisfaction. Relying on secondary data, the present study applies a quantitative research approach to examine the data. The quantitative results obtained indicate that there is a positive correlation between the indicators of 1-9 minutes and 45-59 minutes of commuting and happiness. This implies that a higher degree of workforce commuting in those periods leads to a higher degree of happiness. Secondly, in some cases employees spend more time commuting than the number of paid vacation days. In seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries, the commute is shorter than employees' permitted annual time off. According to the data, the duration of commuting time can affect our state of happiness. Furthermore, the findings demonstrate that employees spend more time commuting than the number of paid vacation days. The time and stress that appear with a long commute have a big influence when it depends whether the employee prefers free time (shorter commute) or money. Happiness may be influenced by different transportation modes. Clearly, the advantage of lessening this burden makes employees happier. Overall, the study indicates that duration of commuting (short or long) can contribute to being happy, but happiness will only be maintained if the commute is shorter than employees' permitted annual time off.

Keywords: Mobility, happiness, (e-) commuting, e-working

1 Introduction

Senior executives and the workforce have already realized the exposure to work-related stress (Bencsik et al., 2019). Generally, the increase of the workforce's daily commute has different impacts on physical and mental health. Interestingly, higher satisfaction among commuters is found with those who have a higher income and prestigious position (Spies, 2006). Returning the workforce to the workplaces after Covid-19 involves the challenge of improving the commuting experience. Evidently, it will not be as simple as before the pandemic to carry on business as usual. Some employees realised just how much fatigue was caused by the daily commute, as is reflected by Spies's (2006) statement that the commuting distances make daily travelling to and from work unfeasible. For others, the need for safe and reliable transport became important. Additionally, there will be many short/long term changes in workplaces. As stated by Beno et al. (2021), there is still no detailed employee plan for returning to work; others prefer flexibility in the workplace.

The relationship between well-being and transportation has been examined by both academics and policy makers. Commuting differs across OECD countries (OECD, 2016) and is ranked among people's most disliked activities (Kahneman et al., 2004). Stutzer and Frey (2008) found that a long time spent travelling to and from work decreases well-being. Similarly, one study concluded that people with the longest commutes have the lowest overall satisfaction with life (Hilbrecht et al., 2014). Another study highlights that talking to someone else has the strongest positive influence on satisfaction when travelling (Ettema et al., 2010). In addition, there is the advantage of carpooling, which includes monetary and time benefits, reduces congestion and addresses environmental concerns (Olsson et al., 2019). Several scholars studied travelling in relation to well-being, e.g. rail transit (Cao, 2013), public transport (Ettema et al., 2012), level of services in public transport (Friman and Felleson, 2009), various modes of daily commuting (Gatersleben and Uzzell, 2007), different travel modes and travel groups (Susilo and Cats, 2014) and active travel or public transport rather than driving to work (Martin et al., 2014). Currie et al.'s (2009) research focused on low-income populations and the reduction of their life chances and well-being.

Flexibility at the workplace (four-day work week, e-working) not only minimises commuting time, but also increases the number of e-workers, which tends to decrease the carbon footprint resulting from transport emissions (Beno, 2021a) and increase productivity (Beno and Hvorecky, 2021). Moreover, flexibility contributes to providing better organizational turnover (Shah and Gregar, 2019). Beno and Hvorecky (2021) stated the importance of employees becoming comfortable with e-working. But not every employee has the opportunity to work remotely or to work close to home.

Commuting may have become both a physical and a mental factor contributing to the growing levels of unhappiness. This points to the importance of exploring the impact of the daily commute on happiness in selected countries. The aim of this study is to analyse the commuting-related flow in 32 selected countries in relation to happiness. This is done by an analysis to identify commuting patterns in relation to the workplace location (cubicle, home or other workplace) and to classify sustainable commuting (average commuting time). It is interesting to note that the contribution of the transport experience to overall happiness is increasing (Mokhtarian, 2019). Workplace location is important in order to establish accurate commuter flows from the place of usual residence to the place of work. The study is based on the outcomes of Eurostat data and the World Happiness Report.

The central research question was: Can every workplace benefit from happy commuting? This is followed by the sub-questions:

- What time slot gives the happiest commuting?
- Do we spend more time commuting than the number of vacation days?

Theoretical views and knowledge from previous studies and sources associated with commuting and the workplace are presented in the next section, followed by a presentation of the methodology. The section after that provides the results of the study. Subsequently a discussion and some brief concluding remarks round off the paper.

2 Literature review

2.1 Work-related commuting

Commuting is the result of a spatial disparity between the residential and occupational locations (Rouwendal and van der Vlist, 2005). We understand commuters as employed workers who travel between their residence and their workplace, with different travel modes and workplaces. In other words, our attention is on the travel distance and time between home and workplace of the individual. Full e-workers will not be considered commuters because of the absence of a fixed destination and proper commuting flows (movements between home and workplace).

The option of driving is the most popular way to travel (Eurostat, 2021). The required element encouraging the modal choice of car to travel to and from work is the travel time difference between driving and alternative modes of travel (Mogridge, 1997). The workforce of inner-city work environments tends to choose walking as a mode of travel, while their counterparts in suburban work environments prefer cycling (Wolday et al., 2019). The rate of regional commuting varies a great deal in the European Union (EU) (Eurostat, 2020a). The urban areas of the EU are considered in terms of public transport. But there is considerable diversity in the nature of the labour force that drives, walks or cycles to work (Eurostat, 2017). Europeans incline towards cars over public transport as travel takes up more time (ECA, 2020; Eurostat, 2021).

Ettema et al. (2010) state that travelling may impact on different sides of subjective well-being (SWB), while De Vos et al. (2013) remark on the short-term and long-term consequences. Anable and Gatersleben's (2005) data show that for work trips, the

participants are inclined to attach greater significance to instrumental aspects (represent overall mobility, and subsistence trips (work and business trips)). These authors also mention emotions evoked by commuting: "stress, excitement, pleasure, boredom and control" (Anable and Gatersleben, 2005, p. 164). The means of transport have been considered as being associated with commuting satisfaction, therefore happiness (Friman et al., 2017; St-Louis et al., 2014; Ye and Titheridge, 2017). Ekkekakis et al. (2008) stress that active travel increases a positive mood, which transforms into happiness. On the other hand, longer travelling reduces it (Ettema et al., 2012; Mao et al., 2016; St-Louis et al., 2014).

Commuting not only wastes time, but also creates costs, causes stress (Sposato et al., 2012) and affects work and family issues (Stutzer and Frey, 2008). According to recent data, British employees commute 492 days at a cost of £37 399 over a lifetime (Lloyds Bank, 2019). Additionally, Sandow (2011) highlights the importance of the psychological perception of commuting distance and time. In our opinion, standards in society, real estate prices, income and other issues affect commuting patterns in society.

2.2 E-commuting

E-commuting (equivalently face-to-display working, teleworking, telecommuting (Beno, 2021a)) means working remotely on a full-time or hybrid basis instead of physically commuting to work. Obviously, the main impact of teleworking is the reduction or elimination of commuting trips as stated in recent study (Beňo, 2021a).

For many, e-commuting began with staying at home to work because of distance (de Vos et al., 2018), potential advantages (Beňo, 2021b; Beno 2021b), long and costly commutes (de Abreu e Silva and Melo, 2018), Covid-19 (Beňo, 2021a; Beno and Hvorecky, 2021; Vyas and Butakhieo, 2020) and other reasons.
Not all work is suitable for e-commuting. De Vos et al. (2018) discovered that those who obtain telework for a certain number of days a week are prepared to increase their commute on the other days by 5%. Other data demonstrate that teleworkers increased their commutes 5-9 times more than non-teleworkers (Gubins et al., 2019). It has been observed that teleworkers are inclined to live further away from the main workplace compared with non-teleworkers (Lachapelle et al., 2017; Rietveld, 2011; Zhu 2013). Zhu and Mason (2014) add that longer commuting trips might convince an employee to decide on e-commuting. De Vos et al. (2019) examine the effect of different occupations on the duration of commutes.

3 Methods

A quantitative research approach was used to examine the data. Leedy and Ormrod (2001) state that quantitative research is explicit in its surveying and experimentation as it relies on current theories.

This paper starts by discussing published information in the area of work-related commuting and e-commuting on one hand and analysis on the other. To analyse the relationships between these, the authors decided to apply the correlations (Pearson and Spearman) to the Two-Sample paired t-test for means.

The analysis was carried out on the following two levels: commuting versus happiness score and average commuting time versus holiday. Before going further, it is necessary to explain and define the aggregates (secondary data) that are the object of this study. Firstly, persons in employment, according to their commuting time, educational attainment level and degree of urbanisation calculated in % and secondly the happiness score from the ninth World Happiness Report for 32 selected countries were evaluated (see Tab. 1). In order to proceed with the correlation, we have chosen 2019 as the reference year.

Table 1: Commuting time in % (minutes) versus Happiness score

Country	0	1 - 9	10 - 14	15 - 19	20 - 29	30 - 44	45 - 59	60 and over	Happiness score
Belgium	80	100	122	125	187	200	79	107	6834
Bulgaria	26	33	143	160	231	297	63	47	5266
Czech Republic	39	84	141	146	196	239	70	84	6965
Denmark	54	130	129	134	189	204	78	82	7620
Germany	42	139	141	134	190	204	66	85	7155
Estonia	42	124	165	166	198	199	49	57	6189
Ireland	79	124	122	110	186	204	65	112	7085
Greece	08	151	248	182	176	159	43	32	5723
Spain	26	154	170	143	174	190	46	98	6491
France	63	130	127	133	194	193	75	84	6690
Croatia	68	126	140	163	167	206	60	69	5882
Italy	17	209	198	143	153	163	37	80	6483
Cyprus	56	141	189	192	234	130	32	26	6223
Latvia	27	66	95	102	187	298	90	135	6032
Lithuania	35	86	134	166	264	249	24	41	6255
Luxembourg	54	77	95	109	213	263	100	88	7324
Hungary	54	73	145	111	178	265	68	106	5992
Malta	42	96	134	156	182	226	85	79	6602
Netherlands	71	137	128	129	180	177	80	99	7464
Austria	42	184	135	127	171	193	74	74	7268
Poland	54	103	136	160	197	244	39	65	6166
Portugal	39	213	190	151	149	152	40	66	5929
Romania	29	90	100	133	228	282	80	57	6140
Slovenia	11.8	128	145	152	171	183	45	59	6461
Slovakia	38	72	155	175	274	202	34	49	6331
Finland	39	163	140	148	195	197	67	52	7842
Sweden	27	143	135	145	185	199	75	91	7363
UK	76	114	127	109	175	196	72	130	7064
Iceland	30	409	182	153	114	85	0	28	7554
Norway	57	177	152	132	168	171	50	92	7392
Switzerland	45	167	130	129	166	194	72	97	7571
Turkey	56	149	150	119	184	219	48	75	4948

Source: Author's own compilation (based on Eurostat, 2020b, Helliwell et al., 2021)

Additionally, paid vacation days regulated by local law were considered (See Tab. 2). Using the original data of average commuting time in selected countries, we calculated average commuting to and from work days as follows: average commute per year (minutes)/ 480 working minutes per working day*2 (See Tab. 2, 3rd column) to assure cases where each data value in one sample has corresponding data value in the second sample.

Table 2: Average commuting time in minutes (days) versus paid vacation days

Country	Average commute per year (minutes)	Average commute per days	Paid vacation days
EU27	6000	25	
Belgium	6720	28	20
Bulgaria	6240	26	20
Czech Republic	6480	27	20
Denmark	6240	26	25
Germany	6240	26	20
Estonia	5520	23	20
Ireland	6720	28	20
Greece	4800	20	20
Spain	6000	25	30
France	6240	26	25
Croatia	5760	24	20
Italy	5040	21	20
Cyprus	4560	19	20
Latvia	7920	33	20
Lithuania	5520	23	20
Luxembourg	6960	29	26
Hungary	6960	29	20
Malta	6240	26	26
Netherlands	6480	27	20
Austria	5760	24	25
Poland	5760	24	20
Portugal	5040	21	20
Romania	6480	27	20
Slovenia	5520	23	20
Slovakia	5520	23	25
Finland	5520	23	25
Sweden	6240	26	25
United Kingdom	7200	30	28
Iceland	3600		
Norway	6480	15	20
Switzerland	6240	27	25
Turkey	5520	26 23	20 12

Source: Author's own calculation (based on EuroDev, 2020; Eurostat, 2019; Wikipedia, 2021)

This work was developed to provide a better understanding of employees' commuting in selected countries in relation to happiness.

4 Results

Mobility is one of the major issues encountered in global urban zones. Increased traffic movements and traffic jams affect the whole society and environment. But e-commuting represents a way of reducing mobility, more precisely, of decreasing commuting, with potential consequences for the environment (Beno, 2021a).

4.1 Link between commuting and happiness

In today's society, the commuting concept becomes important as commuting can be stressful, tedious and unenjoyable. Based on Cloutier et al.'s (2017) data, the way of commuting can affect our sense of happiness and well-being. Primarily, sustainable commuting is able to decrease bad feelings and lead to greater contentment.

As reported by the Well-Being Index (consisting of five elements: purpose, social, financial, community and physical), the general pattern of results demonstrates considerable differences in European countries. The highest percentage of people in Europe who are classified as thriving (37%) is found in the level of financial well-being (Gallup, 2014). The data also show that more of those who are self-employed are thriving in the level of purpose well-being than full-time employees (Gallup, 2014). Generally, we observe a correspondence between the Well-Being Index and the commuting modes in the purpose and financial elements in the European results, even for our predictor of happiness. Previous study has shown that driving is actually the most stressful mode (Legrain et al., 2015). Authors also found that workers between the ages of 35 and 54 who use active transportation (walking, cycling) performed better in the workplace, which is in line with Ma and Ye's (2019) data. Without reference to commuting mode preferences, Ma and Ye (2019) emphasise that there is an optimal ratio between the amount of time spent travelling to work and performing well and being happy.

The average commuting time in EU27 is 25 minutes (Eurostat, 2019). On the basis of data in Table 1, we calculated average commuting times: a) zero minutes (4.8%), b) 1-9 (13.4%), c) 10-14 (14.5%), d) 15-19 (14.2%), e) 20-29 (18.9%), f) 30-44 (20.6%), g) 45-59 (5.9%) and h) 60 minutes and over (7.6%).

If the normality is met, Pearson's correlation coefficient is used, if not, Spearman's correlation is used. The values of both Pearson and Spearman lie between minus 0.333 (negative correlation) and 0.388 (positive correlation), as shown in Tab. 3.

Table 3: Correlations results

p-value Shapiro-Wilk test	Normality	Correlation coefficient	p-value	Types of correlation
0.0835	Yes	0.155	0.396	Pearson
0.0000	**No**	**0.346**	**0.050**	**Spearman**
0.0047	No	-0.323	0.071	Spearman
0.8225	Yes	-0.291	0.106	Pearson
0.0140	Yes	-0.263	0.146	Pearson
0.1719	Yes	-0.333	0.063	Pearson
0.0000	**No**	**0.388**	**0.031**	**Spearman**
0.9081	Yes	0.256	0.157	Pearson
0.4071	Yes			

Source: Author's own elaboration

Spearman's rank correlation shown in Table 3 indicates there is a positive correlation between the indicators of 1-9 minutes and 45-59 minutes of commuting and happiness (highlighted in bold). This implies that a higher degree of the workforce commuting to work in those periods leads to a higher degree of happiness. According to the data, some employees are happier with a longer commute to work (45-59 minutes), since they start thinking clearly and productively before they start their tasks for the day. But longer commutes are linked negatively with physical activity and cardio-respiratory fitness (Hoehner et al., 2012). As in Hansson et al.'s (2011) data, the authors stress the association of lengthy commuting times with decreased energy, increased stress and higher illness-related work absences. For others, 1-9 minutes is the preferred duration as longer commuting leaves them unhappy. Compare this with a study which found that higher commuting time was clearly related to the fewest social engagements (Besser et al., 2008).

Furthermore, there is reason to believe that planned routes to work, i.e. lower transport costs, correlate with the employee's intentions to increase travel to and from work. In addition, it is more likely that a higher degree of different circumstances, such as e-commuting, that extend/decrease the commuting time influence the employee's decision to select a suitable mobility mode and thereby increase the happiness. The expected relation may be that a high degree of suitable trips to work, including e-commuting, would correlate to a greater number of happy employees. Contentment with work commuting has a substantial influence on overall happiness, especially on the balance between positive and negative effects (Olsson et al., 2013). For example, those who consider commuting to be a positive experience will derive a lesser degree of dissatisfaction with commuting (Ory and Mokhtarian, 2005). Moreover, workers may use travel time as an opportunity to build a valuable phase of transition between home and work activities (Richter, 1990) and to minimise domestic friction (Salomon and Mokhtarian, 1998). But the longer the commute, the lower the degree of satisfaction with life in general (Hilbrecht et al., 2014).

4.2 Commuting versus vacation

Time spent commuting is never paid time. On the basis of recent data, only 40% of respondents are expecting to return to commuting (Coates, 2020). Findings from recent survey data reveal that 42.21% of respondents would prefer to extend remote working for at least 1-2 years (Beno et al., 2021). Commuting is one of the least enjoyable things (Kahneman et al., 2004). In fact, the average American employee will spend 7.4 days getting to and from work (EducatedDriver.org, 2019).

The distribution of paid vacation days varies in the surveyed countries from 12 to 30 days. Two out of the 32 regions have the highest degree of daily commuting times, namely Latvia (33 minutes) and the United Kingdom (30 minutes). If instead we look at the paid vacation days, we notice that Spain (30) and the United Kingdom (28) have the highest number.

We compared two means data samples by a paired t-test, as shown in Tab. 4. According to p=0.0003 data, there is evidence that the difference between two quantities is statistically significant. These tests show that employees spend more time commuting than the number of paid vacation days.

Further analysis demonstrates that in only seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries is the commute shorter than employees' permitted annual time off. The workers of the remaining countries commute for longer than their permitted paid vacation.

Table 4: t-Test: Paired two samples for means

	Variable 1	Variable 2
Mean	24.93755	
Variance	12.3185484	
Observations	32	
Pearson correlation	0.217523	
Hypothesised mean difference	0	
df		21.84375
t Stat	31	11.9425403
P(T<=t) one-tail	4.0159391	32
t critical one-tail	0.00017473	
P(T<=t) two-tail	1.69551878	
t critical two-tail	0.00034946	
	2.03951345	

Source: Author's own elaboration

5 Discussion

As shown in this study, commuting is a necessary and usually disliked daily routine. Travelling to and from work in the UK now takes 5 minutes longer than it did 10 years ago (TUC, 2019). The question remains whether to commute or to e-commute? Many people commute long distances, and the decision whether to do so or not is determined by the worker's preferences and the compensation opportunities in the labour market (Swärdh, 2009). Research also demonstrates pedestrians, train commuters and cyclists are happier than motorists and users of metro and bus services (St-Louis et al., 2014).

Jacob et al. (2019) state that increases in commuting time decrease well-being for women. As noted in the first results section, in the periods of 1-9 minutes and 45-59 minutes a higher degree of commuting leads to a higher degree of happiness. This is reflected by those individuals who optimise and therefore maximise their levels of utility. Interestingly, Redmond and Mokhtarian (2001) identified 16 minutes as the ideal duration of a one-way commute. Their results differ from the outcomes of this paper, which show a preference for a short commuting time (shorter than 4 minutes or no commuting at all). In the end, the right commuting time corresponds with performing well and being happy (Ma and Ye, 2019).

The results of Hilbrecht et al. (2014) demonstrate the correlation between a long commute and low overall life satisfaction. Both these findings confirm the key finding of the reported survey, namely that satisfaction with commuting has a substantial influence on overall happiness (Olsson et al., 2013). A long commute can destroy human beings' happiness in their jobs and their lives (Stutzer and Frey, 2008).

Examination of the countries with regard to granting paid annual vacation reveals a situation of imbalance. In only seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries is the commute shorter than the employees' permitted annual leave.

Is e-commuting the solution? Based on recent data, Barrero et al. (2020) estimate that the pandemic-induced shift to e-commuting has reduced commuting time among Americans by more than 60 million hours per week. Beno and Hvorecky (2021) emphasise that e-commuting makes the workforce happy, therefore more productive. But there is inequality between the possibility for higher- and lower-earning breadwinners to work remotely.

6 Conclusion

The daily commute is a common occurrence for many employees, but deciding on a long commute is usually difficult and often involves problems of balancing work and private life. By means of the analysis of available secondary data, this study evaluates the impact of commuting on happiness in 32 countries. The paper starts by discussing published information in the area of work-related commuting and e-commuting on one hand and analysis on the other (Pearson and Spearman correlations and Two-samples paired t-test for means).

The central research question was:

Can every workplace benefit from happy commuting? The time and stress that appear with a long commute have a big influence when it depends whether the employee prefers free time (shorter commute) or money. Happiness may be influenced by different transportation modes. Clearly, the advantage of lessening this burden makes employees happier.

Additional research questions in this paper were:

RQ1: *What time slot gives the happiest commuting?* Spearman's rank correlation of the results indicates there is a positive correlation between the indicators of 1-9 minutes and 45-59 minutes of commuting and happiness. This implies that a higher degree of workforce commuting in those periods leads to a higher degree of happiness.

RQ2: *Do we spend more time commuting than the number of vacation days?* Obviously, the distribution of paid vacation days varies in the surveyed countries. Based on p=0.0003 data, there is evidence that the difference between two quantities is statistically significant. According to the tests, employees spend more time commuting than the number of paid vacation days. In seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries, the commuting time is shorter than employees' annual leave.

Some employees are happier spending a longer time commuting (45-59 minutes), since this allows them time to start thinking clearly and productively before they start work for the day. Others prefer spending less time (1-9 minutes) on this activity. Clearly, the working place environment without commuting will not disappear, however both employees and employers should work towards alternative arrangements wherever possible. Moreover, this study confirms the tendency of reducing commuting time and being happy, which is ongoing even in the post-Covid-19 period. This applies globally.

It is important to stress that correlation coefficients do not assume causal relationships. Instead it depends on managing the investment in sustainable commuting, flexibility of the work environment, an educated workforce and many other factors. Such analysis may potentially be part of further developments and investigation in the future.

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Primary Paper Section: A

Secondary Paper Section: AE