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Jos van Ommeren*
Arno van der Vlist
Peter Nijkamp*

Department of Economics, Faculty of Economics and Business Administration, Vrije Universiteit Amsterdam

* Tinbergen Institute

Transport-related Fringe Benefits: Implications for Commuting and Relocation

Jos van Ommeren, Arno van der Vlist and **Peter Nijkamp**
Department of Economics
Vrije Universiteit Amsterdam
De Boelelaan 1105
1081 HV Amsterdam
The Netherlands
T: +31-20-4446090
F: +31-20-4446004
jommeren@feweb.vu.nl
avlist@feweb.vu.nl
pnijkamp@feweb.vu.nl

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Abstract

Transport-related Fringe Benefits: Implications for Commuting and Relocation

Fringe benefits of various kinds have become an essential element of modern labour market mechanisms. Firms offer transport-related fringe benefits such as transport subsidies (company cars, travel and parking subsidies) and relocation subsidies to job applicants. The spatial implications of these fringe benefits have hardly received any systematic attention thus far. The present paper addresses this largely unexplored issue. Using information from a survey on firms' recruitment behaviour in the UK, this paper demonstrates that the applicants' journey-to-work time induces firms to offer various transport-related fringe benefits to job applicants. The implications of these transport-related fringe benefits for commuting and relocation are rather distinct. Transport subsidies discourage applicants, whereas relocation subsidies induce applicants to move closer to the workplace. We interpret the results as evidence that employers offer transport-related fringe benefits either to reduce the length of the journey to work or to compensate employees for the incurred commuting costs.

Keywords: fringe benefits, company car, residential mobility
JEL-code: J33, J41, R29

1 Introduction

As non-wage compensation has become an increasingly important portion of employees' compensation, fringe benefits have become an important element in the bargaining process between firms and employees (Ehrenberg and Smith, 2000). Firms tend to offer transport-related fringe benefits such as transport subsidies and relocation subsidies to recruit new employees (see Barber, 1998). The relationship between firms' recruitment policies, commuting behaviour and transport-related fringe benefits, however, have received hardly any systematic attention. This lack of attention is rather surprising, because the effectiveness of transport policies directed at reducing commuting flows (such as road pricing or pay lanes) is thought to depend on these fringe benefits (Department of Transport, 1998). Transport subsidies such as company cars or travel and parking subsidies make employees less sensitive to the real costs of commuting, whereas relocation subsidies - received when the employee moves closer to the workplace - induce employees to reduce the journey to work.

Fringe benefits often include company cars, travel and parking subsidies (see Rock and Berger, 1991). In Europe, 42 percent of all new personal cars sold are company cars. In the United Kingdom, the share of company cars is about 52 percent, the highest in Europe (see Economist Intelligence Unit, 1996). In the United States, fringe benefits often include subsidised or free parking (Shoup and Wilson, 1992; Shoup, 1994). Many firms also offer relocation subsidies to new employees at the moment of hiring. In the UK, 25 percent of new managerial and professional employees receive a relocation subsidy (RCI, 2001). Summarising, there is abundant evidence that firms offer a wide range of transport-related fringe benefits.

The large-scale use of transport-related fringe benefits prompts two research questions: (i) to what extent do firms' fringe benefits policies depend on the applicants' journey to work? and (ii) which are the spatial-economic implications - in terms of commuting and relocation behaviour of employees - of transport-related fringe benefits? In the present paper we will address these issues in more detail, mainly from an applied perspective.

The structure of the present paper is as follows. Section 2 outlines the theoretical background of the paper. Section 3 consists of a description of transport-related fringe benefits. This analysis is based on a survey of large firms in the United Kingdom and focuses on the fringe benefits packages offered to full-time appointed managerial and professional employees. In Section 4, we analyse the effect of applicants' journey-to-work time on the probability that firms offer a combination of transport and relocation subsidies using a multinomial logit model. In addition, we test whether transport

subsidies have a negative effect - and whether relocation subsidies have a positive effect - on the probability of moving residence closer to the organisation. Section 5 offers concluding remarks.

2   Theoretical Background

The reasons why firms offer transport subsidies are many and can be found in the fringe benefits and compensation literature. One insight from this literature is that there will be compensation for job characteristics that are viewed as undesirable by workers (Ehrenberg and Smith 2000). This explains why firms offer monetary transport subsidies (as evidenced by the studies of Kasper (1983) and Van Ommeren et al. (2000), which find a positive relationship between monetary compensation and the workers' commute). Another prominent insight from this literature is that payments in kind do not generate as much as cash payments of equal monetary value, but these payments may be attractive when they are accorded special tax treatment (Scott et al., 1998). As a result, firms have an incentive to supply company cars to job applicants, particularly when these job applicants face large commuting costs. Job applicants with short commutes are more likely to prefer payments in cash rather than a company car, because they are less likely to use the car for the journey to work. This last insight is important, because it makes clear that firms' compensation and recruitment policies depend on the workers' journey to work in particular and the transport system in general. In other words, it is plausible that the length of the commute induces firms to offer transport subsidies to compensate workers for the inconvenience of commuting. The current paper therefore aims to test the effect of the workers' commute on the probability that firms offer transport subsidies to job applicants.

It is noteworthy that one of the main results in the urban economics literature, addressing a stylised monocentric urban area, is that employees are fully compensated for the commuting costs via adjustment of dwelling prices (Alonso 1964; Zax 1991). In this special case, firms do not offer any compensation to employees for their commuting costs, because these employees are compensated via dwelling prices. In this case, one should not find any relationship between monetary transport subsidies and the employees' journey-to-work. Although the 'wasteful commuting' debate on the usefulness of this model suggests that many employees are not fully compensated via the housing market (Hamilton, 1982; 1989; Small and Song, 1992), it seems plausible that monetary transport subsidies are less frequently offered to job applicants when the firm is located in a large urban area (such as

London) than in more rural areas.

A major theme in the residential mobility literature is that employees have an incentive to move residence closer to the workplace to reduce commuting costs (Rossi, 1955). Whether employees will actually move depends on many factors, but particularly on the level of the relocation costs (Weinberg et al., 1981; Zax, 1991). In the context of fringe benefits this is relevant, because it implies that firms have an incentive to offer relocation subsidies as a substitute for transport subsidies. In other words, the firm pays once relocation subsidies upfront, but will pay less transport subsidies later on. Clearly, the firms' benefits of subsidising relocation increase with the length of the employees' journey-to-work. The current paper aims to examine this insight by testing whether the job applicants' journey-to-work time increases the probability that firms offer relocation subsidies to applicants.

The spatial effects of transport and relocation subsidies are plausibly distinct. We hypothesise that relocation subsidies encourage employees to move residence closer to the workplace, because the relocation costs are reduced. Further, we hypothesise that transport subsidies discourage employees to move residence, because employees are compensated for the commuting costs. The current paper aims to test these hypotheses by estimating the effects of transport and relocation subsidies on the probability that job applicants will move residence.

3   Data

The empirical analysis is based on a representative organisational survey of firms with at least twenty-five employees in the United Kingdom in December 2000 (RCI, 2001). In total, we have 337 observations. Respondents are mainly human resource managers, recruitment specialists and in case of smaller firms, managing directors or finance directors. The median size of the firms in the sample is 250 employees. Almost 50% of the firms belong to larger companies. The survey contains a large number of questions on recruitment issues and background variables. Our analysis focuses on responses to a range of questions related to the latest managerial/professional appointment the respondent was personally involved in. The respondent had to answer questions on a number of transport-related fringe benefits offered to the applicant, including company car, travel and parking subsidy, and housing subsidy or relocation subsidy. The respondent had to exclude internal and part-time appointments.

The descriptive statistics, shown in Table 1, indicate that for 71% of the applicants, the journey-to-work time is less than 1 hour. For 10% of

the applicants, the journey to work is more than $1\frac{1}{2}$ hour. Most applicants operate at a senior or middle level (74%). In the sample, 20% of the firms are located in London, whereas 16% have difficulties in attracting managerial and professional applicants. After accepting the job offers, 23% of the applicants move residence as a consequence of accepting the job.

[Table 1]

A minority of applicants receive different types of transport-related fringe benefits into one package. To facilitate the analyses, we will focus on five mutually exclusive packages of transport-related fringe benefits (see Table 1). Three packages include only one type of benefit, a fourth package combines several types and also includes housing subsidy. The fifth package refers to those applicants who were not offered any transport-related fringe benefit. The data show that 36% of applicants are not offered any transport-related fringe benefit, whereas 42% receive one type of benefit. Only 20% receive a combination of benefits.

4   Estimation Results

We will present now the estimation results for the effect of journey-to-work time on the probability that firms offer a range of transport-related fringe benefits to job applicants. We estimate a multinomial logit model thereby controlling for a large number of characteristics (cf. Maddala 1983). The estimation results are presented in Table 2. Of particular interest is the effect of commuting time on the probability of a transport-related fringe benefit offer. The estimation results indicate that the journey-to-work time has a positive effect on the probability that a firm offers any type of transport-related fringe benefits package (a company car, relocation subsidy, travel and parking subsidy or a combination). Note that the journey-to-work time has only a statistically significant effect if the journey-to-work time is sufficiently long. For short trips, time does not induce firms to offer a company car or a relocation subsidy. This finding makes sense. Firms have less incentive to offer fringe benefits to applicants who live nearby. Also, labour supply theory implies that employees' (dis-)utility of commuting is a convex function of the journey-to-work time (Ehrenberg and Smith, 2000), which may explain the latter result.

Furthermore, the results indicate that the probability of offering transport-related fringe benefits packages depends primarily on the size of the firm, the sector within which the firm operates, and whether the firm is located in London. Larger firms, measured by the number of employees, offer company cars and relocation subsidies more often, contrary to firms in public

services, and firms located in London. In contrast to popular opinion, firms' recruitment difficulties do not induce additional fringe benefits offers. In conclusion, the offer of transport fringe benefits and relocation subsidies is positively influenced by the journey-to-work time.

[Table 2]

We have shown above that the journey-to-work time induces firms to offer transport and relocation subsidies. We will address now the effects of transport subsidies on the decision of applicants to move closer to the workplace. The estimation results for different specifications of a probit model are shown in Table 3.

The results, as shown in the last column of Table 3, demonstrate that a relocation subsidy offer has a strong positive effect on the probability of moving residence. This implies that by offering a relocation subsidy firms induce employees to move closer to the workplace, reducing the employees' journey-to-work time. In contrast to a relocation subsidy, a transport subsidy discourages applicants to move residence closer to the workplace. Hence, the spatial-economic implications of the choice to offer transport or relocation subsidies, are rather distinct. The statistical findings also provide evidence of strong positive effects of the journey-to-work time on the probability of moving residence.

In the empirical implementation of the model we also tested whether the relocation subsidy needs to be considered endogenous. For example, it may be the case that firms offer relocation subsidies when the applicants announce their intention to move residence closer to the workplace. An endogeneity test, however, indicates that this is not the case (results can be found in the Appendix). Also, we estimated a range of specifications to check the robustness of the results. By and large, the model results turn out to be rather robust and do not differ much, as can been seen from Table 3.

[Table 3]

5 Conclusions

There is only little knowledge about the way and the extent to which applicants' journey-to-work time influence firms' human resource management policies and practices, including the recruitment and compensation practices. This is rather surprising, since the effectiveness of public policies directed at influencing the commuting behaviour of employees (e.g., by road pricing, construction of new roads, etc) is influenced by the firms' policies and practices. For example, it is common knowledge that in many European countries (for example, the Netherlands or France) collective bargaining agreements explicitly include commuting related compensation levels. In Japan, large firms tend to compensate employees fully for the monetary travel-to-work costs. Moreover, many firms tend to offer relocation subsidies to new recruits. This paper emphasized the importance of transport-related fringe benefits for commuting and residential relocation behaviour of employees.

We have demonstrated that firms' fringe benefits offers depend strongly on the applicants' journey-to-work time. Employing data on firms' recruitment of managerial and professional employees in the United Kingdom, we were able to show that the applicants' journey-to-work time at the moment of application, has a strong positive effect on the probability that a firm offers a transport subsidy in the form of company cars or travel and parking subsidies. Furthermore, we found that the applicants' journey-to-work time induces firms to offer a relocation subsidy.

The firms' choice between offering transport or relocation subsidies has strong implications for public policy which focuses on the external cost of commuting (congestion and pollution). Transport subsidies discourage the employee to move closer to the workplace, whereas relocation subsidies encourage employees to move closer to the workplace. Firms offer transport subsidies to compensate for commuting cost or to subsidize relocation to reduce these costs. Although firms may to a large extent be indifferent between offering transport or relocation subsidies, society at large is certainly not indifferent.

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Appendix:
Endogeneity of a Relocation Subsidy

To test for endogeneity of the relocation subsidy on the probability of a residential move, we extend the univariate Probit model to:

$$
\begin{aligned}
Y_1^* &= X_1\beta + Y_2\gamma + u_1 \\
Y_2^* &= X_2\delta + u_2
\end{aligned}
$$

where the variable Y_1^* denotes the inclination to move, the variable Y_2^* denotes the inclination to offer a relocation subsidy, such that

$$
\begin{aligned}
Y_1 &= 1 \quad iff \quad Y_1^* > 0 \\
Y_2 &= 1 \quad iff \quad Y_2^* > 0,
\end{aligned}
$$

where Y_1 denotes the decision to move and Y_2 the offer of a relocation subsidy, X_1 and X_2 are sets of regressors, and u_1 and u_2 error terms. Exogeneity of Y_2 can be tested by a simple t-test of the hypothesis that the correlation between the error terms, $\rho(u_1, u_2)$ equals zero.

Table 4 gives estimation results for a bivariate probit model. The correlation coefficient is not significantly different from zero (with t-value of 0.54). The null hypothesis of exogeneity cannot be rejected on the basis of our data. We also considered other specifications which rendered the same conclusion.

[Table 4]

Table 1. Descriptive Statistics

Variable	Mean
Commuting time:	
Less than ½ hr	0.22
½ hr to 1 hr	0.49
hr to 1 ½ hr	0.19
More than 1 ½ hr	0.10
Candidate is at senior or middle level	0.74
Candidate is at junior level	0.26
Difficulties in recruiting	0.16
Number of employees (in logs)	6.33
London	0.20
Sector:	
Retail, Transport & Communication	0.20
Public Services	0.12
Banking & Financial Sector	0.29
Manufacturing	0.39
Residential move	0.23
Transport-related fringe benefit packages:	
Company car	0.24
Relocation subsidy	0.11
Travel & parking subsidy	0.09
Combination of company car, relocation subsidy, and travel & parking subsidy	0.20
None	0.36

Standard error Number of employees is .10

Table 2. Estimation Results for Multinomial Logit Model on Transport-related Fringe Benefit Packages

Package Explanatory variable	Company car	Relocation subsidy	Travel & parking subsidy	Combination of company car, relocation subsidy and travel & parking subsidy
Constant	-4.38 (.74)	-4.59 (.93)	-3.25 (.90)	-6.84 (.91)
Commuting time				
Less than ½ hr	-	-	-	-
½ hr to 1 hr	.37 (.36)	.45 (.51)	1.55 (.55)	.21 (.43)
1 hr to 1 ½ hr	.30 (.50)	1.29 (.61)	1.17 (.73)	1.01 (.53)
More than 1 ½ hr	3.10 (1.15)	4.76 (1.17)	2.73 (1.5)	4.99 (1.14)
Candidate is at senior or middle level	1.97 (0.40)	1.28 (.48)	.04 (.43)	2.26 (.49)
Difficulties in recruiting	.42 (.42)	-.92 (.71)	-.23 (.60)	.21 (.48)
Number of employees (in logs)	.42 (.10)	.37 (.12)	.09 (.12)	.63 (.11)
London	-.88 (.41)	-.87 (.55)	-.60 (.48)	-1.57 (.51)
Sector				
Retail, Transport & Communication	-.08 (.42)	-.45 (.57)	-.21 (.68)	.18 (.49)
Public Services	-2.56 (.81)	-.17 (.55)	.38 (.66)	-.37 (.53)
Banking & Financial Sector	-.55 (.39)	-.99 (.56)	.77 (.50)	-.02 (.45)
Manufacturing	-	-	-	-

Standard errors in parentheses

Table 3. Estimation Results for Probit Model on the Probability of a Residential Move of the Applicant

	I	II	III	IV
Constant	-1.51 (.35)	-1.59 (.35)	-1.21 (.38)	-1.32 (.39)
Commuting time:				
Less than ½ hr	-	-	-	-
½ hr to 1 hr	-.19 (.20)	-.17 (.20)	-.21 (.23)	-.17 (.24)
1 hr to 1 ½ hr	-.06 (.26)	-.03 (.26)	-.31 (.31)	-.25 (.31)
More than 1 ½ hr	1.52 (.29)	1.60 (.29)	0.91 (.31)	1.02 (.33)
Candidate is at senior or middle level	.13 (.19)	.23 (.20)	-.24 (.22)	-.12 (.23)
Number of employees (in logs)	.10 (.04)	.12 (.05)	-.01 (.05)	.02 (.05)
London	-.23 (.23)	-.30 (.23)	-.12 (.26)	-.06 (.27)
Sector:				
Retail, Transport & Communication	-.22 (.23)	-.23 (.24)	-.30 (.27)	-.32 (.28)
Public Services	.26 (.27)	.19 (.27)	.11 (.31)	.02 (.32)
Banking & Financial Sector	-.01 (.21)	.01 (.21)	.01 (.24)	.05 (.24)
Manufacturing	-	-	-	-
Package:				
Transport subsidy	-	-.35 (.18)	-	-.51 (.22)
Relocation subsidy	-	-	1.74 (.21)	1.79 (.22)

Standard errors in parentheses
Transport subsidy include *company car* and *travel & parking subsidy*

Table 4. Estimation Results for Bivariate Probit Model

	Residential move	*Relocation subsidy*
Constant	-1.04 (.83)	-1.24 (.18)
Commuting time:		
Less than ½ hr	-	-
½ hr to 1 hr	-.21 (.22)	-.21 (.24)
1 hr to 1 ½ hr	-.11 (.33)	.81 (.29)
More than 1 ½ hr	1.33 (.39)	1.12 (.29)
Candidate is at senior or middle level	.35 (.22)	
Number of Employees (in logs)		
London	-.12 (.26)	
Sector:		
Retail, Transport & Communication	.21 (.32)	
Public Services	.17 (.34)	
Banking & Financial Sector	.09 (.23)	
Manufacturing	-	
Package:	.34 (.35)	
Transport subsidy*		
Relocation subsidy	.17 (3.4)	
$\rho(u_1, u_2)$	0.7 (1.30)	

Standard errors in parentheses
Transport subsidy include *company car* and *travel & parking subsidy*