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Glebbeek, A.C.; Bax, E.H.

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LABOUR TURNOVER AND ITS EFFECTS ON PERFORMANCE: AN EMPIRICAL TEST USING FIRM DATA

Arie C. Glebbeek & Erik H. Bax[*]

SOM-theme A: Primary processes within firms

Abstract

In this article we test the hypothesis that the relationship between labour turnover and the economic performance of the firm is bell-shaped: a turnover level too low has a negative effect and likewise does a level too high. Our analysis is based on economic performance data of 110 offices of a temp agency. Since these offices vary highly in labour turnover but are similar in product and operational management, the data enabled us to control for a number of important intervening variables. From a regression analysis it could be shown that labour turnover indeed is related to office performance in a curvilinear way, indicating that it is especially excessive turnover that matters. This result proved robust for both performance level and change of performance as the dependent variables.

Management's interest in labor turnover is strongly related to the business cycle (Gaudet, 1960; Pettman, 1975). Under conditions of economic decline when the demand for labor is decreasing, turnover is not so much considered a problem, as rather a blessing for the prosperity of the individual, the firm and society. Thus, in the 1980s when western economies saw high unemployment rates, one could observe the rise of outplacement agencies, mobility centers, the promotion of 'employability' and the destruction of internal labor markets. Some writers even sensed the wake of a jobless economy (Bridges, 1994). In the 1990s , when the labor market became tenser and labor scarcity grew, the emphasis shifted towards the detrimental effects of turnover (White, 1995; Branch, 1998; Moody, 2000; Stein, 2000). The inescapable message of the consultants' literature was that the costs of labor turnover were considerable: ranging from 50 per cent of an annual salary till 175 per cent in case of some IT and marketing experts (Buckingham, 2000). Such publications show only a one-sided interest in the costs of labor turnover and neglect other effects. Additionally, in most cases the claims put forward also lack an empirical basis. This article aims to contribute to the empirical analysis of the effects of labor turnover.

The research literature on labor turnover is dominated by analyses in which labor turnover is treated as the *dependent* variable (e.g. Lee & Mowday, 1987; O'Reilly et al., 1989; Van Breukelen, 1991; Anderson & Meyer, 1994; Griffeth & Hom 1995; Huselid, 1995; Morrow et al., 1999). Generally the researchers draw on some empirical measurement of actual labor turnover, or they use an indicator such as the intention to leave the job. In the latter case one debates whether the indicator used is valid or not (Steel & Ovalle, 1984; Sager et al., 1998).

Studies that take labor turnover as an *independent* variable are relatively scarce. The publications on the costs of labor turnover that are available mostly only convey a normative message. They often aim at presenting different dimensions of costs and formulas for how to do the accounting, but generally lack a quantitative analysis of the effects on firm performance. (Gaudet, 1960; Flamholtz, 1974; Cawsey & Wedley, 1979; Blakeslee et al., 1985; Tziner & Birati, 1996). This unbalance in the research of labor turnover was already noted as early as 1982 by Mobley who wrote that 'relative

to the causes of turnover, consequences have been underemphasized' (Mobley, 1982: 31). In 1980 Staw explicitly pointed to the potential danger of a research practice concentrating on the causes of labor turnover while neglecting its effects: such research is based on the assumption that turnover is an important organizational problem and, consequently, should be reduced. Hence, potential positive effects for the organization are overlooked (Staw, 1980). In the decades to follow the research on turnover did not change its direction. Similar to Staw's analysis from 1980, nine years later Mueller and Price (1989: 389) again pleaded for research into the consequences of turnover rather than into its determinants. Nevertheless, in the 1999 special issue on labor turnover of the *Human Resource Management Review* (1999) all papers treat turnover as a dependent variable and none as an independent one. "While thousands of studies have investigated why employees choose to leave their jobs, very little research has directly examined the organizational consequences associated with voluntary employee turnover", Williams (1999: 549) complains in this issue. And: "While there is an immense literature covering the subject of personnel turnover, there is a paucity of writing on the impact of turnover on the organisation" (Hutchinson et al., 1997, 3202). It is significant that both Williams and Hutchinson mention not even one relevant title. Even a recently conducted meta-analysis of the domain – 'a final review of turnover research conducted in the 20th century' – is explicitly limited to the antecedents of turnover and not paying any attention to its effects (Griffeth et al., 2000). We cannot agree more with the observation of Hutchinson et al. that "(t)his dearth of studies on the impact of turnover is especially surprising, since it is presumably the assumed impact of turnover on organisational effectiveness which has prompted so much turnover research in the first place" (Hutchinson et al., 1997: 3203).

Only two recent studies report – more or less as a side effect of the main research question – on the effects of turnover. So for Koys (2001) the main problem is the direction of the relation between HR-practices and firm performance in a chain of restaurants. He found negative correlation coefficients between labor turnover and restaurant profitability varying from –.20 to –.28 (Koys, 2001: 109, table 1). In a multivariate test he found the same negative relationship but the regression coefficient

was not significant, probably due to the low number of observations (only 28 restaurants were involved). In a study of the effects of changes in the model of industrial relations of emergent Silicon Valley enterprises, Baron, Hannan & Burton (2001) checked for the relation between labor turnover and firm performance. They analyzed 54 companies and gave bigger companies a larger weight than smaller ones. As a result of this weighted regression, they found a significantly negative effect. The authors themselves labeled their analysis rightfully as 'preliminary' because it lacks a control for sickness absenteeism nor did they answer the question whether the effects of turnover were linear or only manifest beyond a certain level.

In conclusion, a tradition of empirical research into the effects of labor turnover is vitally non-existent. Probably this is because the necessary data on the firm level are difficult to obtain, let alone that such data enable the researcher to control for spurious relations. In the next section, we put forward the theoretical arguments why the outcome of turnover is a priori uncertain in terms of costs and benefits. The data, variables and the regression model are specified in the third section on methods. The results of our study are presented in section four and we end the article with a brief discussion.

THEORETICAL BACKGROUND AND HYPOTHESES

Turnover Costs

Generally, all costs related to the leaving and replacement of employees can be considered to be costs of labor turnover. These embrace not only the costs of recruitment and selection. As early as 1960, Gaudet (1960: 39-47) put forward a rather comprehensive list of turnover costs with items such as advertising, college recruiting, applicant's travel expenses, medical examinations and psychological testing, recruitment awards for employees, and 'hotel entertainment'. The costs of these items can be accounted for, and the same roughly holds for the loss of sales because of vacancies and higher average pay due to extra overtime. More difficult to

estimate are the extra expenditures for training and learning contextual skills, because these include also the costs of coaching, supervision and the loss of quality and product output. Even more complicated is the accounting for items like the loss of team productivity, the loss of effectiveness of informal communication and co-ordination processes and a decreased motivation of those employees who are left behind (Mobley, 1982: 20-21). Sailors & Sylvestre (1994: 32) estimated the costs of labor turnover to US companies "to be several billion dollars per year" of which 20 per cent consists of direct turnover costs and 80 per cent of costs that can be associated but are not directly visible.

A particular perspective on the negative effects of turnover is provided by the resource-based theory of strategic human resource management (Prahalad & Hamel, 1990; Barney, 1991; Ulrich, 1991) and the related ideas on high commitment HRM (Beer et. al., 1984; Guest, 1997). According to these theories, a motivated workforce can really make a difference when competing in the market. Dedication to the organization's goals, knowledge of the firm's internal processes, its suppliers and customer relations is supposed to produce high performance (Herman, 1997). A high turnover rate is contradictory to high performance because it shows that one of the core conditions of high performance – i.e. a highly committed workforce – is not met. Additionally, high commitment HRM requires long periods of training and socialization. Consequently, it will take more time before the break-even point between investments in human capital and the returns to these investments is reached. Therefore, in a context of high commitment HRM the costs of labor turnover will be relatively high.

Turnover Benefits

The following potential advantages of labor turnover could be listed:
1. *Leave of relatively expensive employees*. This applies especially in case a firm uses a compensation system based on seniority or if the premiums for social security are age related. If the rise of labor costs exceeds the increase of productivity of an employee, replacement of the latter becomes profitable.

2. *Leave of less productive employees*. This refers to workers who loose productivity due to aging, physical and mental wear or because they cannot cope with rising work pressures.

3. *Termination of bad matches*. Even under the conditions of careful recruitment and selection procedures, some matches turn out to be better than others. This holds especially when productivity and performance do not so much depend on technology as well as on social relations and contextual skills (McEvoy & Cascio, 1987).

4. *Innovation*. Labor turnover creates possibilities for replacing employees and therefore enables firms to import new types of knowledge, ideas, experience and skills.

5. *Adjustment to market conditions*. The personnel demand of a firm is dependent on external conditions of which the market and the business cycle are important ones. Hence, some variation in the number of staff employed is inevitable. Compulsory redundancies may lead to substantial costs because of severance pays and may weaken the psychological contract with those workers who leave behind. A sufficient amount of 'natural' labor turnover may facilitate these adjustments.

6. *Facilitating the internal labor market*. Internal labor markets provide the opportunities for career development of employees and are therefore an important instrument for motivation, the more if productivity is not easy to measure in the short run (Baron & Kreps, 1999: 171-172). Turnover creates the vacancies required for the internal labor market to function properly.

7. *The price of quality*. Labor turnover is the price organizations have to pay for the employment of young highly skilled and well-educated professionals. Although these 'job hoppers' will leave the organization inevitably, during their stay they contribute significantly to the organization's success. Prevention of this kind of turnover would be the employment of more 'average' employees who are less attracted by the external labor market (Cappelli, 2000).

Hypotheses

The arguments above lead to the conclusion that a traditional and negative evaluation of labor turnover as '… a continuous and fruitless interchange of workers between firms' (Gaudet, 1960: 64) is no longer valid. Reality shows that many firms have left the model of fostering commitment by long term employment relationships and have now invested in more flexible ties with their employees (Cappelli et. al, 1997; Kochan & Osterman, 1994).

Our preliminary conclusion is that only labor turnover beyond a particular degree may be a problem for individual firms. We have three basic arguments for this statement. First, the costs of 'normal' turnover are an accepted part of the industry's production costs passed on to the consumers. Secondly, if turnover has not only disadvantages there may well be a turnover level where the advantages of turnover surpass the disadvantages to the extent that the organization would favor from a higher turnover rate. Thirdly, excessive turnover may be part of a wider bundle of problems in the organization. This implies that e.g. financial losses correlated with labor turnover need not to be produced by it *directly*.

Hence, we present the hypothesis that the relationship between labor turnover and firm performance is *curvilinear* and probably even *bell shaped*: a level of turnover too low has a negative effect on performance and likewise does a level too high. The precise shape of the bell (steep, flat, normal or skew) and its exact position in the field (more to the left or to the right) depends on many factors and is firm and industry specific. Therefore, for management the crucial task is to judge on what point of the curve the organization is presently located. For analytical purposes we split this hypothesis in two separate parts:

> *Hypothesis 1. The overall relationship between labor turnover and firm performance is bell-shaped.*

Hypothesis 2. In case the net effect of labor turnover on firm performance is negative, this effect is curvilinear (i.e. high turnover has the highest impact).

METHODS

Context of the study

Our data originate from a temporary job agency with offices all over the Netherlands. It is medium sized and operates in the Dutch labor market since the late 1960s. The company functions in a highly competitive and dynamic segment of the private service sector. The last fifteen years the volume of the business of temping increased substantially. Compared to a decade earlier, in 1996 – the mid of the period under study – the annual number of hours of temporary employment in the Netherlands had doubled to 306 million: 219,000 temp jobs – of which two-third full time jobs – involving 750,000 temporary workers (source: Statistics Netherlands). The total number of temp jobs equaled 3.5 per cent of total Dutch employment. The latter figure demonstrates that in 1996 the Netherlands, together with the UK, were the frontrunners of temp work in the EU where in that same year the average percentage of temp jobs was only 1.2 (Peeters, 1999: 77).

The management of the organization we studied was convinced to be on the right-hand side of the top of the bell. Labor turnover was indeed an issue. In the period 1995-1997 it was on average 16 per cent and had risen to 18 per cent in 1998. In the latter year, a quarter of all offices had turnover percentages of more than 25 per cent, some even more than 40 per cent. In its 1999 Plan of Operations top management complained that "a turnover rate too high jeopardizes the quality of service and costs a lot of money". It formulated the policy target to decrease turnover with one third in 1999. Ironically, the performance of the organization studied is largely dependent on the labor turnover in other firms, as its product is the deployment of temporary workers. However, similar to other firms, the agency feels

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that it has to gain by a loyal and experienced staff. The latter are the subject of our study: intermediaries, supervisors, office managers, support staff and the like.

Data

The offices of the temp agency vary highly in labor turnover but are similar in product and operational management. Because of the similarity of the offices a number of factors potentially affecting turnover effects are kept constant. Hence, this setting allows for testing the hypothesized relationship(s) between labor turnover and firm performance. The data set enables us also to control for a number of important intervening variables, most notably sickness absenteeism. The company involved is typical for the modern service sector. As Dutch trade and industry is not deviant from those in other present-day Western market economies, we have no reason to believe that the impact of turnover is different either (Van Breukelen, 1989, 1991).

In the period to which our data refer, 1995-1998, the agency's average volume of daily working temp employees increased from 18,500 till 39,000. In the same period, the population of the agency's staff (managers, intermediaries and the like) grew from 667 until 1,894 employees. Our units of observation are those offices active during the *whole* period 1995-1998. Offices that became active (about 100) or stopped (2) their activities in one of the years studied were left out of the analysis. We also deleted one office with a turnover percentage of zero as we considered it an artificial bias: the office was primarily active in an area dominated by seasonal employment and attracted its necessary staff on a temporary basis from other offices. In sum total, we applied the analysis to 110 offices.

We used several data sources. Data on the financial performances of the offices were taken from the central accounts of the holding. Data on the number of temp hours, the number of persons employed, sickness absenteeism and labor turnover come from the automated personnel files of the holding. So, in all cases we use the official statistical records of the firm.

Measures

Independent variable. The labor turnover of an office is measured as the total number of employees leaving that office per year as a percentage of the average number of employees employed that year in that office. In this measure 'employee' is defined as a person and not as (part of) a full time equivalent (fte). The average number of office-staff employed per office per year is accounted for by measuring on three dates: January 1st, July 1st and December 31st and dividing the sum total by three. District managers, supporting staff at district level and all other personnel not engaged in operational functions are excluded from the analyses; they are also excluded from the labor turnover figures.

Dependent variable. Because of the above-mentioned problems of specifying the costs of labor turnover, we have chosen to take the *total* economic performance of an office as a measure of the effects of labor turnover (cf. Staw, 1980). An additional argument to follow this strategy is that we do not want to exclude the possibility that labor turnover may also yield an advantage or profit. This dependent variable is more complicated to indicate than the independent one. Temp-agencies usually measure their performances in three different ways. The first is the *number of temporary employment hours* 'sold' by an office. Next, this number is related to the number of full-time staff equivalents (fte) used to achieve this 'production'. The consequent ratio is the productivity per fte of the office involved. Disadvantage of this conventional measure is that it does not allow drawing conclusions on the economic performance of the office. A linkage between the quantity of hours sold and the price realized is missing; e.g. the differentiation between hours sold at a price of $ 10 and those of $ 50 is lost in the ratio.

The second measure is the annual *sales* made by an office. This figure equals the total number of temp hours multiplied by the price per hour. Similarly to the first measure, one can consequently account the sales per fte, which then can be used to compare an office with other offices. Contrary to the first measure, here the link between number of hours sold and the realized prices are expressed in the ratio.

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However, insight into the profitability is still lacking: even if an office produces below the break-even point, sales may be impressive.

The third measure, the *gross result* of an office, provides the desired insight into profitability because it equals the sales (second measure) minus the direct wage costs of the temp workers involved. However, it does not include other important costs like the wage costs of office staff, housing costs, publicity costs and the like. This is the more a disadvantage as the wage costs of the office staff are directly related to the level of turnover, the present issue of interest.

In order to meet these problems we developed a fourth measure, the *net result per office*. Taking the gross result per office and subtracting the wage costs of the office staff constructs this measure. To get a full picture of an office's contribution to the firm's profit one should also take into account the overhead costs made for housing, publicity and the like. We did not do so here because the office staff cannot influence the bulk of these costs therefore having no clear meaning for the performance of the office. Against this, one could rightfully put forward the criticism that turnover-related costs like those for recruitment and selection are now hidden behind the label 'overhead'. However, given the structure of the data available, these latter costs could not be separately specified. Consequently, because the results of the offices with a relatively high level of recruitment and selection activities will be estimated as too positive, any potential bias resulting from this procedure will be conservative in nature: it distracts from the hypothesized relationship. Therefore, although our measure is not perfect to the highest degree, it suits our purpose well enough, the more as it embraces all 'hidden costs' of labor turnover that, as we discussed above, may be regarded crucial for the matter (Sailors & Sylvestre, 1994).

All financial data are deflated to prices of 1995. In order to enable a comparison between small and large offices of the temp-agency we express all performance measures per full-time equivalent (fte).

Table 1 shows the relevance of the choice for a particular performance measure. The correlations between the four measures are indeed high, but not that high to be

interchangeable. Notably the net result differs from the others. In the table, one can observe negative correlations between the performance measures and labor turnover. This is a first and preliminary indication that the firm's top management had a sound intuition. Remarkably, the relation between labor turnover and net result is considerably weaker than between turnover and the other three performance measures. This is in line with our arguments presented above. More than in the other measures, the positive effects of labor turnover are expressed in net result, e.g. economizing on costs. Consequently, if the management of our temp-agency should estimate the effects of turnover based on the three traditional measures, the estimations of the disadvantages of turnover would be too high.

Table 1.: Correlation coefficients of labor turnover and four measures of office performance, 1995-1998 (N=110).

	temp hours sold	sales	gross result	net result	labor turnover
temp hours sold	1.00				
sales	.90	1.00			
margin realized	.84	.89	1.00		
net result	.79	.81	.94	1.00	
labor turnover	−.45	−.42	−.39	−.23	1.00

Two ensuing issues to discuss are the subjects of table 2. One could argue that it takes some time before the effects of labor turnover can be observed in the firm's performance. Hence, we adjusted table 1 and did the accounting for two different, on average subsequent periods of three years each. As a result, the negative correlations between temp-hours sold, sales, gross result and labor turnover increased, while that between net result and turnover remained about the same (row A). Because the degree of difference in outcomes between table 1 and table 2 is rather small and does not

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affect the testing of our hypothesis, below we will use the whole period 1995-1998 using the information in our data to the highest degree.

The second issue relates to the direction of the causal relationship. A critique to the relation presented by us could be that it is not so much labor turnover that causes performance but rather the other way around. This problem is the core of Koys' analysis (Koys, 2001). Similar to his approach we used the division in three-year periods in order to address this matter: in row B of table 2 we 'mirrored' the periods in such a way that the performance measures now precede the variable labor turnover. It can be clearly seen that the correlations decrease and loose significance. We therefore feel safe to conclude that the performance measures are indeed effects of labor turnover and not determinants.

Table 2.: Correlation coefficients of (A) labor turnover in the period 1995-1997 and four measures of office performance, 1996-1998 and (B) four measures of office performance, 1995-1997 and labor turnover in the period 1996-1998 (N=110).

		temp hours sold	sales	gross result	net result
(A)	labor turnover	–.51 **	–.48 **	–.47 **	–.25 **
(B)	labor turnover	–.17	–.15	–.10	–.08

* p < .05   ** p < .01

Control variables. How important correlations may be, sometimes they are questionable. We have to beware of spurious relationships. In this respect, sickness absenteeism asks for special attention. Labor turnover and sickness absenteeism may be related if a common factor causes them – e.g. high work pressure or bad human

relations – obscuring the fact that the negative effects are totally caused by sickness absenteeism and not by labor turnover. Therefore, it is crucial in an analysis of the effects of labor turnover to control for sickness absenteeism. The problems involved in controlling for this factor is one of the main causes that little is known about the true effects of labor turnover. A second factor to be controlled for is the average age per office because one may expect that younger people are more inclined to leave a job ('job hopping') than elderly employees, whereas wages and salaries (and thus employee costs) are age- related. Table 3 shows that the central variables used in the analysis vary sufficiently to enable a controlled test of the hypothesis.

Table 3.: Description of the main variables in the analysis (1995-1998, N=110)
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	minimum	maximum	mean	standard deviation
labor turnover	4 %	34 %	16.2 %	5.66
sickness absenteeism*	1 %	14 %	3.9 %	2.08
average age (in years)	26	43	28.4	2.29
net result**	– 32,183	199,563	77,547	37,496

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* Sickness absenteeism: the total number of calendar days lost by sickness absenteeism per office and per year (corrected for part time contracts of the employees involved) as a percentage of the average number of persons employed in that office (no fte's); pregnancy and maternity leaves excluded.

** Dutch guilders per fte in prices of 1995.

The last factor we controlled for is the geographic region of the offices. Although the Netherlands is a relatively small country, economic performance and economic structure vary between parts of the country. One may expect these economic differences to affect the results of the offices studied, as the temp business is strongly dependent on the volume and nature of economic activities in its environment.

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Besides, the vulnerability of offices for labor turnover may also be associated to the nature and the degree of economic activity in the environment – and therewith to the regional labor market.

Table 4.: Regional differences in labor turnover and net result, 1995-1998

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	average labor turnover	average net result	
1. Periphery	15.3 %	fl. 55,960	(N=20)
2. Middle	14.2 %	fl. 84,508	(N=43)
3. Center	18.5 %	fl. 80,365	(N=47)

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In order to check these assumptions we divided the Netherlands in three regions: the economic center, a middle part and the economic periphery. The economic center is defined as the West of the country around the cities Rotterdam, The Hague and Amsterdam, the so-called Randstad, while we consider the provinces of Groningen, Friesland, Drenthe, Zeeland and parts of Limburg (south of Venlo) to belong to the periphery; the middle area consists of the remaining parts of the Netherlands that also happen to be about in the middle of the Dutch national territory. Following this regional classification, 43 per cent of the offices is in the economic center, 39 per cent in the middle area and 18 per cent in the periphery. Table 4 shows that there is indeed a substantial regional effect in our data. Although the figures suggest that this effect may not be strictly linear (highest net results in the middle part), we do not want to capitalize on chance by adding a set of dummy variables. Conforming to the usual interpretation of regional strength as a one-dimensional concept, we will add the regional classification in the rank-order of Table 4 as a control variable to the analysis.

Model specification. Finally, we have to introduce curvilinearity in the analysis because we hypothesized that only abnormal labor turnover has a negative effect on office performance. This is done in the usual way by adding the squared term of labor turnover to the analysis. If the basic relationship is negative – i.e. the office is on the right side of the bell – and the more so when turnover increases, then the squared term should pick this up and show the negative sign while the non-squared term becomes positive.

Another problem to be solved is the issue whether the effect of labor turnover manifests itself in the *level* of office performance or rather in the *change* of the latter. The performance measures as defined above all relate to the average level of the results of an office over a given time period. Differences in performance between offices that originate from past influences and that are not captured by the control variables may continue to have their effects on the variance of the dependent variable. According to some, for this reason a *change* in performance is the preferred criterion. Thus Baron *et. al.* (2001: 1003-1007) analyze the rise in sales of Silicon Valley firms by taking the sales of the first year of the period as a predictor for the sales in the last year of the period. This is an adequate way of modeling the change of performance. An additional advantage of this procedure is that, as a side effect, it also corrects for other office-related variables that were not measured.

We do not prefer the one dependent variable to the other. Rather it is our perspective that the assumed effect of labor turnover, if robust, will appear in both. In order to test this robustness we analyzed the data in both ways. In table 5 the average *level* of net result per office is used as the dependent variable; in table 6 we estimate the *change* in results using the method applied by Baron *et. al.* (2001). In the latter table the average result per office over the last three years of the period is the dependent variable.

RESULTS

In the analysis, we stepwise introduced the controls mentioned. The results are presented in tables 5 and 6. The negative correlation we found between labor turnover and net result (see table 1) holds if we control for age and sickness absenteeism and even increases if we also consider the regional influence. In this third model, both labor turnover and absenteeism and region have the expected – and significant[1] – effect on net result. The unstandardised regression coefficient indicates that an one percent increase of labor turnover equals a loss of Dfl. 1780 (= € 807.73) per fte which is about 2.25 per cent of one fte's contribution to the net result. From a management point of view, this is rather substantial. So the volume of labor turnover indeed had negative effects for the firm studied.

In order to test whether the data support our ideas on the curvilinearity of the relationship, we added labor turnover in model 4 as a squared term. If it is particularly a *high* degree of labor turnover that is responsible for the effect in the dependent variable, the squared term should capture the effect resulting in a change of sign of the original variable. This is exactly what we observe in table 5 and table 6. Although the total variance explained remains about the same, the breaking down of the turnover variable points into the direction that it is predominantly an excessive degree of turnover which has a negative effect on performance. Our second hypothesis is therefore confirmed in the data. The testing also made clear that it is possible to uncover the expected theoretical structure in the data on the condition that one can apply the proper controls in the analysis. Not considering the obvious influences of closely related variables like sickness absenteeism and regional strength may lead HR-managers astray when conducting their own calculations 'on the backside of a cigar box'.

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[1] Because we use data of the total population, testing for statistical significance is strictly speaking not necessary. However, because the years studied can be considered as a sample of a larger number of years, we feel these tests are useful. Since the number of cases is rather small, we consider results to be significant at the 10%-level (one-tailed testing).

Table 5.: OLS regression estimates of the effect of labor turnover on the net results of 110 offices over the years 1995-1998; unstandardised (standardized) regression coefficients.

Net result 1995-1998	Model 1	Model 2	Model 3	Model 4
constant	102.752	114.329	106.387	87.041
labor turnover	−1552	−1293	−1778	1098
	(−.23 **)	(−.20 *)	(−.27 ***)	(.17)
sickness absenteeism		−2602	−3389	−3330
		(−.15)	(−.19 **)	(−.19 *)
age		− 203	− 731	− 831
		(−.01)	(−.05)	(−.05)
region			15066	15465
			(.30 ***)	(.31***)
labor turnover (squared term)				− 87
				(−.45)
F	6.3 **	2.8 **	4.8 ***	4.1 ***
adj R^2	.046	.048	.122	.126

* $p < .10$ ** $p < .05$ *** $p < .01$

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Table 6.: OLS regression estimates of the effect of labor turnover on the development of the net results of 110 offices over the years 1996-1998; unstandardised (standardized) regression coefficients.

Net result 1996-1998	Model 1	Model 2	Model 3	Model 4
constant	59.100	68.615	58.625	37.210
net result 1995	0,176	0,172	0,170	0,169
	(.39 ***)	(.38 ***)	(.38 ***)	(.38***)
labor turnover	–793	–686	–1319	1896
	(–.13)	(–.12)	(–.22 **)	(.32)
sickness absenteeism		–1255	–2284	–2225
		(–.08)	(–.14 *)	(–.14)
age		– 210	– 896	– 1007
		(–.01)	(–.06)	(–.07)
region			19550	19998
			(.43 ***)	(.44 ***)
labor turnover (squared term)				– 97
				(–.56 *)
F	12.7 ***	6.4 ***	11.8 ***	10.5 ***
adj R^2	.176	.167	.332	.344

* $p < .10$ ** $p < .05$ *** $p < .01$

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Whether the outcomes also support our first hypothesis on the bell-shaped form of the relationship is a matter of debate. The fact that the sign of the linear term becomes positive in both cases speaks in favor of this, but on the other hand, the effects are far from significant. This may be due to the fact that in this firm only a small number of offices are suffering from a too low level of labor turnover. Calculation of the first derivative from the coefficients in table 5 suggests the optimal turnover level in this firm to be 6.3 per cent (1098/87*2). Only 5.5 per cent of the offices are below this level. This would imply that in these data especially the right part of the bell-curve is presented, so the curve cannot really be tested. We therefore conclude that our second hypothesis is rejected nor confirmed, and that new research with fresh data should shed more light on this matter.

DISCUSSION

"A survey last year by the American Management Association put turnover at the top of bosses' list of worries, with the majority saying that their retention concerns were getting more serious each year", so said The Economist (15 July 2000: 65). The results of our research justify the bosses' worries: we could empirically proof that indeed a high degree of labor turnover negatively affected the economic performance of the firm studied. However, it is the curvilinearity of the relationship that offers hope to the bosses: it is not labor turnover as such, but rather an excessive degree of turnover, which is of importance.

Our main conclusion must be reassuring for the authors who earn their livings by writing HRM textbooks. In this literature, excessive labor turnover is often presented as a fail factor be it that no hard empirical evidence is offered to the reader (Huselid, 1995). This omission is explained by the fact that hardly anything is known – or could be known – about the empirical effects of labor turnover because of the inaccessibility of relevant data sources: "Despite the importance of turnover, though, our knowledge of it is surprisingly slight, and much of what is known comes only from the

manufacturing sector" (Anderson & Meyer, 1994: 177). We were lucky to have access to a unique data source in the modern service sector.

Our paper shows that labor turnover can have negative effects on firm performance. Here we emphasize 'can' since economic performance is dependent on many factors that are arranged differently for different types of firms in different circumstances. This can also be seen in the fact that the relation between the variables in our analysis is not very strong: even in the most elaborate model of Table 5 explained variance does not rise above 13 per cent. It is clear that indeed labor turnover explains part of the variation in office performance but that the latter is affected by unknown variables to a much larger degree.

We feel that we are only at the beginning of a new research agenda within the domain of HRM. A first priority should be to make available new data bases that provide opportunities for further testing of the hypothesis on the bell-shaped character of the relationship between labor turnover and economic performance. The cultural and structural layouts of firms like our temp agency with its many offices producing the same product under similar conditions enable to control for relevant intervening variables.

A second priority should be the specification of the relationship between turnover and performance by type of HR-policy. Here we refer to an issue we touched earlier at the end of the theory section of this article. More specifically, the question is whether some types of organization are more 'vulnerable' to labor turnover than others. We think the answer should be 'yes' because the costs of labor turnover partly depend on the investments in human capital the employer is willing to make. In this respect one could compare such polarities like high commitment HRM and more Tayloristic oriented production processes where training periods are relatively short and employees leaving the organization can be easily replaced (Bax, 2002). If such turns out to be true, it takes our topic into the realms of business strategy and strategic human resource management.

REFERENCES

Anderson, Patricia & Bruce D. Meyer (1994), The extent and consequences of job turnover, *Brookings Papers on Economic Activity*, 177-236.

Barney, J.B. (1991), Firm resources and sustained competitive advantage, *Journal of Management*, 17, 99-120.

Baron, James N. & David M. Kreps (1999), *Strategic human resources: frameworks for general managers.* New York: Wiley.

Baron, James N., Michael T. Hannan & M. Diane Burton (2001), Labor pains: change in organizational models and employee turnover in young high-tech firms, *American Journal of Sociology*, 106 (4), 960-1012.

Bax, Erik H. (2002), *The strategic labor allocation process: a model of strategic HRM*, Groningen: Groningen University, SOM-report.

Beer, M., Spector, B., & Lawrence, P. R., *et. al.* (1984), *Managing human assets,* Free Press, New York.

Blakeslee, G.S., E.L. Suntrup, J.A. Kernaghan (1985), How much is turnover costing you? *Personnel Journal,* 64 (11), 98-103.

Branch, Shelly (1998), You hired 'em. But can you keep 'em? *Fortune,* 138 (21), 101-103.

Breukelen, J.W.M. van (1989), Personeelsverloop in organisaties: een literatuuroverzicht en een model, *Gedrag en Organisatie,* 1 (6), 37-65.

Breukelen, Jacobus W.M. van (1991), *Personeelsverloop in organisaties.* Proefschrift Universiteit Leiden.

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Bridges, William (1994), *Jobshift: how to prosper in a workplace without jobs*. Reading, Mass.: Addison-Wesley.

Buckingham, G. (2000), Same indifference, *People Management,* 6 (4), 44-47.

Cappelli, Peter, et al. (1997), *Change at work.* New York: Oxford University Press.

Cappelli, Peter (2000), A market-driven approach to retaining talent, *Harvard Business Review,* 78 (1), 103-111.

Cawsey, Thomas F. & William C. Wedley (1979), Labor turnover costs: measurement and control, *Personnel Journal,* 58 (2), 90-96.

Dalton, Dan R., David M. Krackhardt & Lyman W. Porter (1981), Functional turnover: an empirical assessment, *Journal of Applied Psychology*, 66 (6), 716-721.

Flamholtz, Eric (1974), *Human resource accounting.* Encino, Calif.: Dickenson.

Gaudet, Frederick J. (1960), *Labor turnover: calculation and cost.* New York: American Management Association.

Guest, D. E. (1997), "Human resource management and performance: A review and research agenda", *International Journal of Human Resource Management*, vol. 8, pp. 263-276.

Griffeth, Rodger W, & Peter W. Hom (1995), The employee turnover process, *Research in Personnel and Human Resources Management,* 13, 245-293.

Griffeth, Rodger W, Peter W. Hom, Stefan Gaertner (2000), A meta-analysis of antecedents and correlates of employee turnover, *Journal of Management,* 26 (3), 463-488.

Herman, R. (1997), Reducing costly employee turnover, *HR Focus*, 74 (6), 15-16.

Hutchinson, S.T., J.R. Villalobos & M.G. Beruvides (1997), Effects of high turnover in a serial assembly environment, *International Journal of Production Research,* 35 (11), 3201-3223.

Huselid, Mark A. (1995), The impact of human resource management practices on turnover, productivity, and corporate financial performance, *Academy of Management Journal*, 38 (3), 635-672.

Kochan, Thomas & Paul Osterman (1994), *The mutual gains enterprise*. Boston: Harvard Business School Press.

Koys, Daniel J. (2001), The effects of employee satisfaction, organizational citizenship behavior, and turnover on organizational effectiveness: a unit-level, longitudinal study, *Personnel Psychology,* 54 (1), 101-114.

Lee, Thomas W., Richard T. Mowday (1987), Voluntarily leaving an organization: an empirical investigation of Steers and Mowday's model of turnover, *Academy of Management Journal*, 30 (4), 721-743.

McEvoy, Glenn M. & Wayne F.Cascio (1987), Do good or poor performers leave? A meta-analysis of the relationship between performance and turnover, *Academy of Management Journal,* 30 (4), 744-762.

Mobley, William H. (1982), *Employee turnover: causes, consequences, and control.* Reading, Mass.: Addison-Wesley.

Moody, Robert W. (2000), Going, Going, Gone, *The Internal Auditor,* 57 (3), 36-41.

Morrow, Paula C., James C. McElroy, Kathleen S. Laczniak, James B. Fenton (1999), Using absenteeism and performance to predict employee turnover: early detection through company records, *Journal of Vocational Behavior*, 55 (3), 358-374.

Mueller, Charles W. & James L. Price (1989), Some consequences of turnover: a work unit analysis, *Human Relations,* 42 (5), 389-402.

O'Reilly III, Charles A., David F. Caldwell, William P. Barnett (1989), Work group demography, social integration, and turnover, *Administrative Science Quarterly*, 34 (1), 21-37.

Peeters, Anneleen (1999), *Labour turnover costs, employment and temporary work.* Proefschrift, Katholieke Universiteit Leuven.

Pettman, Barrie O. (ed.) (1975), *Labour turnover and retention.* Epping: Gower.

Prahalad, C.K. & G. Hamel (1990), The core competence of the corporation, *Harvard Business Review*, 68, 79-91.

Sager, J. K., R.W. Griffeth, & P.W. Hom (1998), A comparison of structural models representing turnover cognitions, *Journal of Vocational Behavior*, 53, 254-273.

Sailors, J.F. & J. Sylvestre (1994), Reduce the cost of employee turnover, *Journal of Compensation & Benefits,* 9 (5), 32-34.

Staw, Barry M. (1980), The consequences of turnover, *Journal of Occupational Behaviour*, 1, 253-273.

Steel, Robert P. & Nestor K. Ovalle (1984), A review and meta-analysis of research on the relationship between behavioral intentions and employee turnover, *Journal of Applied Psychology*, 69 (4), 673

Stein, Nicholas (2000), Winning the war to keep top talent, *Fortune*, 141 (11), 132.

Tziner, A. & A. Birati (1996), Assessing employee turnover costs: a revised approach, *Human Resource Management Review*, 6 (2), 113-122.

Ulrich, D. (1991), Using human resources for competitive advantage, in: I. Killmann, Killmann & Associates (eds), *Making organizations competitive*, San Francisco, Jossey-Bass, 129-155.

Visser, Jelle & Anton C. Hemerijck (1997), *A 'Dutch miracle': job growth, welfare reform and corporatism in the Netherlands.* Amsterdam: Amsterdam University Press.

White, G.L. (1995), Employee turnover: the hidden drain on profits, *HR Focus*, 72 (1), 15-17.

Williams, Charles R. (1999), Reward contingency, unemployment, and functional turnover, *Human Resource Management Review*, 9 (4), 549-576.