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PERSONNEL TRAINING AT THE REGIONAL LEVEL IN ESTONIA: THE CASE OF JÄRVA COUNTY

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Abstract

Human capital is a fundamental issue regarding competitiveness of firms, regions and countries. In a world of continuous technological progress personnel training is one of the most important form of human capital investment. This paper provides answers to questions related to types of personnel training, and the extent they are used in firms at the regional level in one Estonian county. The data used in this paper is based on a questionnaire survey completed by firms. The results indicate that there exist remarkable differences in providing personnel training depending on the types of training programs, occupations and firm size.

KEYWORDS: personnel training, human capital, Estonia, regional development

JEL Classification: J24, M53, O18.

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1. Introduction

Human capital is a fundamental issue regarding competitiveness of firms, regions and countries. It is the most important determinant of labour productivity. In a world of continuous technological change and lifelong learning, one of the most important forms of human capital investment is personnel training. The educational structure of Estonian labour force can be considered as formally well-educated, as the average years of schooling is at the comparative level with the most developed countries in the world. At the same time it should be taken into account that due to the transition from centrally planned economy to market economy in the 1990s, education attained in previous decades has in many cases become partially obsolete (The development...2001). Another problem, which cannot be ignored, is the persistence of remarkable regional differences in the educational level of the labour force. Workers with higher levels of education usually work in the more economically developed regions, such as the capital city of Estonia (Tallinn) and other big cities. The educational level of workers in rural areas is remarkably lower and it is surely one of the causes of large disparities in the economic development of different parts of Estonia (Kaasa 2004). Under these circumstances well-organised personnel training in the underdeveloped regions could be a channel to decrease regional differences in economic development in Estonia.

The aim of this paper is to establish types of personnel training as well as the extent of its implementation in the firms of Järva County and to analyse the factors influencing the provision of training. The data used in the paper is based on a questionnaire survey among employers about the supply of personnel training both in and outside the workplace. The sample design is based on the combined random sampling method and in total 168 firms responded to the questionnaire.

The paper is organised as follows. First, there is a broad outline of the theoretical background of personnel training and human capital. Second, there is an explicit presentation of Järva County and it is followed by the description of data as well as methodology. Finally, the overview of the final results of the analysis is presented.

2. Theoretical background

Technological progress triggered the exertion of new technologies in the production process and the emergence of new industries. During the last decades presence of skilled labour has grown in strength as the factor of

economic development and growth. During the earlier periods psychical capital was perceived as the main determinant of growth, nowadays human capital is considered as the critical factor of long-run economic growth (Romer 1990). There have been changes in the content of work too as the specific, narrowly defined and routine tasks have been substituted for less standardized and more varied activities (Eamets *et al* 2003). Employees are not only expected to work productively, but also to be able to adjust to the changing circumstances during their whole career (Bainbridge *et al* 2000). Changes in the content of work require flexibility and broad-based education from workers, in order to guarantee that employees will be able to work and adjust to diverse jobs. At the same time it is obvious, that some level of specialization should always remain in the training process.

Human capital can be defined as skills and knowledge acquired by people during their lifetime and which can be used for production of goods (Fredriksen 1998). Human capital can be split into different components. The most important of these are (Koobas 2004):

- education and on-the job training;
- mobility;
- health;
- expenditure on job search;
- pre-school education.

Human capital is most often associated with education and on-the job training. Education is usually classified as formal education attained at various schools, including both general and vocational education. On-the job training can take place inside or outside the company and consist of different formal training programs and informal guidance of new employees by more experienced co-workers. If the focus is drawn on the first component of human capital, then it can be said that the production of human capital takes place mostly through acquisition of knowledge and skills.

Depending on the type of skills acquired by schooling and on-the-job training, human capital can be divided into general and specific human capital. General human capital affects the productivity of the trainee in all companies, whereas specific human capital raises the productivity only in one enterprise. General human capital is acquired through general education and training programs, which improve the skills and knowledge of the workers in a way that it increases their labour productivity universally. Specific human capital on the other hand is acquired through specific training, which consists of enterprise-

specific training programs, which improve the skills in a way that their productivity is increased only in one particular firm. For example, trainees are taught to handle some specific machinery, which is not used in other companies. In reality, many training programs have both elements of general and specific nature.

One of the most important findings of the human capital theory is that in case of perfect competition on labour market, where the wage paid to employees equals the marginal product of labour, firms do not have the motivation to finance their employees' general training, but it will be more profitable for them to finance specific training (Becker 1962). The intuition behind this finding is that as employees will benefit from general training regardless of the enterprise they are working for, there is a risk that after completion of the training program the employee will change employer and in that case the previous employer, who paid for the training will get no return from the investment. In case of specific training, the employee has no incentive to leave after training, as his productivity and wage will be lower in other companies due to company-specific skills or knowledge.

Despite the results of the human capital theory, in reality firms quite often pay for their workers general training at least partly. This has been explained by the existence of transaction costs and imperfect competition on labour markets. In presence of these factors the employers' position on wage negotiations may be stronger than the employees' position, which leads to the situation when workers are paid for their work less than their marginal product.(Acemoglu *et al* 1999). In that case it may be profitable for companies to finance their employees' general training. The other possible reason for employers to finance general training can be the existence of external effects of training. In case of external effects the training will not only increase the productivity of the participants of the training program, but also the productivity of other workers, who did not participate. For example, if some workers are taught to use information and communication technology, then it is in most cases general training as such technology is usually similar in different companies. After the training program the better handling of such technology could improve the overall speed and quality of communication in the company and so the productivity of other employees may increase too. This kind of external effect is called network externality (Ericson 2005). Financing of general personnel training by employers could be also justified by the existence of the complementary relationship between general training and other investments or activities undertaken by the employer or the employee. These complementary investments/activities increase the return on general training. General training can be complementary to both physical capital investment and specific training,

as the higher skills of workforce will increase the rate of return on investments in machinery and the acquisition of general skills may increase the productivity growth from specific human capital. (Galor *et al* 2003)

The empirical research on the financing of on-the job training in Western European countries has demonstrated that training is offered at greater extent to employees of bigger companies and to workers with higher initial educational level. Additionally, workers, who are assigned to more complicated jobs, have higher probabilities of been offered a training program. Studies have also found evidence that members of trade union have better chances to participate in training programs than other employees (Orrje 2000). There are also differences in the supply of on-the job training between private and public sector organisations. In most EU countries the supply of on-the job training is bigger in public sector (Arulampalam *et al* 2003).

Personnel training affect regional development as investment in human capital. The impact of human capital investment on regional development can be explained in addition to economic growth resulting from increased labour productivity and with the external effects of human capital. Such effects can occur as hastening technological progress, caused by the improved educational level of the workforce, increasing both R&D activities and introducing new technologies in the companies operating in that region. The externality is created as more productive labour is open to all firms, regardless of their contribution to investment in human capital. (Sarquis *et al* 2002) Human capital investment can also lead to higher investment in physical capital as the improved skills of workforce allow the firms to use new types of machinery. Higher investment in physical capital can cause an increase in employment. In some cases employees, who did not participate in training programs will benefit from human capital investment too. For example, if the educational level of employees in some region rises, it may contribute to the development of entrepreneurship there. In many cases it results in the increase in demand not only for high-skilled labour but also for low-skilled labour. It can happen if unskilled labour is complementary to skilled labour. Then it is possible that low-skilled workers who did not receive training will benefit from investment in human capital of high-skilled workers due to rise in labour demand they will receive higher wage and/or they will have better employment possibilities. This example has been used as explanation for geographical convergence of enterprises into certain areas and regional wage differences (Acemoglu 1996).

As human capital investment is important for regional development and the most important types of human capital are education and on-the job training, it implies that educational policy is one of the main factor influencing regional development. As training takes place both inside and outside of the companies

then both the existence of good educational system and the decent organisation of on-the job training at the company level are essential for the creation of human capital (Cook, Leydersdorff 2006). The changing content of work and demand for more flexible labour will increase the importance of general training. According to the previously presented theoretical considerations firms may lack incentives to provide general training. Therefore public sector support to general training could be beneficiary, especially when positive externalities to regional development are taken into account.

3. Data and methodology

In this paper on-the job training is investigated on the example of one Estonian county – Järva County (Järvamaa). Järva County is located in the centre of Estonia. It is an average Estonian county in terms of both its area (2623 sq km) and population (39 000). Järva County has two towns (Türi, Paide) and 14 rural municipalities. A large part of the population, as well as the core functions of the economy is concentrated around the cities of Paide and Türi. The geographical position of the county can be considered quite favourable, as the distance between Paide and the capital of Estonia (Tallinn) is less than 100 km and the road connecting Tallinn with the second largest city in Estonia (Tartu) passes through the county. (Tiirinen 2000)

The labour market situation in Järva County compared to other Estonian counties is described as a remarkably lower educational level of labour force in comparison to Estonia as a whole. For example, in 2002, only 7% of Järva counties population aged at least 10 years had higher education, but on the average 13% of Estonian population aged at least 10 years had higher education. 42% of Järva County population had secondary or vocational education, in comparison with the Estonian average of 47%. The main reasons for low educational level of labour force are the scarcity of high-skilled jobs and poor options to attain higher education, and that is why so many younger people have moved to bigger cities in other counties, especially to Tallinn. The wage level in Järva County is lower than the Estonian average, but it is higher than in most other counties. The average gross wage in 2003 was 5886 EEK, which was 87,6% of Estonian average. Unemployment is higher than the Estonian average; in 2003 the unemployment rate was 13,2% (Estonian average 10,0%). Only three counties (Ida-Virumaa, Jõgevamaa, Põlvamaa) had higher unemployment. The main problems of the development of the entrepreneurship in the county as seen by the county government are low density of population,

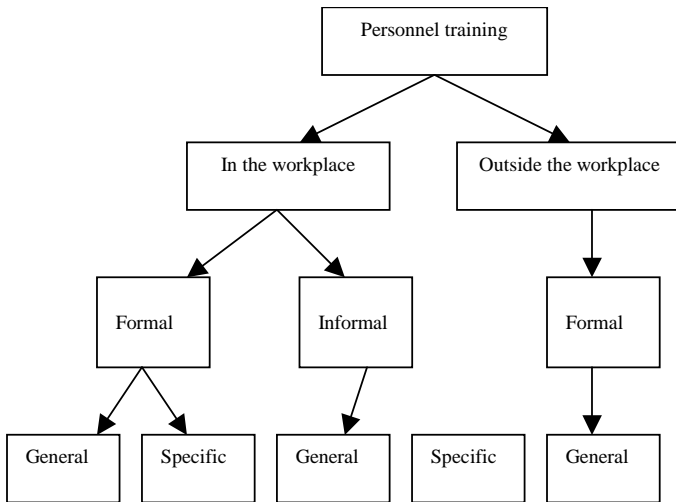
high share of primary sector in the economy, inefficiency of production, low level of investment and low educational level of labour force.

The data used in this paper is acquired through a questionnaire survey among employers about the supply of personnel training both in the workplace and outside the workplace. At the beginning of year 2003, there were 824 enterprises in Järva County, which were registered at the Estonian Central Commercial Register. For the survey 400 of these companies were selected for the sample. The sample design was based on the combined random sampling method. First, Järva County was divided into five regions. All companies with 40 or more employees were included in the sample, and additionally a random sample of smaller companies (50 in each region) was also included. The survey was conducted by telephone interviews with the representatives of the companies. The problem here is that in case of different companies people with different relation to the company (managers, accountants, secretaries etc.) have answered the questionnaire, which may affect the results of the survey. The other problem with the data is that big companies are over-represented in the sample due to the application of such sampling method. The reason for using such technique was caused by the demands from Järva County government, who financed the survey and was interested in interviewing bigger companies. Bigger companies were also considered to have a more detailed perspective of their future employment figures. In total, 168 companies answered the questionnaire, which is 20,4% of the companies in Järva County. The response rate of the survey is 42%. According to Curtin *et al* (2005) the response rate of the employer telephone surveys ranges usually from 40 to 60% in developed countries. If the complexity of the survey is taken into account then the response rate could be considered as satisfactory.

In the survey training programmes are differentiated by their content and place of training. By content, two different types of training programs are perceived in the survey – programs, which are directly addressed to developing the professional skills of workers and other programs, which provide more general skills or knowledge. It would not be correct to say that the first type of training is specific and the second type is general training. It is quite obvious that the second type of training is general, but in case of the first type it can be either general or specific. Based on the place of training it is possible to distinguish between training outside the workplace and in the workplace. Training outside the workplace can be considered as general training, but training in the workplace can be either general or specific. It is also possible to distinguish between formal and informal training. Formal training includes formal training programs, seminars etc., informal training includes guidance from fellow workers, explanation of job characteristics and other types of informal

activities, which help employees improve their performance. In our survey only the formal training is accounted for. Different types of training programmes are summarized in figure 1.

Figure 1. Types of personnel training (Ericson 2005)



The questionnaire was not only limited to training programmes, it also included questions about the forecast of the number of employees in the future, recruitment of graduates from local vocational schools and satisfaction with their work performance and opinion on the cooperation of local authorities and companies.

In the 168 enterprises which participated in the survey, total of 5,764 people were employed in 2003. Unfortunately, not all the firms did reveal their forecasts about future employment, but only 140 of them did so. In the following analysis it is assumed that those companies, which did not give information about the planned number of employees in 2007, will have the same number of employees in 2004 and 2007. That assumption may cause downward bias in the estimated number of employees in 2007, but it at least gives a possibility to compare the forecasts for 2004 and 2007.

4. Empirical analysis and discussion

As the demand for on-the-job training depends on the number of employees, firms were first questioned about the present and future labour demand. According to the employers' plans employment will increase by 4,5% in 2004, and by 9,8% from 2003 to 2007. Thus, the planned increase in employment will create extra demand for personnel training.

Next, the companies were asked about forecasts of employment in different occupations. In this paper four different types of occupations are singled out: managerial workers, specialists, skilled workers and unskilled workers. In 2003 there were 475 managerial workers, 763 specialists, 3015 skilled workers and 1511 unskilled workers employed in the companies included in the sample (table 1).

Table 1- Employment forecast by occupations*
(number of workers employed in 2007)

Occupation	2003	2007	Difference
Managerial workers	475	477	2
Specialists	763	817	54
Skilled workers	3015	3468	453
Unskilled workers	1511	1572	61
Total	5764	6334	570

*Note: Occupational categories are obtained by aggregating the major occupational groups from the ISCO88 classification. Managerial workers include legislators, senior officials and managers. Specialists include professionals, technicians and associate professionals. Skilled workers include clerks; service workers, shop and market sales workers; skilled agricultural and fishery workers; craft and related trades workers; plant and machine operators and assemblers. Unskilled workers consist of elementary occupations.

Source: author's calculations

We can see from table 1 that firms plan to increase the number of skilled workers by 15%, the number of specialists should grow by 7%. At the same time the increase in number of unskilled workers is planned to be modest and the number of managerial workers should not grow at all. These forecasts are quite similar to the ones in other European labour markets, where there is a growing demand for specialists and skilled workers. The fact that the total number of employees is expected to grow indicates that companies in Järva

county plan to enlarge their production, but at the same time they want to lower the share of managerial workers.

These employment forecasts should be used with caution as most of the firms have reported that they do not make long term plans about employment as only 17% of the companies plan their use of labour force for longer period than a year (29% of the companies make no plans at all in this field).

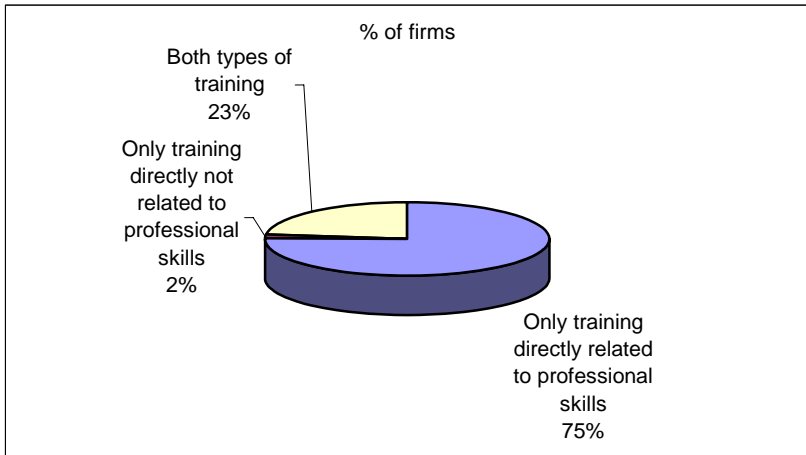
Although the companies do not make usually long term plans for personnel training, the results of the survey show that 73% of enterprises, which answered the questionnaire, have offered their workers some form of training at least once during the whole existence of their activity. 72% of the companies have financed training outside workplace and 52% of companies have organised training in the workplace. It is worth mentioning that 52% of firms have offered their employees both types of training, 19% of them have only financed training outside the workplace and 2% of firms have only organised training in the workplace. These results show that financing training outside the workplace is used in a greater number of firms than training in the workplace, which is in most cases used as an addition to training outside the workplace. As training outside the workplace could be considered as general training, these results show that most companies in Järva County have financed general training of their employees.

When considering the content of the training program, then it appears that most companies, which have offered their workers training, have given training only specifically related to their professional skills (figure 2).

Training directly related to professional skills may be general or specific). Although it will be reasonable to guess that in most cases these types of training programmes are specific, there is no possibility to test in with these data. But it is possible to say that the other types of training programmes, which are not directly related to professional skills, complement the first type of training programmes as there exist only very few companies, who have offered training directly not related to professional skill but have not offered training directly related to professional skills.

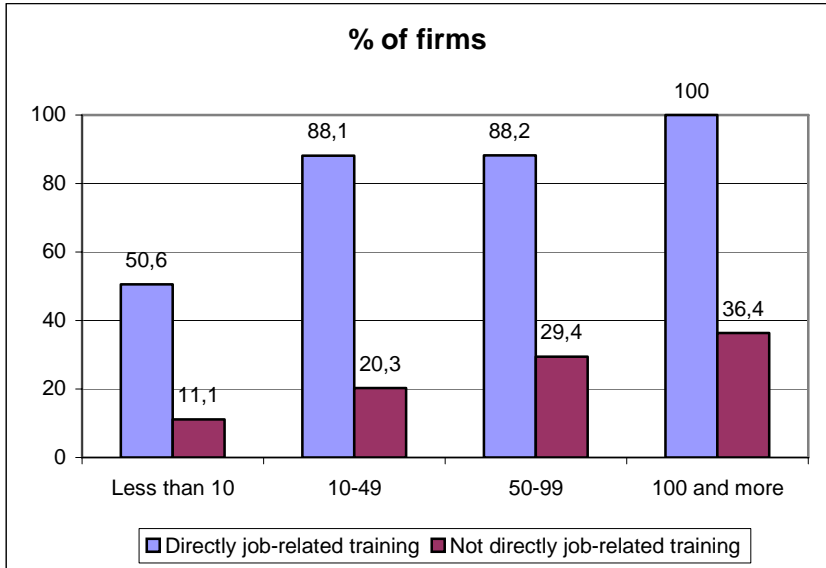
The empirical results also give evidence that bigger companies are more likely to finance the training programs of their employees. Additionally, bigger companies spend more money on training in absolute terms. It could be seen from figure 3 that bigger companies are more likely to offer both directly job-related and also not directly job-related training. In case of not directly job-related training the differences are somewhat larger as an overwhelming majority of companies with at least 10 employees have provided directly job-related training.

Figure 2. Types of personnel training offered in Järva County



The average expenditure on personnel training in 2003 was in the amount of 42 400 Estonian kroons, which is 0,26% of the total turnover of the companies. If only these companies, which offered their employees training in 2003, are accounted for, then the average expenditure on training was 62 800 kroons, which is 0,35% of the turnover. The average expenditure on personnel training per employee was 1400 kroons. In case, only these companies, which offered their employees training in 2003, are included in the sample, then the average expenditure on training was 2000 kroons per employee. Training expenditures are dependent on the number of employees in the firms. Bigger companies spend greater amounts of money on their employees training, but the share of training expenditures in turnover is not significantly bigger in case of companies with more workers (table 2). Therefore bigger companies tend to spend more on training in absolute but not in relative terms.

Figure 3. Personnel training by the number of employees in company



If we have a look at expenditure on personnel training per employee, there seems to be no great differences in the average training expenditure per employee if all firms are accounted for. But there appear to be economics of scale in personnel training for companies, which offered their workers training in 2003, expenditure on training per employee is declining as well as the number of employees.

In addition to differences in personnel training by company-specific characteristics, training according to different occupations was also investigated. Three different types of occupations were investigated in this case: managerial workers, specialists and skilled workers. The training of unskilled workers is not examined in this paper. These occupational categories are the same as it was described previously when analysing employment forecasts.

Table 2- Expenditure on personnel training by the number of employees

(in Estonian kroons)

Number of employees	Training expenditure		Training expenditure % in turnover		Training expenditure per employee	
	All firms	Offered training in 2003	All firms	Offered training in 2003	All firms	Offered training in 2003
less than 10	5700	12200	0,29	0,53	1550	3070
11-50	38300	44800	0,21	0,25	1390	1620
51-100	87500	103300	0,21	0,25	1050	1250
more than 100	264000	264000	0,38	0,38	1420	1420

Source: author's calculations

According to table 3, specialists inside the company are used mainly for training skilled workers. Training in the workplace by training companies is not a very common type of training and it is used mostly for specialists and skilled workers. It means that training in the workplace, which includes specific training is more frequently offered to lower categories of occupations, especially to skilled workers. In case of courses in vocational schools or universities there are no significant differences for different occupations. The most popular type of training is training outside the workplace by training companies, it is widely used in case of all free occupations, but it is used particularly often for training managerial workers and specialists. Training in foreign countries is used rarely and mostly for managerial workers and specialists. Training programs organised by employers unions or purchasers are offered most frequently to specialists. Attendance on trade fair, seminars and conferences is financed most often in case of managerial workers and specialists. All these facts show that training outside the company, which can be regarded as general training is financed most often for high-skilled occupations (managerial workers and specialists). As the number of skilled workers is planned to increase in the future then there will be relatively more demand for specific training as skill workers are mainly offered specific training.

Table 3- Provision of different types of personnel training by occupations

(% of companies offering that type of training)

Type of training	Occupation		
	Managerial workers	Specialists	Skilled workers
Training in the workplace using specialists inside the company	7,7	13,1	26,8
Training in the workplace by Estonian training companies	8,3	13,1	14,9
Courses in vocational schools or universities	18,5	17,3	17,9
Training outside the workplace by Estonian training companies	32,1	33,3	17,9
Training in foreign countries	7,7	7,1	1,8
Training organised by employers unions	14,3	17,3	8,9
Training organised by purchasers	12,5	21,4	12,5
Attendance at the trade fares	32,7	32,1	17,9
Attendance in seminar, conferences	36,3	23,2	6,5
Other	0	0	0,6

Source: author's calculations

If we have a look at the educational level of employees with different occupations then according to table 4 the majority of managerial workers have higher education, whereas specialists have most frequently vocational or higher education. Skilled workers have usually vocational or secondary education and unskilled worker have mostly secondary or compulsory education.

As managerial workers and specialists are offered general training at greater extent and skilled workers are trained mostly in the workplace, it could be concluded that general training is offered mainly to employees with higher or vocational education. Workers with secondary education receive more training in the workplace. Unfortunately, nothing can be said about workers with compulsory education as these workers are in the majority of cases classified as

unskilled workers and different types of training programs were not established in case of their training.

Table 4- Level of education by occupations

(% of companies, which have mostly workers with this level of education)

Occupation	Level of education			
	higher	vocational	secondary	compulsory
Managerial workers	59,9	24,8	15,3	-
Specialists	30,3	49,5	19,2	1,0
Skilled workers	1,8	44,2	48,7	5,3
Unskilled workers	1,3	12,7	45,6	40,5

Source: author's calculations

Conclusions

In this paper the supply of personnel training in Järva counties companies was investigated. The results of the analysis indicate that the firms in Järva County tend to be quite optimistic about the growth of employment in the future. During the subsequent three years of the survey employers plan to increase total employment on the average by almost 10%. There are remarkable differences in the plans of employment increase across different occupations. Specialists and skilled workers are the categories, whose employment is planned to increase most rapidly, but on the other hand the employment of unskilled workers is planned to grow only modestly and the number of managerial workers is not supposed to grow at all. The negative aspect of these forecasts is that they are not very reliable, as most of the companies do not make long term plans about employment and personnel training.

The results of the questionnaire show that approximately three fourths of the firms in Järva County had some experience in training or financing the training programmes of their workers and all together more than half of the firms have organised personnel training inside the company. When distinguishing between training in the workplace and outside the workplace it can be stated that training outside the workplace is used more often and training in the workplace is in most cases used as an additional type of training besides training outside the workplace. As training inside the company could be regarded as firm-

specific, then this result indicates that firms offer specific training at greater probability than general training. This result corresponds to the human capital theory.

To conclude, bigger companies offer more training and they tend to offer more non-job-related training programs than smaller firms. The costs of personnel training are dependent on the size of the firm. It brings about that bigger companies spend larger amounts of money on their employees training in absolute terms. There appear to be economics of scale in personnel training, as the training costs per employee are lower in the companies with the largest number of employees.

There exist also big differences in training at the occupational and educational level of the employees. The results of the analysis indicate that training outside the company, which can be regarded as general training is financed most often for high-skilled occupations (managerial workers and specialists). Based on the level of education it can be concluded that general training is provided mainly to employees with higher or vocational education. Workers with lower educational levels are offered more company or workplace specific training.

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