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***Job Creation, Job Destruction and
Growth of Newly Established,
Privatized and State-Owned Enterprises
in Transition Economies:
Survey Evidence from Bulgaria, Hungary, and Romania***

by Valentijn Bilsen and Jozef Konings

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Abstract:

This paper reports new and unique firm level survey evidence to investigate the micro economic nature of the growth process and structural change in three transition countries, Romania, Bulgaria and Hungary. In particular we investigate gross job creation and destruction in newly established private (*de novo*) firms and “traditional” ones, being state owned and privatized firms and find that the *de novo* private firms are the most dynamic ones in terms of job creation. In addition, we find that job reallocation in the early years of transition occurs predominantly between sectors, while later on in the transition more within sector job reallocation is observed.

After controlling for size and life cycle effects we find that *de novo* private firms consistently outperform the state owned and privatized enterprises. In addition, we find that state owned enterprises are not significantly different in their employment behavior from privatized firms. We find mixed effects of competition on employment growth. They vary according to sector and country. Finally, we find evidence that suggests efficiency wage payments are important for employment growth in Hungary, but not in Romania and Bulgaria.

Non-Technical Summary:

In recent years a substantial literature emerged on the process of economic restructuring in transition countries. Transition implies a collapsing state sector and a growing private sector. The reallocation of resources from the state sector to the private sector can lead to unemployment. If the private sector is not growing sufficiently, increasing and persistent unemployment might result, which could block further economic reforms.

In this paper we investigate the nature of employment growth and reallocation in three transition countries, Romania, Bulgaria and Hungary. In particular, we investigate gross job creation, destruction and reallocation over time, within sectors and

according to different ownership categories of firms. To this end we use firm level data of more than 300 firms, collected by local teams of interviewers. We find that the job creation rate in all three countries is very low and the job destruction rate is high at the start of transition, but then reduces over time. In addition, the job destruction is largest in the manufacturing sector, while job creation is more important in the trade and service sector. We also find that at the start of transition job reallocation occurs predominantly between sectors while later on in the transition more within sector job reallocation takes place. Job creation is disproportionately concentrated in the “de novo” private firms, while job destruction is high in the state and privatized firms.

The paper ends with a regression analysis of employment growth at the firm level and finds that “de novo” firms outperform privatized and state owned enterprises, with no difference in employment performance for the two latter categories. This result holds after controlling for size, age and sector effects. In addition, in Hungary we find suggestive evidence that firms that pay efficiency wages have better performance.

Keywords: job creation and destruction, ownership, growth;

JEL classification: J6, L0, O5

I. Introduction

In recent years a substantial theoretical literature has emerged on the process of economic restructuring in transition economies. As described by Blanchard et al. (1995) there are two extreme views of transition: the first is that the main force behind the reform process involves the collapse of the state sector, not adapting to the changed market environment, with a slowly emerging private sector. The growth in the private sector is not sufficient to pick up the slack in the state sector leading to high and persistent unemployment and hence unemployment could slow down the desired restructuring of the state sector and other general reforms. It is for this reason that the optimal sequencing of reforms might matter. While Aghion and Blanchard (1993) stress the role of unemployment in "blocking" reforms, Roland (1994) stresses the role of political constraints which necessitate a gradual approach to restructuring. The second extreme view of transition is that the main force behind transition is the rapid growth of the private sector, thereby absorbing the laid off workers in the state sector. In this case unemployment is a consequence of a healthy process of reallocation. This does not exclude the possibility of a high unemployment pool, what matters is a high turnover of that pool which is necessary for efficient reallocation.

In this paper we investigate the micro economic nature of the employment growth process in three transition countries - Romania, Bulgaria and Hungary - by using a new and unique firm level data set obtained by surveys carried out between December 1995-February 1996. We measure performance in terms of gross job creation, destruction, reallocation and net employment growth at the firm level. With gross job creation we mean the sum of all employment gains at expanding firms, while gross job destruction refers to the sum of all employment losses at all contracting firms expressed as a positive number. The sum of the two gives a measure of gross job reallocation.

Measures of gross job flows can also be interpreted as indicators of restructuring. An example can clarify this point. Suppose the employment growth rate in the manufacturing sector is -2%. This could be the result of a gross job creation rate of 1% and a gross job destruction rate of 3%. Alternatively, this could be the result of a gross job creation rate of 10% and a gross job destruction rate of 12%. Obviously, the latter suggests a much more turbulent labor market than the former, which could be

explained by factors such as labor market institutions and product market competition. It can also be interpreted as evidence of more active restructuring in firms and for the sector as a whole.

In the context of transition countries it is interesting to investigate whether the “turbulence” in labor markets is relatively low or high. The latter suggests an active and dynamic process of restructuring. Also, in transition countries employment has been declining, yet, it is important to know whether despite the decline in employment there are also firms that have created jobs. In addition, one can expect that in transition countries a substantial reallocation of jobs between sectors will occur. With market forces emerging, it is expected that a number of traditional industries could disappear and a number of new ones will emerge. In particular, in the old system the service and trade sector were underdeveloped, so a reallocation of jobs and other resources from manufacturing to newly emerging sectors can be expected. But also within the manufacturing sector a reallocation of jobs between different types of firms could occur, from for instance state owned enterprises to privatized and newly established private firms. Those issues cannot be addressed by using macro data on employment, but they can be studied with using gross job flows as is done in a number of applications to Western markets (Davis and Haltiwanger, 1992; Konings, 1995).

Another important motivation of this paper is related to the evidence that is gradually accumulating on the relative performance and dynamism of various ownership structures in transition economies¹ In particular, *de novo* private firms seem to outperform privatized and state owned firms, with little difference in performance for the two latter categories. The results in this paper provide new evidence on the nature of the growth and restructuring process of the *de novo* private sector and how their behavior is different from the “traditional” firms, i.e. state owned and privatized firms. We hope to gain some insights into the extent of the stock adjustment process and of the potential for further growth once this process has come to an end (Blanchard, et al., 1995). In particular, one can expect rapid growth in the small and medium-sized enterprise sector (SME), initially filling up the missing SME niche, followed by a slowdown once this niche is filled. We report evidence that performance by new

private firms is driven by both ownership, life-cycle effects and size effects, yet they are different in each of the three countries considered.

In section II we discuss the data used and its main characteristics. Section III reports results for job creation and destruction and section IV explores a relationship between employment growth and firm level characteristics such as ownership, size, age and other factors. Section V concludes the paper.

II. Data

The data that we use are based on firm level surveys in 431 enterprises in Romania, Bulgaria and Hungary. Firm level data which can be compared across countries in transition economies were and still are quite scarce. The available official statistics do not provide individual firm level data. Balance sheet information deposited at the national bank or other offices, is not easily accessible. In the rare case where firm level data are provided there is a significant minimum cut-off size of the firms and usually for a limited number of variables. More importantly, official data on newly established private firms are often missing and not reported. This can be related to the typical small size of new firms and/or registration lags. Yet, the group of the *de novo* private firms can potentially play a crucial role in the process of transition so acquiring more information on this group of firms is important (e.g. Richter and Schaffer, 1996). For these reasons we opted for collecting firm level information by carrying out surveys on the basis of personal interviews with the general manager and/or some other key managers of firms.

The firms were selected from different business registers as well as from address books and databases from local research institutes. The last source is valuable especially for selecting micro firms, since they are often too small to appear in any business register.

The sample was stratified in two strata: 50% of the firms were drawn from *de novo* or newly established private firms, the other half was drawn from state owned and privatized enterprises. Previous empirical studies based on individual firm level data for Poland and Russia found a marked difference in performance between pre-transition firms and *de novo* firms; see e.g. Belka, M. et al (1995). Johnson, S.,

Loveman, G. (1995), Richter, A., Schaffer, M.E. (1996), Earle, J., Estrin, S., Leshchenko, L. (1996). The *de novo* firms were selected in manufacturing, trade and services. Traditional firms were mainly selected from the manufacturing sector² There was no additional sample restriction imposed, except that the regional distribution at the level of the province had to reflect the geographical concentration. The interviews for Bulgaria, Romania and Hungary were performed in the period of December 1995 - February 1996. We covered 431 firms, of which 115 in Bulgaria, 100 in Hungary and 119 in Romania. The average duration of the interview was about 2 hours. The questionnaire covered various topics such as aspects of industrial relations, competition, employment, firm organization and ownership among others³ Often the interviewers visited the firm two times, or contacted the firms through telephone after the first interview. This was necessary to clarify some answers and to obtain answers on certain questions which could not be given immediately. For instance, we asked a retrospective question on the size of the workforce for which either the respondent had to consult his files first or because the appropriate department of the firm had to be contacted. Without exception in all countries the respondent was either the director/owner of the company or a high-ranking manager who had a significant impact on the firm's strategy.

We constructed three ownership categories, *de novo* private firms, 100% SOE's and privatized firms. The *de novo* firms are those which are private since they were established and for which the date of operation starts after 1989⁴ This category of firms does not contain spin-offs from previously state owned firms or firms that merely changed their name. This was controlled for using information from a question on the ownership history of the firm. Firms that indicated that they were previously a part of or a complete state enterprise did not occur in the *de novo* group. The second category refers to firms which are for 100% in state hands. The third category includes privatized firms. Privatized firms are defined as firms that started operation before transition and where the state owns less than 100% of the shares. Within the sub-sample of traditional firms, the selection of state owned and privatized firms was random. Business registers were used to draw these firms. In table 1 an overview of the ownership shares in the sample is provided. In Bulgaria and Hungary

the majority of privatized enterprises in our sample was completely in private hands, while in Romania only 15.6% of the privatized firms was fully in private hands.

Table 2 gives the sample structure and summary statistics on size and employment growth for those three categories in each country. The average size of a *de novo* firm is typically small although in Hungary an average employment level of 102 is substantially larger than in Romania and Bulgaria. This could reflect the more advanced state of the reforms in Hungary. A few *de novo* firms show a relatively high employment size. It appeared that these firms benefit from substantial foreign capital investment.⁵ The average employment growth in *de novo* firms is positive in all three countries with Romania and Bulgaria having higher growth rates than Hungary⁶. Again this could reflect the stage of economic development. Note that the average growth rate of privatized firms in all three countries is negative and that it is very similar to those of SOE's.

III. Results on Job Creation and Destruction

In this section we start with showing job creation and destruction rates for the three countries, then we look at different splits of the sample. We look at job creation and destruction rates according to ownership type and according to sector. Following the literature⁷ the *gross job creation rate (JC)* is derived from summing all job gains in expanding firms expressed as a fraction of all jobs in the sector (economy; size class) a year earlier⁸. Similarly, the *gross job destruction rate (JD)* is the sum of all job losses in contracting firms relative to the total number of jobs. The sum of the two gives a measure for job reallocation, called the *gross job reallocation rate (JR)*, while the difference gives the *net employment growth rate (NET)* in a sector (economy).

In table 3 we report the job flow measures for the entire sample for the years 1991-94. Since retrospective questions on employment were asked, it was possible to compute the job creation and destruction rates from 1991 onwards. The effect of the reforms can be seen in all three countries by the high job destruction rate and the low job creation rate in 1991-92. Over time the job destruction rate reduces and the job creation rate remains very low. The low job creation rate is consistent with the low outflow rates from unemployment reported for countries in transition.

A potential problem with these rates is that they refer to continuing firms only. We do not have information on exit rates of firms. So the reported job destruction rates can be seen as lower bounds to the true rates. For the year 1991, Konings, Lehmann and Schaffer (1996) use a larger sample for Poland and find a job destruction rate of 17.6%. When an attempt to include job destruction resulting from exit was made, the result increased to 18.2%. Often identifying a “true” exit proves to be quite difficult as it is sometimes not possible to distinguish between an exit and a change in name or a breaking up of an enterprise.

In what follows we will not focus on how firms responded to the initial shocks of 1991 and 1992, instead we will concentrate on the data referring to 1994. It is reasonable to assume that the initial shocks have been absorbed by 1994. In table 5 we look at the gross job flow measures for the three countries according to ownership, *de novo*, SOE and privatized firms, the latter two we refer to as “traditional” firms. The difference between the “traditional” firms and the *de novo* firms is striking. The *de novo* sector has the highest job creation rate and lowest job destruction rate. This is especially so for Bulgaria and Romania, the opposite result holds for the “traditional” sector. While Bulgaria and Romania show the same pattern as far as the asymmetry concerns between job creation and destruction in the *de novo* sector, this is not so in Hungary with a job creation rate of 6.1% and a job destruction rate of 5.1% for the class of firms. This suggests that Hungary is more advanced and approaching a steady state situation in which by definition job creation will equal job destruction, while in the two other countries the adjustment process is still under way. Comparing the SOE and the privatized firms, the job creation rate in both categories is very low. The job destruction rate for both classes of firms is high, but privatized firms have higher job destruction rates than SOE’s. This suggests that privatized firms restructure more than SOE’s, which one would expect. However, the difference between SOE’s and privatized firms is not that high as one would perhaps have expected.

In order to assess the contribution of the different ownership categories in absolute numbers of jobs created we computed the job creation and destruction shares of the respective categories as a fraction of the total number of jobs created and destroyed in the sample. In table 4 it can be seen that in Romania and Bulgaria more than 60% of all jobs are created in *de novo* firms although they only account for a very small

fraction of total employment in the sample. In Hungary this share is only 31%, but is still substantial given that the weight of this category is only 7% in the sample. The reason why the job creation share is lower in Hungary is probably a reflection of the timing of the adjustment process and could be an indication of a potentially emerging stock adjustment problem (Blanchard, Commander and Coricelli, 1995). The filling of the SME niche in Hungary started earlier and is now reaching comparable levels as in other market economies. Thus the initial explosive growth of this niche, as reflected in Romania and Bulgaria, is a catching-up effect. Once this is over, growth will slow down. The potential problem is related to the question of whether this niche will remain equally dynamic once it has been filled up. Yet, arguably four years in the transition the initial stock adjustment will have occurred and still substantial growth is observed. The job destruction shares in *de novo* firms are about proportional to their relative weight in the sample.

The above results indicate a process of a Schumpeterian competition with simultaneous creation and destruction of jobs. The *de novo* private firms are the most dynamic ones in terms of job creation, while the "traditional" firms are the ones that destroy most jobs. The above results, however, do not show any sectoral differences. Yet, presumably the manufacturing sector, characterized by more traditional firms, will probably show a different pattern of job flows than say the service sector, a relative young sector. The latter was virtually non-existent in the old system. In table 5, we show the gross job flows for three broadly defined sectors in our sample, manufacturing, trade and services. It is interesting to note that the job creation rate in manufacturing is very low, while job destruction is high in all three countries. Also in all three countries, there is no asymmetry between the job creation rate and the job destruction rate in the trade sector, suggesting this sector is in equilibrium. The service sector in all three countries is characterized by a very high job creation rate, but a low job destruction rate, which reflects that most *de novo* firms are in the service sector. Looking at the gross job reallocation rate, it is lowest in manufacturing, followed by Trade and then by Services. This is true in all three countries. In other words, the reallocation of jobs and the patterns of job creation and destruction are very different in different sectors. This could be explained in several ways, for instance, it could be the consequence of the potential market niches in the different

sectors, or of the toughness of competition firms face in these sectors. While table 5 suggests that especially in the trade sector there is a substantial reallocation of jobs between firms, within one sector, it also suggest that there can be considerable reallocation of jobs between sectors. To assess the importance of *within* and *between* sector job reallocation, we computed the following index, an index of intra-industry job reallocation (*IJJ*):

$$IJJ = 1 - \frac{\sum_j |net_j|}{\sum_j JR_j}$$

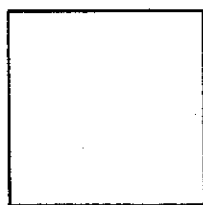
where *j* stands for sector. If this index equals 0, then the job reallocation occurs entirely *between* sectors, if it equals to 1, then the job reallocation occurs entirely *within* sectors. Table 6 shows this index for the years 1991-94. The pattern for the three countries is very similar. While at the start of transition, job reallocation occurred predominantly *between* sectors, later on in the transition job reallocation occurred also *within* sectors. This is especially so in Hungary, where the index in 1994 equals 0.70. With the collapse of communism it can be expected that jobs will move especially from declining sectors to growing sectors and this is confirmed by table 7. With transition well under way a “healthy” process of reallocation takes place within sectors. Of course, the sectoral classification we used here is a very crude one and more information can probably be revealed if one uses a more disaggregated classification. With the current data this was not possible.

From those cross tabulations we learn that there are substantial differences regarding the relative dynamism of *de novo* firms versus “traditional” firms. It seems also that Hungary is more advanced and that it underwent most adjustment by 1994, while in Bulgaria and Romania adjustment is still under way. However, it is not clear whether the above results truly reflect ownership differences or whether they reflect size, sector, learning or other effects. We will take up this issue in the next section.

IV. What drives employment growth?

In this section we move from job creation and destruction measures for some aggregate, like sector, ownership category to analyzing the determinants of job

creation and destruction at the level of the individual firm. The process of job creation and destruction is ultimately linked to the underlying process of firm growth, which in turn determines industry structure. The central theme we are interested in is whether we can find any statistically significant effect in the process of firm growth which can be attributed to the ownership structure, thus after taking into account size, sector, learning and other effects. If we do, then the different results on job creation and destruction for *de novo*, SOE's and privatized firms reported in the previous section also truly reflect ownership effects. We follow Konings et al. (1996) and specify the following relationship for the average growth rate of firm i ,



$$+ \alpha_5 \ln a_{it^0} \times own_i + \alpha_6 other_i + \varepsilon_i$$

where subscript i stands for firm i , n is employment, $d = 1994-t^0$, t^0 stands for the start-up year or 1990 for the "traditional" firms, which reflects the initial conditions firms were facing at the start of transition, a is age of the firm, own represents ownership dummies and ε is an error term. Age reflects the learning experience of the firm. The initial size shows the opportunity to capture the market opportunities at the start of transition or at the start of the new firm. For established market economies both age and initial size have a negative effect on employment growth (e.g. Dunne, Roberts and Samuelson, 1989). *Other* contains variables that control for sector, competition in the product and labor market characteristics.

We used robust regression analysis to estimate the above equation (Hamilton, 1991). Robust estimation achieves almost OLS efficiency in situations where the error term is independently but not normally distributed. We believe this is a sensible approach given that there are a number of outliers in both categories of firms and that we are dealing with transition data⁹

Tables 7a, b and c show the results for respectively Bulgaria, Hungary and Romania. In the first column we only allow for an intercept effect of ownership, while in the second column we also allow for slope effects. We concentrate our discussion on the

second column. Starting with Bulgaria, there is a negative initial size effect for SOE's firms of -0.04, for the *de novo* firms this size effect is amplified as can be seen from the interaction term. Interestingly, the age effect is absent for SOE's and privatized firms. This could be explained by the fact that "traditional" firms are typically very old (average age is over 30 years) and if there are significant decreasing returns to learning, the learning effect should vanish after a few years. The *de novo* firms in contrast have a negative age effect. A negative age effect is found because older firms tend to be closer to their optimal (efficient) size and have therefore less growth potential. Finally and most importantly the *de novo* private firms have a significantly higher growth rate than the SOE's, although the growth rate differential decreases with age and size. Another striking result from this regression is that privatized firms do not have a statistically significant different growth rate than SOE's. Thus privatized firms are not that different from SOE's.

Turning to Hungary, the results are different. The regression performs fairly bad as no of the coefficients is estimated to matter statistically. Only for *de novo* firms age has a statistically significant negative impact on firm growth, as can be seen from column (2). So ownership effects do not matter in Hungary.

In Romania the *de novo* firms perform significantly better than the SOE's. Moreover, just as is the case in Bulgaria, privatized firms have on average the same employment growth rates as SOE's. Also, the growth differential between *de novo* firms and traditional ones disappears with initial size, but not with age. Thus, while in Bulgaria we observed that there is also a negative age effect for the newly established private firms this is not so for Romania.

From the above we find that a common feature which can be observed for both Bulgaria and Romania is that after controlling for size and life cycle effects *de novo* private firms outperform "traditional" ones, thus confirming the observations made earlier on gross job creation and destruction. Thus the creation of an entrepreneurial environment in which newly established private firms can foster is an important policy option to consider for transition countries. The results for Hungary, however, suggest that there are no ownership effects. This suggests that perhaps ownership effects only filter through during the early stages of transition as in Romania and Bulgaria, while in countries where the transition to a market economy is well under

way the ownership effects vanish, perhaps due to competitive pressures. We do not have any information on exit and survival rates of newly established private firms and obviously this might bias our results. However, we do control for sector effects, which can capture different exit rates across sectors. In the third column of tables 7a-c we also control for potential competitive effects. This is another way to control for the survivorship bias in our sample, as competitive pressure is related to the probability of exit. In addition, it is also interesting to investigate whether competition has any effect in transition economies, where presumably competition is emerging faster in Hungary than in Romania and Bulgaria.

In the survey, managers were asked whether they faced more than 5 competitors in their product market. So we created a dummy, *comp*, equal to 1 if they answered affirmatively, 0 if they answered yes to the question that they were the dominant firm in the market or whether they faced between 1 and 4 rivals. This is a survey based measure of competition and refers therefore to the perceived competition in the relevant product market. It is also the only possible way to obtain information on the degree of competition in transition countries for industry level measures of concentration are not available and if they are it is not clear what they reveal given the inherited system of heavy industry. We also interacted the *comp* variable with the sector in which the firm is operating. This is to take into account the fact that for instance five competitors in the service sector are not the same as five competitors in manufacturing. So, by interacting with sector, we test whether the competition effect varies with the type of industry the firm belongs to.

The higher degree of competition in Hungary in comparison to the other two countries is reflected by the number of firms that answered affirmative to the competition question. In the Hungarian sample 79% of the firms responded that they had more than 5 major competitors on their market, while in Bulgaria 66% and in Romania 50%. Looking at the effect of competition on employment growth, we find that for Bulgaria competition has a negative effect in the trade sector (as can be seen from the interaction term between competition and the trade sector dummy), but not in the manufacturing and service sector. Also in Romania, competition has a negative impact on employment growth in the trade sector, but a positive effect in the service sector. Finally, in Hungary we find a positive effect of competition in all sectors. In

Western market economies competition is generally seen as a good thing, more competition leads to better economic performance and more efficiency. The results here suggest that this is the case for Hungarian firms. The negative effects found in the trade sector in Bulgaria and Romania can suggest two things. The first is that we are picking up the early stages of competition in which inefficient firms in the trade sector experience negative effects of high competition. A second potential interpretation is that the market niches in the trade sector have already been filled up and that too much competition leads to negative effects on employment growth. It suggests that there is no further potential for growth.

Apart from investigating the effect of competition on employment growth, we also included a number of factors that are typically related to the labor market. In particular, we included a dummy that captures the wage setting strategy of the firm. The managers were asked to rank a set of factors that are most important for determining wages. We used two categories of wage determination factor, the first is related to efficiency wage payments, the second refers to factors relating to union behavior and competitive forces. We constructed a dummy equal to 1 if the most significant factor determining wages was related to the payment of efficiency wages (i.e. incentive and fairness considerations) and zero otherwise (referring to unions, available cash, competitive forces). The reason why we used these two categories are based on the distinguishing predictions on employment growth. If firms pay efficiency wages one would expect that this would generate positive effects on employment growth. This is so because one of the arguments for paying efficiency wages is based on attracting qualified people to the firm. In addition the payment of efficiency wages leads to higher firm performance in the product market, which should generate more employment growth (e.g. Konings and Walsh, 1994). In contrast, when union bargaining determines wages, the wage premia are involuntary wage increases which lead to negative effects on employment growth (e.g. Blanchflower et al., 1991).

We also included a dummy that represents the previous work experience of the majority of the employees. More specifically, a value of one indicates that the majority of the workforce worked in the same firm. The benchmark category is a firm where the majority of the employees came from outside the firm, either from another

firm, unemployment or from school. Again if the efficiency wage argument is relevant, then we should observe a positive effect of this dummy on employment growth as the firm wants to keep its best workers and wants to minimize turnover costs. In Hungary, we find evidence that the payment of efficiency wages has a positive effect on employment growth, we do not find these effects for Bulgaria and Romania. However, for Bulgaria we find that when the majority of workers was employed in the same firm this is good for employment growth. We find no evidence for this in Hungary and Romania. The results suggest that efficiency wages might matter as one of the determinants of employment growth.

V. Conclusions

In this paper we reported new evidence on the relative performance of new private firms versus privatized and SOE's in three transition economies, Romania, Bulgaria and Hungary. We measured performance in terms of job creation, destruction and employment growth. We found that job creation is disproportionately located in the new private sector and job destruction in the traditional sectors. We have indications that the Hungarian situation is more advanced and reaching an equilibrium situation in terms of job creation and destruction than Romania and Bulgaria. Growth is less explosive than in the other two countries which is consistent with reaching a steady state situation. We also report evidence that in the early years of transition job reallocation occurred predominantly across sectors, as transition proceeds more within sector job reallocation takes place.

After controlling for size and age effects we still found a positive ownership effect of *de novo* private firms in a firm level growth regression which highlights the importance of the creation of new enterprises, rather than merely transforming the old existing ones. In contrast, privatized firms do not seem to perform any differently than SOE's. Size and age effects are different for the three countries and for the three classes of firms which casts doubt on the existing empirical regularities that growth, size and age are negatively related. There are several potential explanations for this. One is that it is related to transition and that it takes time for firms to adjust to a market environment or simply that they are not profit maximizers.

We also investigated the effect of competition on firm performance. Our basic result on ownership does not change after including the competition variable. Also wage determination factors seem to matter, but only in the more advanced country, Hungary. In Hungarian firms with a wage setting strategy based on improving efficiency show significant higher growth rates. In the Bulgarian and Romanian sample this effect was absent.

References

- Aghion, P. and Blanchard, O. (1993). "On the Speed of Transition in Central Europe", *EBRD Discussion Paper No. 6*, July.
- Belka, M., Estrin, S. Schaffer, M. and Singh, I. (1995). "Enterprise Adjustment in Poland: Evidence from a Survey of 200 Private, Privatized and State-Owned Firms", *Centre for Economic Performance Discussion Paper 233*, London School of Economics.
- Bilsen, V., 1997, The Enterprise Survey for Bulgaria, Hungary, Romania and Slovakia, 1996. Questionnaire, variables, data entry, quality control and coding of the answers., LICOS, K U Leuven, 51 pp.
- Blanchard, O., Commander, S. and Coricelli, F. (1995). "Unemployment and Restructuring in Eastern Europe and Russia", in Commander S. and Coricelli, F. (eds.) *Unemployment, Restructuring and the Labor Market in Eastern Europe and Russia*, EDI, World Bank, Washington DC.
- Blanchflower, D., Millward, S. and Oswald, A. (1991). "Unionism and Employment Behaviour", *The Economic Journal*, vol. 101, pp. 815-34
- Boeri, T. and Cramer, U. (1992). "Employment Growth, Incumbants and Entrants. Evidence from Germany", *International Journal of Industrial Organisation*, vol. 10, pp. 545-65.
- Davis, S. and Haltiwanger, J. (1992). "Gross Job Creation, Gross Job Destruction and Employment Reallocation", *Quarterly Journal of Economics*, Vol. 106, pp. 819-863.
- Dunne, T., Roberts, M. and Samuelson, L. (1989). "The Growth and Failure of US Manufacturing Plants", *Quarterly Journal of Economics*, Vol. 104, pp. 671-698.
- Earle, J. and Estrin, S. (1994). "Employee Ownership in Transition", paper presented at the World Bank/ Central European University Conference on Corporate Governance in Central Europe and Russia, December.
- Earle, J., Estrin, S. and Leshchenko (1996). "Ownership Structures, Patterns of Control, and Enterprise Behaviour in Russia", forthcoming in S. Commander, Q. Fan and M. Schaffer (eds.), *Enterprise Restructuring and Economic Policy in Russia.*, EDI/World Bank.
- Hamilton, L. (1991). "srd1: How Robust is Robust Regression?" *Stata technical Bulletin*, 2, pp. 21-26.
- Johnson, S., Loveman, G. W., (1995), *Starting Over in Eastern Europe. Entrepreneurship and Economic Renewal.*, Harvard Business School Press, Boston, Massachusetts, 262 pp.

Konings, J. (1995). "Gross Job Creation and Destruction in the UK Manufacturing Sector", *Oxford Bulletin of Economics and Statistics*, Vol. 57, pp. 5-25.

Konings, J. and Walsh, P. (1994). "Evidence of Efficiency Wage Payments in the UK: Evidence from firm level panel data", *Economic Journal*, Vol. 104.

Konings, J., Lehmann, H. and Schaffer, M. (1996). "Job Creation and Job Destruction in a Transition Economy: Ownership, Firm Size and Gross Job Flows in Polish Manufacturing 1988-91", *Labor Economics*, forthcoming.

Richter, A. and Schaffer, M. (1996). "Growth, Investment, and Newly-Established Firms in Russian Manufacturing", Commander, S., Fan, Q. and Schaffer, M. (eds.), *Enterprise Restructuring and Economic Policy in Russia*, EDI/World Bank.

Roland, G. (1994). "On the Speed and Sequencing of Privatisation and Restructuring", *Economic Journal*, Vol. 104, pp. 1158-1169.

Table 1 The state and private ownership shares in the privatized firms.

	Bulgaria	Hungary	Romania
number of privatized firms <i>(as percentage of the total sample)</i>	17 <i>(14.8)</i>	49 <i>(49.0)</i>	45 <i>(38.7)</i>
of which: number of firms 100% in private hands <i>(as percentage of privatized firms)</i>	15 <i>(88.2)</i>	29 <i>(59.2)</i>	7 <i>(15.6)</i>
of which: number of firms partly in state's hands <i>(as percentage of privatized firms)</i>	2 <i>(11.8)</i>	20 <i>(40.8)</i>	38 <i>(84.4)</i>
average share of the state in %	84.6	39.3	68.5

Table 2 Summary Statistics Sample

	number of firms	average employment '94 (min, max)	average employment growth '94 (min, max)
Romania			
<i>de novo</i>	61	31 (2,500)	1.92 (-0.33,49)
SOE	13	4322 (180,17710)	-0.060 (-0.37,0.056)
Privatised	45	5085 (3,36997)	-0.021 (-0.53,2.15)
Bulgaria			
<i>de novo</i>	44	23 (1,160)	0.69 (-0.66,3)
SOE	54	472 (47,2500)	-0.054 (-0.42,0.081)
Privatised	17	146 (1,954)	-0.062 (-0.28,0.46)
Hungary			
<i>de novo</i>	46	102 (1,1190)	0.039 (-0.5,0.66)
SOE	5	847 (160,1455)	-0.038 (-0.10,0.006)
Privatised	49	691 (1,3736)	-0.042 (-0.31,0.4)

Table 3 Job Flows for the entire sample per country and year of observation

Year	number of firms	JC	JD	JR	NET
1991					
Bulgaria		0.003	0.132	0.135	-0.129
Romania		0.001	0.107	0.108	-0.106
Hungary		0.004	0.091	0.095	-0.086
1992					
Bulgaria		0.029	0.152	0.181	-0.122
Romania		0.001	0.064	0.066	-0.063
Hungary		0.007	0.081	0.088	-0.073
1993					
Bulgaria		0.008	0.107	0.116	-0.098
Romania		0.009	0.057	0.066	-0.048
Hungary		0.012	0.085	0.097	-0.073
1994					
Bulgaria		0.015	0.065	0.081	-0.049
Romania		0.004	0.075	0.079	-0.070
Hungary		0.013	0.066	0.080	-0.052

Notes: JC= job creation rate, JD=job destruction rate, JR=job reallocation rate (JC+JD), NET=net employment growth rate (JC-JD)

Table 4 Job flows according to ownership type.

	number of firms	JC	JD	JC share	JD share	employment share
Bulgaria						
de novo	43	0.46	0.02	0.697	0.006	0.023
SOE	53	0.005	0.056	0.27	0.75	0.87
Privatized	16	0.003	0.15	0.024	0.23	0.10
Romania						
de novo	54	0.97	0.012	0.605	0.001	0.002
SOE	13	0.002	0.063	0.11	0.17	0.20
Privatized	41	0.001	0.078	0.27	0.82	0.78
Hungary						
de novo	43	0.061	0.051	0.315	0.054	0.07
SOE	5	0.001	0.043	0.012	0.065	0.09
Privatized	47	0.01	0.07	0.67	0.88	0.83

Table 5 Job flows according to sector.

Country / sector	JC	JD	JR
Bulgaria			
Manufacturing	0.015	0.067	0.081
Trade	0.053	0.056	0.11
Services	0.16	0.021	0.18
Romania			
Manufacturing	0.003	0.074	0.078
Trade	0.068	0.089	0.15
Services	0.72	0	0.72
Hungary			
Manufacturing	0.011	0.066	0.077
Trade	0.059	0.051	0.11
Services	0.169	0.097	0.26

Table 6 Within and between sector job reallocation

IIJ	Bulgaria	Hungary	Romania
1994	0.47	0.70	0.14
1993	0.55	0.21	0.085
1992	0.11	0.15	0.070
1991	0.033	0.27	0.001

Table 7a: Dependent variable: growth rate firm *i*
BULGARIA

	(1)	(2)	(3)
ln(n)	-0.27* (0.01)	-0.04* (0.02)	-0.04* (0.02)
ln(a)	0.01 (0.01)	0.01 (0.01)	0.02 (0.01)
Novo	0.38* (0.07)	1.33* (0.12)	1.50* (0.14)
Privatized	-0.05 (0.05)	-0.05 (0.18)	0.23 (0.20)
ln(n) x novo	- -	-0.10* (0.02)	-0.05* (0.03)
ln(a) x novo	- -	-1.17* (0.10)	-1.26* (0.12)
ln(n) x privatized	- -	0.01 (0.03)	0.01 (0.03)
ln(a) x privatized	- -	-0.02 (0.04)	-0.10* (0.05)
Constant	0.05 (0.09)	0.16 (0.12)	-0.08 (0.16)
Manufacturing	-0.02 (0.05)	-0.09** (0.05)	-0.04 (0.09)
Trade	0.03 (0.07)	-0.07 (0.07)	0.31* (0.14)
Comp	- -	- -	0.13 (0.11)
Comp x manuf.	- -	- -	-0.11 (0.11)
Comp x trade			-0.51* (0.18)
Majority of employees worked in the same firm	- -	- -	0.20* (0.08)
Efficiency wages	- -	- -	0.00 (0.03)
F test	46.30	85.52	55.36
Number of observations	96	95	95

Note: standard errors in brackets, */** denotes respectively statistically significant at the 5%/10% critical level. The benchmark ownership category are state owned enterprises.

Table 7b: Dependent variable: growth rate firm *i*
HUNGARY

	(1)	(2)	(3)
ln(n)	-0.02* (0.01)	0.08 (0.12)	0.07 (0.11)
ln(a)	-0.00 (0.02)	0.03 (0.08)	0.02 (0.08)
Novo	0.03 (0.08)	1.03 (1.03)	0.98 (1.01)
Privatized	-0.03 (0.06)	0.75 (1.03)	0.57 (1.00)
ln(n) x novo	- -	-0.10 (0.12)	-0.10 (0.11)
ln(a) x novo	- -	-0.25* (0.14)	-0.29* (0.15)
ln(n) x privatized	- -	-0.10 (0.12)	-0.09 (0.11)
ln(a) x privatized	- -	-0.03 (0.09)	0.00 (0.09)
Constant	0.03 (0.10)	-0.77 (1.03)	-0.80 (1.00)
Manufacturing	0.06 (0.05)	0.05 (0.06)	0.18** (0.10)
Trade	0.01 (0.06)	0.03 (0.07)	0.19 (0.16)
Comp	- -	- -	0.17** (0.09)
Comp x manuf.	- -	- -	-0.14 (0.10)
Comp x trade	- -	- -	-0.17 0.17
Majority of employees worked in the same firm	- -	- -	-0.05 (0.04)
Efficiency wages	- -	- -	0.10* (0.04)
F test	2.61	2.32	3.06
Number of observations	76	76	76

Note: standard errors in brackets. */** denotes respectively statistically significant at the 5%/10% critical level. The benchmark ownership category are state owned enterprises.

Table 7c: Dependent variable: growth rate firm *i*
ROMANIA

	(1)	(2)	(3)
ln(n)	-0.04* (0.02)	-0.04 (0.04)	-0.05 (0.03)
ln(a)	0.01 (0.02)	0.03 (0.04)	0.02 (0.03)
Novo	0.41* (0.14)	0.63* (0.31)	0.62* (0.25)
Privatized	-0.06 (0.07)	-0.38 (0.39)	-0.46 (0.30)
ln(n) x novo	- -	-0.09** (0.05)	-0.08* (0.04)
ln(a) x novo	- -	-0.04 (0.07)	-0.02 (0.05)
ln(n) x privatized	- -	0.04 (0.05)	0.05 (0.04)
ln(a) x privatized	- -	-0.02 (0.05)	-0.00 (0.04)
Constant	0.18 (0.17)	0.12 (0.31)	0.06 (0.26)
Manufacturing	0.05 (0.07)	0.12* (0.06)	0.26* (0.07)
Trade	-0.09 (0.08)	-0.11 (0.08)	0.13 (0.09)
Comp	- -	- -	0.16* (0.08)
Comp x manuf.	- -	- -	-0.12 (0.09)
Comp x trade			-0.44* (0.12)
Majority of employees worked in the same firm	- -	- -	0.01 (0.05)
Efficiency wages	- -	- -	-0.04 (0.03)
F test	42.95	38.57	49.34
Number of observations	85	85	85

Note: standard errors in brackets, */** denotes respectively statistically significant at the 5%/10% critical level. The benchmark ownership category are state owned enterprises.

¹ e.g. Belka, Estrin, Schaffer and Singh, 1995; Earle and Estrin, 1994; Earle, Estrin and Leshchenko, 1995; Johnson and Loveman, 1995; Konings, Lehmann and Schaffer, 1996

² For more detailed information about the survey content and the questionnaire is referred to Bilsen, V. (1997)

³ Questions that inquired after aspects of profitability, sales, and the financial constraints the firm was facing were not very well answered as they often were perceived as highly sensitive. So in the analysis these variables could not be used.

⁴ If the second restriction was not included there were in fact a few firms which were private since they were established and started to operate before communism early this century. We do not consider them as *de novo* firms.

⁵ In the Hungarian sample the maximum employment size for *de novo* firms is 1190. This observation is quite an outlier. In this firm foreign private investors own 68% of the assets. For the Romanian sample almost all *de novo* firms have a size lower than 100. Only one firm has an employment size of 500. In this firm 99% of the shares is owned by foreign private investors. The second largest Romanian *de novo* firm has a size of 120. It is 100% owned by private domestic investors. It is a fast growing firm

producing clothes of which 80% is exported.

⁶ The very high growth rate for de novo firms in Romania is partly driven by an outlier with a growth rate of 49. In the analysis we excluded this firm.

⁷ Davis and Haltiwanger (1992), Boeri and Cramer (1992), Konings (1995), Konings, Lehmann and Schaffer (1996).

⁸ Often the denominator has average employment over two years instead of employment a year earlier. This is important if one wants to analyze job gains and losses due to entry and exit of firms. Here we only focus on continuing firms.

⁹ We have also results using OLS, the sign of the estimates are similar, only the significance levels are lower.