TITLE: EMPLOYEE BENEFITS and LABOR ADJUSTMENTS in the TRANSITION: Should East European Enterprises Provide Social Protection?

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SUMMARY

This paper, prepared on the basis of data available in mid-1994, explores one potentially very important type of personnel policy in the transition context: the provision of non-wage compensation, such as housing, medical care, kindergartens, vacations, work conditions, etc. Although issues in the financing of local public goods are also relevant, the focus of the paper is on an analysis of the labor market aspects of these activities of firms. The paper begins by pointing out that firms may function as part of the "welfare mix" through a variety of means. One critical, but often overlooked way that firms may provide protection or insurance to their employees is by choosing methods of adjustment to exogenous shocks which avoid large-scale layoffs, for instance through worksharing. Job security is particularly important in economies where many social services are provided by firms rather than the state or the market, and where social insurance for the unemployed does not replace these services adequately. However, such employment-stabilizing arrangements may also have the drawback of discouraging the reallocation of labor across firms, which is an essential process in the transition to a higher productivity market economy. They also protect the insiders already holding good jobs and place greater hardships on outsiders such as new entrants to the labor force. Ideally, public policy would take this tradeoff into account, encouraging labor shedding in such places and at such a rate that the growing sectors may absorb the displaced workers and that and increase in the provision of services by markets and government may replace benefits lost from firms, while elsewhere encouraging job preservation, worksharing, and generally more gradual adjustment. The difficult aspect in the East European context, of course, is for the state, given its poor informational and administrative resources, to make and implement such decisions.

The paper then analyzes the possibility that the provision of social services by firms may itself carry implications for the adjustment strategy the firm chooses. Because many services represent per-worker rather than per-hour costs, a firm which is attempting to reduce costs will have increased incentives to lay workers off rather than reducing their work hours, the greater the proportion of such benefits in total compensation. This argument is strengthened if the firm faces difficulties in unbundling its social assets, either for political reasons or because of the lack of development of markets. Policymakers must be aware of the potential tradeoff between the two types of social protection activities of firms, for a policy to encourage firms to retain benefits may be more likely to lead to job losses. In an analysis of the employment and hours

i
behavior of Romanian industries, however, only weak empirical support for these effects is found.

The paper then documents recently released information on the structure of labor compensation in the Czech Republic and Romania, and compares this structure with those in the United States and several West European countries. The rather surprising result was that, as a proportion of compensation, every type of measured benefit in the Czech Republic and Romania falls within the Western range. The aggregate data, therefore, suggest the enterprise sector plays no more important a role as a "pillar of social protection" than would be the case in the West.

However, it is also possible that standard cost accounting practices, insofar as they are based on current cash flows rather than capital budgeting, fail to measure the true value of social services provided by firms. The importance of social protection expenditures by firms could far exceed their nominal accounting cost, carrying large implications for policies. The paper examines the hypothesis that the value of benefits exceeds their accounting cost by estimating a hedonic wage function designed to capture the extent of tradeoff between wages and benefits. Although limitations of both data and method preclude strong inferences, no evidence for the hypothesis is found.

But the most fundamental objection to mandating benefits in Eastern Europe is that it represents continued involvement by the state in the behavior of firms. Policies in the transition should be designed with careful attention to their effect on clarity of the boundary between the state and private sectors. The problems of monitoring firms imply that enforcement will be uneven, and therefore at least somewhat arbitrary. Tempting as it may be to "save state resources," scarce as they admittedly may be, by requiring firms to provide social services, it carries the danger of perpetuating the murkiness of the permitted spheres of public and private action and thus of slowing the growth of the autonomous private sector.

The paper concludes that there seems to be little support in this analysis for legislative initiatives which would mandate that firms provide certain forms of benefits.
EMPLOYEE BENEFITS AND LABOR ADJUSTMENTS IN THE TRANSITION: 
Should East European Enterprises Provide Social Protection?

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It has often been observed that various forms of in-kind benefits made up a large proportion of the compensation paid to the employees of state-owned enterprises in socialist Eastern Europe. Kornai (p. 222), for instance, explained this as a function of the socialist firm as follows:

"[A firm plays] the role of a local branch of paternalistic provision. Many firms provide institutionally owned apartments and have their own doctor’s office, holiday center, kindergarten, and day nursery. The bosses decide how these services are allocated. In many countries and periods, firms also deal with distribution of rationed foodstuffs and perhaps other scarce goods (such as color televisions or cars)."

There seem to have been several motivations for state-owned firms to provide non-wage compensation. By contrast with many other parts of their accounts, the cash wages paid by enterprises were strictly controlled by central planners. As has so often been the case with incomes policies throughout the world, the attempt to restrict the growth in cash wage payments in socialist economies led to various forms of evasion. Chief among them may have been the substitution of forms of compensation that were less tightly controlled. In an environment of continual labor shortage, it was very important that non-wage benefits allowed enterprises to increase the level of total compensation they could offer. Moreover, in an economy dominated by shortages for many commodities, enterprises may have had superior access (for instance, through political connections) to valuable goods which had a greater value to employees than their nominal equivalents in cash. Managers could also use fringe benefits to create larger payment differentials within the firm than permitted by the centrally planned

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2I thank Simona Spiridon for assistance with statistical calculations, Tanya Nemeth, Doina Rechita, and Nicusor Ruiu for data collection, Becky Schumann and Hunter Bost for the figures, and Douglass Lippoldt for comments. I am also grateful to the Centre for Economic Policy Research (London), the Institute for Advanced Studies (Vienna), and the CEU Privatization Project for financial support.

3Many others have made similar claims. For instance, according to Pestoff, Hoos, and Roxin, "in Eastern Europe the social responsibilities of firms were very extensive prior to the collapse of their planned economies. Many social benefits and services were provided directly to employees by the public enterprises or authorities where they were employed. Such benefits and services included housing, day-care for children, medical services, access to vacations sites, etc. Full employment guaranteed that such services were available to everyone, although at various levels and of different quality." (p. 6)
wage system. Thus, benefits could in principle have functioned to recruit, retain, and motivate workers, as well as to achieve any political or personal goals of the managers and industrial nomenklatura, while the more easily observed and measured cash wage differentials remained within rather narrow limits.

The continued existence of non-wage compensation, particularly if it represents a large item in either the costs of the firm or the benefits to the workers, poses a number of interesting social and economic problems in the transition to a market economy. From one point-of-view, which may for instance be inferred from the above quote from Kornai, these activities epitomize the remaining paternalistic atavisms of the command economy from which firms should now unburden themselves. Fundamental to the restructuring process, as firms are privatized and as they "rationalize" their activities, is the "unbundling" of the different activities that constituted the SOEs. For instance, Aghion, Blanchard, and Burgess (p. 4) argue that "[n]on production activities, schools, housing, hospitals and the like should be operated independently." This view has also been prominently associated with such international financial institutions as the World Bank, despite their large-scale provision of such services to their own employees.4

An alternative point-of-view stresses the desirability that East European firms continue these activities until either the state or the market achieves sufficient competence to be able to provide them. There may be significant social costs if such necessities as housing, medicine, and child care are even temporarily unavailable, and the supply responsiveness of these goods and services may be quite inelastic in the short run. It also may not make sense to maintain the hypothesis of robust secondary markets for the assets associated with these benefits, as though it were easy enough for an East European firm to sell an asset to an entrepreneur likely to continue its operation. Under these conditions, peculiar to the transition economies but not always clearly acknowledged by the IFIs, there may be a discrepancy between the private and social benefits for firms to continue performing these functions: the market is perhaps not the best judge of the optimal boundaries of the firm.

Of course, the other side of the debate may reverse this argument with the easy riposte that there is no clearly superior alternative to the market, and that the East European countries should by now have had enough bad experiences with those claiming that they know better "the needs of the people." A third, more conciliatory party might try to calm the disputants by

4Some World Bank employees now defend their institution with the claim that their cafeteria (generally considered one of the best values in Washington) is "no longer subsidized." Closer questioning reveals, however, that little or no rent is paid by the operators of the restaurants using large premises in prime downtown real estate within a few blocks of the White House.
pointing out that because such a wide variety of goods and services may be included under the
general rubric of employee benefits, it would be better first to define carefully all the relevant
categories, while holding out the hope that each side might be correct in their arguments when
applied to different types of benefits.

This paper takes a less normative tack by and large, exploring the positive role of
employee benefits, including social protection expenditures and other types of non-wage
compensation, in several aspects of labor market behavior in the transition countries of Eastern
Europe. The paper begins by pointing out that the employment package contains many types of
working conditions in addition to compensation, narrowly construed; these affect both the
attractiveness of the firm's jobs to workers -- the labor supply to the firm -- and the firm's
costs. One critical but neglected dimension of social protection that firms can provide their
workers, for example, is job security. Worksharing arrangements of various types have been
quite widespread in most East European countries, and, indeed, the obverse of the oft-noted
drop in productivity, measured as output per worker, is the preservation of jobs. The empirical
importance of these observations is substantiated through an analysis of layoffs, hiring, and
hours of work in several East European economies, with a particular emphasis on this behavior
in Romania, the only country for which consistent time series information seems to exist.

On the other hand, an important theoretical determinant of a firm's choice of labor
market adjustment, and thus the extent to which it preserves jobs in the short run, is the degree
to which labor represents one-time ('quasi-fixed'), per-worker-year, or per-hour costs to the
firm. Thus, there is a certain interdependence between the "social protection" arising from job
preservation and that coming from conventional social expenditures made by firms. The cost to
the firm of some fringe benefits, including some categories of social expenditures, seems to be
invariant to the number of hours of work, thus increasing the incentives of the firm to use
layoffs rather than hours reductions to reduce labor costs. The paper therefore examines the
importance of some standard categories of fringe benefits for the choice between employment
and hours adjustments, using disaggregated data for sub-branches of industry in Romania. In
the event, there seems to be only weak and inconsistent evidence that non-wage labor costs are
significant determinants of the choice of method of adjustment.

A possible explanation for the lack of clear findings on these effects is that non-wage
compensation is less significant than commonly believed. Although incompleteness and
comparability problems preclude strong statements, existing evidence for the Czech Republic in
1993 and Romania in 1992 seems to imply that these categories of expenditures are no greater
than in the United States, and significantly less than in some West European countries. This
may be a result of much shedding of "non-productive" activities which has occurred or, possibly, because they were never particularly large.

But the small measured size of non-wage labor costs may also be accounted for by another factor, one that brings us full circle to the normative debate portrayed at the beginning of this paper. It may be that firms incur relatively low current costs for the provision of social services to their employees, since they have already made fixed investments some time ago in the assets (clinics, recreation facilities) from which the services (health care, vacations) are generated. In this case, the apparent low level of benefits would be simply an artefact of accounting conventions that fail to amortize the cost of sunk investments over the full life of the asset. By the same token, it is possible that workers would then value the service much more highly than is represented by the firm's cost accounts.

In principle, the appropriate tool for determining the value placed by the market on fringe benefits and other working conditions is the hedonic wage function, and the paper estimates such a function for various categories of social and other fringe benefits. No evidence is found for the contention that workers value benefits more than their cost to the firm or more than the equivalent of the firm's cost in cash wages. Of course, the application of this method makes strong assumptions about the extent of labor mobility and about the ability of the researcher to control for other influences on wages, neither likely to be satisfied in the transition countries of Eastern Europe. Indeed, empirical investigations of equalizing differences in the West have also generally failed to confirm the theory. The paper thus concludes somewhat agnostically about the role these benefits play in total compensation, and about the appropriate role for public policy either in mandating them or in substituting public provision.

**Layoffs and Alternatives**

It is commonly recognized in the West that firms and workers have a variety of methods by which to adjust the use and cost of labor to exogenous shocks. Most important for present purposes is the possibility of short-time working during hard times as an alternative to laying workers off. The reduction of working hours may take a variety of forms -- fewer hours per day, an occasional full day off, or short-term leaves for a week or more -- but they generally share an important feature: they spread the burden of adjustment over all or most employees, rather than concentrating it entirely on a few workers, generally the least skilled and lowest paid, who would be subject to layoffs. On the other hand, worksharing may be an inferior
method of adjustment to certain kinds of shocks, especially those that require a permanent reallocation of labor across firms.

Given the importance of these issues in the transition context, it is surprising that so little attention has been paid to labor market adjustments other than those of employment. For instance, the oft-noted declines in "productivity" in all East European countries over the last four years refer, practically without exception, to the fall in output per employee, while overlooking the possibility that hours of work may also have declined significantly. No doubt there is also some measurement error in output in such a direction as to magnify the true output decline, due to "index number relativity" and the difficulties of adaptation by national statistical offices and in monitoring hundreds of thousands of new legal entities. These problems are enormously exacerbated when one attempts measurement for the whole economy; I therefore focus on the industrial sector in the subsequent analysis.

A further choice of alternatives, within the general category of employment adjustments, is that between a policy of active layoffs and a policy of workforce reduction through attrition, by encouraging voluntary retirement and slowing or halting the rate of hiring. Once again, the latter method tends to cushion currently employed workers from shocks. But this does not mean it is always superior from a social viewpoint, both because the bulk of adjustment falls on new entrants to the labor force and because the rate of labor reallocation may be slowed.

Table 1 (page 6) illustrates the empirical importance of these observations with data from Romania, perhaps the only country for which consistent time series are available. From 1989 to 1992, real GNP fell by 32 percent and real industrial production by 54 percent, which, leaving measurement problems aside, represent shocks of enormous magnitude. Employment of production workers in state-owned industrial firms first rose in 1990 through a large increase in the hiring rate from 17 to 21 percent, perhaps as the planners' restrictions were eased, but enterprises responded with an instinctive lunge for more labor before realizing that the environment had changed. Voluntary quits exactly doubled, from 9 to 18 percent, with the increase accounted for by a commensurate increase in both the job-to-job quit rate and the rate of retirement from the labor force. A temporary reduction in the retirement age, adopted in most East European countries in 1990, goes some way to explaining the latter phenomenon.

See Earle (forthcoming) for further discussion.

Unfortunately, the Romanian National Commission for Statistics discontinued the use of the questionnaires on labor turnover and hours of work after 1992, so it is impossible to follow this behavior thereafter.
while the opportunities in the new private sector must play some role in the former. The involuntary dismissal rate was little changed from 1989.*

Table 1
Labor Market Adjustments
Romania, 1989 - 1992

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GNP</td>
<td>100.0</td>
<td>92.6</td>
<td>79.9</td>
<td>67.9</td>
</tr>
<tr>
<td>Industrial Production Index</td>
<td>100.0</td>
<td>76.3</td>
<td>58.9</td>
<td>46.0</td>
</tr>
<tr>
<td>Average Number of Workers (thd.)</td>
<td>3,339.3</td>
<td>3,387.4</td>
<td>3,161.3</td>
<td>2,763.1</td>
</tr>
<tr>
<td>Dismissal Rate (%)</td>
<td>4.2</td>
<td>4.6</td>
<td>6.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Quit Rate (%)</td>
<td>8.9</td>
<td>18.0</td>
<td>9.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Other Separations Rate (%)</td>
<td>1.5</td>
<td>1.8</td>
<td>1.4</td>
<td>3.7</td>
</tr>
<tr>
<td>Hiring Rate (%)</td>
<td>17.0</td>
<td>21.0</td>
<td>9.0</td>
<td>5.4</td>
</tr>
<tr>
<td>Total Hours Worked (mln.)</td>
<td>6,970.2</td>
<td>5,891.2</td>
<td>5,048.1</td>
<td>4,176.0</td>
</tr>
<tr>
<td>Average Annual Hours of Work</td>
<td>2,087.3</td>
<td>1,739.2</td>
<td>1,596.8</td>
<td>1,511.4</td>
</tr>
</tbody>
</table>

Source: CNS and author's calculations.

Note: Employment, turnover and hours data refer only to workers in the state and cooperative sectors, because consistent estimates for private sector employment are unavailable. The Real GNP and Industrial Production Indexes, however, are estimates of total output, including production originating in the private sector. It is unlikely, however, that the private sector contributed substantially to industrial output over this period.

After 1990, however, employment began to fall, only gradually in 1991 but more rapidly in 1992. In 1991, the hiring rate collapsed to 9 percent, and it fell further to 5 percent in 1992. Separations, meanwhile, showed quite divergent patterns: layoffs (which may also

*At least in terms of labor market turnover, 1989 was rather typical compared to previous years. See Earle and Oprescu (1994) for longer time series, more disaggregation, and more analysis of these data.
include some of the separations classified as "other") began to increase gradually, while quits fell dramatically so that by 1992, both the overall quit rate and the job-to-job quit rate were much lower than in any of the previous five years.

The pattern of adjustments indicates, therefore, that firms attempted initially to maintain employment, then they tried to adjust employment downwards through voluntary attrition, and have only recently undertaken active layoffs. Firms were interested in preserving both their overall size of employment and the jobs of their workers.

This interpretation is further corroborated by the data on hours of work. The Romanian National Commission for Statistics provides data on the total number of hours worked by production workers in state-owned industrial firms for each of these years. Dividing by the number employed yields a plausible estimate of average hours of work per production worker over the course of the year. In 1989, workers had an average of 2087 hours of work for the year, or, assuming a 50-week year, nearly 42 hours per week. Hours fell drastically in 1990, with the abolition of Saturday in state-owned industrial enterprises, and continued to fall to a level of 1511 hours per year on average, or just over 30 hours per week, in 1992. Average hours of work, therefore, decreased much more than did employment, 27.6 compared to 17.3 percent over this period.9

Evidence from other countries of the region, while less complete, suggests that some of the Romanian patterns may not be wholly unique. According to Beleva et al. writing on the state sector in Bulgaria, quits dominated layoffs as a source of separations in the years 1990 to 1992, although it appears from their figures that the proportion accounted for by layoffs increased from 6 to over 25 percent over this period. The hiring rate fell significantly from 1990 to 1991, but is unreported in 1992. One might infer from these data that Bulgaria may be lagging Romania slightly in the evolution of its adjustments. Unfortunately, no hours of work data are supplied.

With respect to Poland, Coricelli et al. show data only for total separations, so it is not possible to assess the prevalence of active layoff versus attrition policies of firms. Hiring behavior shows the interesting pattern of declining from 1988 to 1990 and rising thereafter. However, their data pertains to the state sector until 1991 and include the private as well as the state sector in 1991 and 1992, rendering it impossible to conclude anything about the job

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9Calculations of productivity are therefore sensitive to the definition of labor input: when the denominator of productivity is the number of workers, productivity fell 44.4 percent; but when the denominator is the total number of hours of work, productivity fell by 23.2 percent. The extent to which this fall in productivity reflects measurement errors in output is beyond the scope of this paper.
preservation behavior of the large state enterprises in the more recent period. Average annual hours of work are provided for the years 1988 to 1992, but it is not clear from the text whether they refer to the state sector or both state and private. Assuming they are state, they show much less adjustment compared with Romania: in industry, average annual hours of work fell by only about 9 percent from 1989 to 1991, and in the "total," they fell by only 9.4 percent to 1992 (for which hours in industry are "not available").

Russia, of course, is the country where firms seem to have adopted employment preservation on a massive scale, the chief evidence being the very low unemployment rate: 1.5 percent registered with local labor offices and about 5.5 percent according to the Labor Force Survey.\(^{10}\) And an astoundingly low proportion of the registered unemployed -- 21 percent in December 1993 -- had been laid off, while nearly half had quit their former job. Moreover, total employment has fallen only slightly -- only about 4 percent in 1993, in the Goskomstat. And, according to Yemtsov, only a trivial proportion of separations, certainly under 10 percent, are layoffs, while Roxburgh and Shapiro point out, on a more disaggregated basis, that no sector had layoffs accounting for more than 12 percent of separations.\(^{11}\)

Although these data might be interpreted as proof that the insiders of Russian are taking care of their own, it is notable that gross flows of labor in and out of employment remain quite high, with hiring and separation rates both above 20 percent in most sectors. Thus, jobs have been preserved, but they are in many cases occupied by different individuals.

On the other hand, there is substantial evidence of various kinds of worksharing arrangements in Russia. According to Yemtsov, Roskomstat data for March 1994 shows that 20 to 33 percent of enterprises had "significant shares of their workforces" working shorter hours or taking involuntary leaves.\(^{12}\) It is interesting that the average duration for involuntary leaves was only about 19 days, implying that there may have been a fair amount of churning of workers in and out of unpaid leave in some firms. As emphasized by Meacher, these adjustments are encouraged by a kind of short-time compensation from the Employment Fund to workers on unpaid leave or working short hours.

\(^{10}\)These and the following figures in this and the next paragraph are taken from Layard and Richter, except as noted.

\(^{11}\)Yemtsov also cites survey evidence that "less than 25 percent" of separations are involuntary, but even this number is quite low compared to East European countries in the last two years.

\(^{12}\)The figures in Layard and Richter are quite different: according to them, the Goskomstat statistics show that 2.1 percent of employment was on involuntary leave and 4.4 percent were working shorter hours in March 1994. It is also unclear whether Yemtsov's figures refer to the percentage of firms or of workers.
To some extent, real wage adjustments may also be considered a measure of social protection by enterprises, insofar as they also represent an alternative to layoffs which distribute the burden of adjustment more widely. Throughout Eastern Europe and the former Soviet Union, real wages have fallen. The measures usually reported, however, have several failings: they neglect the greater availability of goods and the end of time wasted in queuing (as argued by Lipton and Sachs) and they ignore changes in hours of work, usually being based on monthly earnings. When real hourly earnings are computed for Romania, for instance, the results look quite different from the reported figures for real monthly earnings: comparing the end of 1992 with 1989, the monthly figures fell 30 percent while the hourly figures actually rose by 15 percent!

**Fringe Benefits and the Choice of Adjustment**

This section investigates the interaction between two different kinds of "social protection" activities of firms in transition economies: the preservation of jobs and the provision of social benefits. Standard labor demand theory suggests that firms respond to different types of labor costs with different choices of the level and adjustment of employment and hours of work. Thus, the decision to share the work and avoid layoffs during a downturn will be influenced by the marginal cost saving from reducing hours compared to that from reducing employment. If benefits vary at the margin with hours worked, then firms paying higher benefits are more likely also to engage in worksharing compared to the situation when benefits are invariant to hours of work. Thus, the degree to which the two types of social protection activities are complementary depends on the nature of the costs to firms of providing benefits.

The firm's total labor input can be expressed as

\[ L = L(E, H), \]

where \( E \) = number of employees and \( H \) = average hours of work per employee. Implicitly, employment and hours are treated as two separate factors of production, with the usual assumptions about positive but decreasing marginal products. Isoquants plotted in \( n-h \) space with the usual convex shape trace out the level surfaces of labor input or, if labor is the only factor of production, of output, as shown in Figure 1 (page 10). Ignoring overtime premia and one-time costs of hiring and training, labor costs are

\[ C = WHE + BE, \]

13 Chapman was probably the first to conceive of hours of work as a separate factor of production. Also see Rosen (1968), who is to some extent concerned with similar issues, but focuses on one-time costs of hiring and training, the theoretical analysis of which is due to Oi.
where \( W \) = average hourly wage, including the firm's costs for benefits which vary with \( H \), and \( B \) = employer costs for employee benefits which vary with \( E \) but are unrelated to the level of \( H \). The equation for an isocost curve in \( E-H \) space is
\[
E = C/(WH + B),
\]
with slope given by
\[
\frac{dE}{dH} = -CW/(WH + B)^2 < 0,
\]
\[
\delta(dE/dH)/\delta W = -BE^2/C^2 < 0, \text{ and}
\]
\[
\delta(dE/dH)/\delta B = WE^2/C^2 > 0.
\]
Thus, the isocost curve is nonlinear, with a negative slope varying positively with \( B \) and negatively with \( W \). Comparative statics on the first-order conditions for the solution to the cost-minimization problem show that higher \( W \) and lower \( B \) lead to higher \( N \), and lower \( W \) and higher \( B \) lead to higher \( H \). *ceteris paribus.*

![Figure 1](image)

The problem for East European firms, as described in the previous section, is how to cope with a negative demand shock as well as to adjust to a different set of objectives. Cost minimization in the combination of inputs was not an objective of state-owned enterprises subject to central planning and "guidelines." The starting point is point X, where a total

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\( ^{14} \)This leaves aside the question of product efficiency, but it is surely debatable whether SOEs were on the boundary of their production sets.
labor input of $L_2$ is used; no tangency with an isocost curve reflecting relative prices of $H$ and $E$ is assumed.

With the demand shocks, hardening of budget constraints, and changes in objectives, the firm seeks to reduce labor input from $L_2$ to $L_1$ on the graph. We may therefore expect non-positive changes in both dimensions of labor input, but the relative importance of hours and employment declines should be influenced by the relative cost-saving from each. Faced with a decline in demand and the need to reduce labor input, cost-minimizing firms with relatively high $B$ tend to reduce $E$ relatively more than $H$, by moving to a point such as $Y$; those with relatively high $W$ should have the reverse behavior, moving to a point such as $Z$.\footnote{Another intervening factor, although one not possible to measure in the current context, could be differences in the substitutability of fixed factors, such as capital, for numbers employed and hours worked. To take an extreme example, it may be relatively easy to reduce the length of the shift in a factory from 8 to 6 hours, but not to reduce the number of workers by 25 percent, because of a relatively unadjustable worker-to-machine ratio. In this case, we would expect to see hours rather than employment adjustments. The same holds for a workforce which is heterogeneous in skill composition: the reduction in labor input may be so large that essential skills would be lost through layoffs.}

I test this model by examining the dependence of hours and employment adjustments on the structure of labor compensation. Indeed, we can observe wide variation in the extent of adjustment of employment and hours in Eastern Europe. The previous section documented international differences in these adjustments. But they also display significant variation within countries, as shown in Graph 1 (page 12) for Romanian industries. Because of data limitations, the employment changes are computed from 1990 to the end of 1992, while those for average hours worked are from 1989 to 1992 (average over year). Although the graph shows that branches with large hours changes also tend to have large employment changes (the raw correlation coefficient is .49), this is probably because a third factor -- demand shocks -- affect both. Our test must therefore take this third factor into account.

The simple test adopted here is that the responsiveness of average work hours and of employment to changes in output is dependent on the structure of compensation. The framework is a "random coefficients model" where the coefficient on output is a function of the proportion of compensation varying with hours and employment. The starting point is the general equation

\begin{equation}
\Delta Y_i = \alpha + \beta \Delta X_i + u_i,
\end{equation}

where $Y = E$ and $H$ in different equations, $X = $ industrial output of sub-branch $i$, and $u$ is a random disturbance. $\beta$ is then postulated to be a function of the division of compensation
Layoff v. WorkSharing
Employment & Hours Adjustments Romania

Note: Change in employment covers the period 1990 and 1992 and change in hours worked the period 1991 1992.
among three categories: $W_1$, compensation dependent on hours of work; $W_2$, compensation dependent on the number of workers; and $W_3$, quasi-fixed (hiring and training) costs:

$$\beta = f(w_2, w_3),$$

where smallcase letters indicate the proportion of the category in total compensation (with $w_1$ omitted to avoid perfect collinearity).\(^1\)\(^6\) Assuming a linear functional form for $f$ and substituting in the equation (1),

$$\Delta Y_i = \alpha + \beta_1 \Delta X_1 + \beta_2 \Delta X_2 + \beta_3 \Delta X_3 + \mu_i,$$

where $\mu$ is a composite error term, suggesting the possibility of heteroskedasticity.

The results, shown in Table 2 (page 14), are rather inconclusive. The effect of an increased proportion of compensation tied to employment, $\beta_2$, is to lower the responsiveness of average hours of work to output changes, as hypothesized. It is also consistent with the model that higher quasi-fixed costs (training) are associated with more adjustments of hours. However, the responsiveness of employment adjustments to these same factors is the same as that for hours, contradicting the theory. The final equation shown tries to get at the question of relative adjustment, as follows:

$$\Delta H / \Delta L_i = \alpha + \beta_2 w_2 + \beta_3 w_3 + \mu_i.$$

$\beta_2$ is not very precisely measure, but the point estimate implies that higher per-worker costs tend to lower the adjustment of hours relative to the adjustment of employment, consistent with the model, while training costs have no effect.

---

\(^{1}\)\(^6\) Included in $W_2$ are cash payments such as seasonal and annual bonuses, profit sharing, vacation allowances (above regular pay), and time off for studies and special events. Also included are in-kind benefits such as subsidies for rent and utilities in company housing, food, and holiday and spa tickets. $W_3$ includes training costs and payments upon retirement, decease, layoff, and job transfer. For more detail, and aggregate numbers corresponding to these categories, see the following section below.
These results are difficult to interpret, but in any case should not be construed as providing unambiguously strong support for the hypothesis that the composition of labor cost may be an important factor in the choice of method of labor adjustment. One possible explanation could be that fringe benefits, at least those which vary with numbers employed rather than with average hours worked, are a relatively unimportant part of total compensation. These results are difficult to interpret, but in any case should not be construed as providing unambiguously strong support for the hypothesis that the composition of labor cost may be an important factor in the choice of method of labor adjustment. One possible explanation could be that fringe benefits, at least those which vary with numbers employed rather than with average hours worked, are a relatively unimportant part of total compensation.

Table 2
Labor Costs and Employment and Hours Adjustments

<table>
<thead>
<tr>
<th>ΔY</th>
<th>α</th>
<th>β₁</th>
<th>β₂</th>
<th>β₃</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔH</td>
<td>-19.3</td>
<td>-2.87*</td>
<td>1.82*</td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(10.3)</td>
<td>(0.02)</td>
<td>(0.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔL</td>
<td>18.2</td>
<td>0.99*</td>
<td>-4.95*</td>
<td>3.50*</td>
<td>.55</td>
</tr>
<tr>
<td></td>
<td>(10.9)</td>
<td>(0.01)</td>
<td>(0.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔH/ΔL</td>
<td>4.8</td>
<td>-0.52</td>
<td>0.05</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.3)</td>
<td>(0.30)</td>
<td>(1.26)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Results for ΔH and ΔL from OLS estimation of equation (1) in the text. Result for ΔH/ΔL are based on the equation in the text. Number of observations = 22. Standard errors are shown in parentheses. For ease of reading, an asterisk is attached to those estimates for which the point estimate is at least twice the corresponding standard error.

International Comparisons of Compensation Structure

Table 3 (pages 15-16) shows a disaggregation of labor costs in the Czech Republic and Romania, and Graphs 2 and 3 (page 17) depict the breakdown into major categories. The Czech data are taken from the pilot survey done in late 1993 of the European Employment Cost Index (EECI). The data refer to the third quarter of 1993 and were taken from 70 largely manufacturing companies of greater than 99 employees each, and with total employment 109,000. The Romanian data are the result of a survey, based approximately on the EECI and on ILO recommendations, and conducted at the end of 1992 in nearly the entire state enterprise sector. Thus, the two sets of data differ in both timing and coverage.

17 It is also probable that the explicit one-time costs for recruitment, training, and separation measure the quasi-fixed costs only very imperfectly. Opportunity costs of foregone worktime by managers, experienced co-workers, and trainees are probably more important. See Barron et al.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>WAGES AND SALARIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 for hours worked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* base wage</td>
<td>55.5</td>
<td>64.7</td>
</tr>
<tr>
<td>* bonuses</td>
<td>NA*</td>
<td>49.2</td>
</tr>
<tr>
<td>* premia (seasonal &amp; annual)</td>
<td>NA</td>
<td>11.9</td>
</tr>
<tr>
<td>* profit sharing</td>
<td>NA</td>
<td>2.4</td>
</tr>
<tr>
<td>1.2 overtime</td>
<td>2.6</td>
<td>1.8</td>
</tr>
<tr>
<td>1.3 call-out bonuses</td>
<td>0.1</td>
<td>NA</td>
</tr>
<tr>
<td>2. <strong>PAYMENTS FOR TIME NOT WORKED</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 vacation payment</td>
<td>7</td>
<td>7.8</td>
</tr>
<tr>
<td>2.2 vacation allowance</td>
<td>NA</td>
<td>0.3</td>
</tr>
<tr>
<td>2.3 public holiday payment</td>
<td>2.2</td>
<td>NA</td>
</tr>
<tr>
<td>2.4 other paid leave</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>2.5 slack work</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>2.6 sick leave paid by employer</td>
<td>0</td>
<td>0.7</td>
</tr>
<tr>
<td>2.7 accident allowances paid by employer</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>3. <strong>BENEFITS IN-KIND</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 company products</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>3.2 company car</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>3.3 staff housing &amp; boarding</td>
<td>1.8</td>
<td>0.3</td>
</tr>
<tr>
<td>3.4 contribution</td>
<td>0.3</td>
<td>NA</td>
</tr>
<tr>
<td>3.5 anniversary rewards</td>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>other benefits</td>
<td>NA</td>
<td>0.5</td>
</tr>
<tr>
<td>* equipment for protection &amp; sanitation</td>
<td>NA</td>
<td>0.4</td>
</tr>
<tr>
<td>* food</td>
<td>NA</td>
<td>0.7</td>
</tr>
<tr>
<td>* business trips</td>
<td>NA</td>
<td>0.1</td>
</tr>
<tr>
<td>* holiday &amp; spa tickets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### STATUTORY SOCIAL SECURITY CONTR.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Romania</th>
<th>Czech Republic</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>pension contribution</td>
<td>16.4</td>
<td>NA</td>
</tr>
<tr>
<td>4.2</td>
<td>sickness insurance contribution</td>
<td>6.1</td>
<td>0.9</td>
</tr>
<tr>
<td>4.3</td>
<td>unemployment insurance</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>4.4</td>
<td>contribution</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>4.5</td>
<td>accident insurance contribution</td>
<td>NA</td>
<td>1.2</td>
</tr>
<tr>
<td>4.6</td>
<td>penalty taxes on excess wages</td>
<td>0^18</td>
<td>0.9</td>
</tr>
<tr>
<td>4.7</td>
<td>contribution for maternity in addition to direct payments to the employees</td>
<td>0</td>
<td>15.4</td>
</tr>
</tbody>
</table>

### NON-STATUTORY SOCIAL SECURITY CONTR.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Romania</th>
<th>Czech Republic</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>supplementary pension schemes</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>5.2</td>
<td>other supplementary insurance</td>
<td>0</td>
<td>NA</td>
</tr>
</tbody>
</table>

### SOCIAL BENEFITS

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Romania</th>
<th>Czech Republic</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td>0</td>
<td>NA</td>
</tr>
</tbody>
</table>

### HIRING AND TRAINING COSTS

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Romania</th>
<th>Czech Republic</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>severance payments</td>
<td>1.2</td>
<td>NA^19</td>
</tr>
<tr>
<td>7.2</td>
<td>recruitment costs</td>
<td>0.1</td>
<td>NA</td>
</tr>
<tr>
<td>7.3</td>
<td>training costs</td>
<td>2.2</td>
<td>0.3</td>
</tr>
</tbody>
</table>

* "NA" denotes not available


^18 These are paid by a state fund.

^19 These are included in the category "other paid leave."
GRAPH 42
EMPLOYMENT COST IN CZECH REPUBLIC

Source: Statistical Office

GRAPH 83
EMPLOYMENT COST IN ROMANIA

Source: National Commission for Statistics
Nonetheless, the aggregate behavior implied by these data is not entirely dissimilar in the two countries; nor seems it to be very different from in the U.S. in 1991 or countries of the European Community in 1988.\textsuperscript{20} Payments for time worked were 58.2 percent of total compensation in the Czech Republic, 66.5 percent in Romania, and 71.8 percent in the U.S.\textsuperscript{21} In the European Community, these payments varied from 57.6 percent (France) to 83.9 (Denmark).

Cash payments for time not worked accounted for 10 percent of employment cost in the Czech Republic, 9.2 percent in Romania, and 9.1 percent in the U.S. These occupied the middle of the range of E.C. countries -- from 6 (Portugal) to 12.3 percent (Denmark). Since the beginning of 1993, sick leave is financed by the enterprise for the first 10 days in Romania, although these payments may be deducted from the social insurance contribution liability. The latter statement also holds for accidents on-the-job ("worker's compensation" in the U.S. terminology), but without the 10 day limit. Sick leave is financed completely by the state in the Czech Republic.\textsuperscript{22}

Benefits in-kind were 3.4 percent, 1.9 percent, and .6 percent, for the three countries, respectively, and under 1 percent in Western Europe. Most of the difference is accounted for by the slightly greater role that continues for Czech firms in providing subsidized housing. "Other benefits in-kind" include health care, but this seems to be a negligible component in both countries.

Statutorily required social security contributions represent the biggest difference between the two East European countries (25 and 22 percent, respectively) and the U.S. (6.4 percent). West European countries show enormous differences here: from 1.9 (Denmark) to 7.3 (U.K.) to 25.6 (Belgium) to 30.6 (Italy), to give a few examples. Non-required payments, for instance for pensions and insurance, are essentially non-existent in Eastern Europe, while accounting for 12.1 percent of compensation in the U.S. and 1.1 (Denmark) to 9.4 percent (France) in Europe.

\textsuperscript{20}The U.S. data are taken from U.S. Chamber of Commerce, cited in Ehrenberg and Smith. The European data come from Eurostat.

\textsuperscript{21}"NA" stands for "not available" in the table. Note, however, that, in most cases, this is the result of not being able to disaggregate the figures comparably across the two countries; except for some minor exceptions, it does not imply that the categories are completely uncounted.

\textsuperscript{22}Regarding the U.S., where sick leave is financed wholly by the employer up to a limit stipulated by contract, the BLS survey on employer costs for employee compensation in March 1992 found a somewhat lower figure for "paid leave," at 6.8 percent in private industry and 7.7 percent in state and local government. See Braden and Hyland.
From these data, it therefore seems difficult to assert that East European enterprises are a more important "pillar" of social protection than are capitalist firms in the West. Why then do so many observers, including Kornai, hold to this belief? There may be several reasons for the discrepancy.

First, perhaps these social functions of firms were important in the past, but have already been eliminated. If a primary motivation for firms in providing them was to compensate workers with shortage commodities, then price liberalization should have largely obviated this behavior. Benefits may also have been shed as part of initial restructuring in response to hard budget constraints: unbundling of costly activities that produce no revenue. But if the benefits are valued by workers, then firms should have found some way to structure compensation to keep them.

Second, these functions may have been and still remain important in some countries or in some regions, so that the conclusions from the aggregate data in the Czech Republic and Romania may not be generalized. For instance, some limited survey evidence from Russia (Commander and Jackman) indicates much higher proportions of the "social fund" in total labor cost -- over 25 percent in large firms -- and total benefits of about 35 percent. But the sample size is quite small and limited to firms in the Moscow area, so it is difficult to draw strong conclusions. And Rose finds that benefits from employment contribute little to household well-being in a survey of 1975 Russians in mid-1993. It is possible that, throughout the region, social protection arrangements in isolated "one-company towns" are organized by firms. Perhaps in some areas, even of Romania and the Czech Republic, there are remote pockets where social benefits from firms are critical.

But the most important explanation for the apparently low proportion of benefits in total labor costs could be related to the discrepancy between costs, as accounted for by the enterprise, and benefits, as valued by workers. Benefits such as health care, vacations, and meals are provided based on facilities likely to have been constructed and fully amortized some time ago. Only the operating cost would show up in the firms' balance sheets, and opportunity costs and current depreciation are likely to be omitted. As a result, it may be that the true economic cost to the firm and the value placed upon the benefits by workers are much higher than the account books reveal. The next section examines this hypothesis.

What is the Value of Employee Benefits?

We have seen that the cost of providing benefits to workers, as reported by firms in the Czech Republic and Romania, is not particularly large compared to reported costs in Western Europe. As argued in the previous section, however, it is possible that the (marginal) value of
benefits to workers far exceeds the (average) cost to firms. This section investigates this hypothesis by estimating a standard hedonic wage function.

The starting point is a standard human capital earnings function:

\[ \log(C_i) = \alpha + X_i \beta + u_i, \]

where \( C_i \) is total hourly compensation for individual \( i \), \( X \) is a vector of factors affecting productivity and earnings, and \( u \) is an error term. Because (suppressing individual subscripts)

\[ C = W + \sum B_j, \]

where \( W \) is wages and \( B_j \) are various types of benefits indexed by \( j \), we can write

\[ C = W(1 + \tau_j b_j), \]

where the \( b_j \) are the proportions of the various benefits in total compensation and the \( \tau_j \) measure the value placed on \( B_j \) by individuals. If benefits are valued more than the equivalent amount of cash wages, the \( \tau_j > 1 \); if workers would prefer to have cash, \( \tau_j < 1 \); if workers are indifferent, \( \tau_j = 1 \).

The outcome depends, in general, upon the distribution of the preferences of individuals and the cost functions of firms. Factors affecting costs of benefits from the firm's point of view include standard considerations such as tax policy and the desire to screen job applicants and reduce turnover.\(^{23}\) In the transition context, one should also add that it may not be easy to unbundle the asset; so sunk investments in social facilities should continue to operated rather than being sold off, since the price they would fetch on the underdeveloped asset markets would be lower than the value of the stream of services they provide.

These considerations are illustrated in Figure 2 (page 21) by the isoprofit functions in \( W-B \) space, where the tradeoff between wages and a single benefit is assumed for graphability. Note that the functions may be nonlinear, for instance if there are economies of scale or set-up costs of providing certain benefits, and that the slope indicates the marginal cost of benefit provision. The flatter isoprofit function in the diagram presumes some greater economies realized by the firm in providing benefits, resulting in a benefit-wage combination of \((B_2, W_2)\). If the firms lose their cost advantages, the isoprofit curve will become steeper, rotating from the same point on the \( W \) axis. In the diagram, the substitution effect dominates the income effect, and the new optimal combination is at point \( Y \), with higher \( W \) and lower \( B \).

\(^{23}\)See, for example, Rosen (1986).
Workers' preferences between wages and benefits include tax considerations, loss of discretion (especially if substitution effects towards greater consumption of the commodity are induced), and convenience (for instance, of having the cafeteria at the work site, or even lunch provided in the office, as in some Wall Street operations). A further factor likely to be important in socialist and transition economies is the presence of shortages prior to price liberalization and of underdeveloped markets for some goods and services thereafter. Even if the money cost to the firm of providing housing is no less than the official price for the apartment, if no apartments are available for that price, then their shadow value is higher than the equivalent of the cost received in wages. These considerations are illustrated by the indifference curves drawn in W-B space in Figure 2, the slope measuring the marginal rate of substitution between wages and benefits.

Assuming perfect information and costless mobility, individuals are matched with firms so that preferences are satisfied in the least cost way. The set of tangencies in which the marginal cost of benefits is set equal, for each individual, to his/her marginal rate of substitution produces an equilibrium market locus, the average slope of which can be estimated as the $\tau_i$ above. The estimating equation is derived by substitution of equation (3) into equation
(2) above. If benefits represent a small proportion of total compensation and the $\tau_i$ are also not too large, then $\log(1 + \sum \tau_i b_j) = \sum \tau_i b_j$. Under these conditions,

\[ \log(W) = \alpha + X'\beta + \sum \tau_i b_j + u. \]

Unfortunately, information on these variables for individual employees was unavailable, so I have utilized existing data on industries in Romania to provide some preliminary results. $X$ includes standard human capital and wage determination variables: average age (AGE) of employees in the industry, average number of years of schooling (EDC), and percentage female (FEM). In some specifications, it also includes the proportion of employees in the industry working for firms which are regii autonome, state-owned enterprises not included in the large privatization program (RA), and the proportion of unskilled workers whose wage exceeded the norms established in the wage policy in 1991 (EXW). The purpose of including the last two variables is to control for the possibility that the determination of employee compensation in Romania is not based solely on productivity; in particular, some industrial branches seem to have obtained much larger wage increases than merited on productivity grounds, the explanation for which may be strong unions or strong ties to the government. RA and EXW are only imperfect instruments for this behavior, but both are highly correlated with the average wage and EXW is also highly correlated with the proportion of total compensation paid as benefits. This suggests they must be included in the equation to avoid omitted variables bias.

Table 4 (page 23) contains summary statistics for the variables: "Std" refers to the standard deviation, and "N" the number of industries for which information is available. The average annual wage in 1992 varied from 96 to 602 thousand Lei, and the proportion of benefits in total compensation (BTC) varied between .26 and .42. The three final variables are disaggregations of BTC: TNWRKTC is the proportion of compensation for time not worked (vacation and sick leave, etc.), INKINDTC is the proportion of compensation in-kind, and SIUETC is social security contributions, both legally required and voluntary.

---

23 As argued in the case of pensions in Montgomery et al.
24 The excessive wage increases in these sectors seem to be paid through a variety of direct and indirect state subsidies. See Earle and Oprescu.
25 The raw correlation between $\log(Wage)$ (for time worked) and BTC (the proportion of benefits in total compensation) is .46, that between $\log(Wage)$ and RA is .68, that between $\log(Wage)$ and EXW is .69, that between BTC and EXW is .66, and that between BTC and RA is .21.
Table 4
Summary Statistics for Regression Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Wage</td>
<td>279.88</td>
<td>97.10</td>
<td>506.06</td>
<td>95.57</td>
<td>601.63</td>
<td>50</td>
</tr>
<tr>
<td>BTC</td>
<td>.33</td>
<td>.04</td>
<td>.17</td>
<td>.26</td>
<td>.42</td>
<td>50</td>
</tr>
<tr>
<td>EDC</td>
<td>11.10</td>
<td>1.28</td>
<td>8.43</td>
<td>5.67</td>
<td>17.00</td>
<td>47</td>
</tr>
<tr>
<td>AGE</td>
<td>35.08</td>
<td>2.02</td>
<td>10.00</td>
<td>33.20</td>
<td>43.20</td>
<td>47</td>
</tr>
<tr>
<td>FEM</td>
<td>39.86</td>
<td>20.47</td>
<td>78.60</td>
<td>6.40</td>
<td>85.00</td>
<td>50</td>
</tr>
<tr>
<td>RA</td>
<td>36.25</td>
<td>42.79</td>
<td>100.00</td>
<td>.00</td>
<td>100.00</td>
<td>22</td>
</tr>
<tr>
<td>ExW</td>
<td>59.54</td>
<td>23.18</td>
<td>98.98</td>
<td>.00</td>
<td>98.98</td>
<td>50</td>
</tr>
<tr>
<td>TNWRKTC</td>
<td>.11</td>
<td>.03</td>
<td>.13</td>
<td>.04</td>
<td>.17</td>
<td>50</td>
</tr>
<tr>
<td>INKINDTC</td>
<td>.02</td>
<td>.02</td>
<td>.14</td>
<td>.00</td>
<td>.14</td>
<td>50</td>
</tr>
<tr>
<td>SIUETC</td>
<td>.18</td>
<td>.02</td>
<td>.12</td>
<td>.14</td>
<td>.24</td>
<td>50</td>
</tr>
</tbody>
</table>

Note: The average wage is expressed in the lei 1992.

Sources: For EDC, the Survey of Registered Unemployed. For all others, the National Commision for Statistics.

The results of OLS estimation of four different specifications of equation (4) appear in Table 5 (page 24). In the first specification, \( \tau \) is large and positive, implying, if naively interpreted, that benefits are negatively valued, because the compensating differential is positive. As noted above, however, this specification likely suffers from an omitted variable bias: excluded factors tend to raise both wages and benefits, leading to a spurious positive correlation. RA and EXW are therefore added to the equation, reducing \( \tau \) to insignificance (the point estimate is even negative). Specifications 3 and 4 repeat this exercise for disaggregated measures of benefits. Again, the estimates of \( \tau_j \) are positive in the third specification, but this time they are too imprecisely measured to permit any judgements. The fourth specification again adds RA and EXW, affecting all the \( \tau_j \) estimates. The point estimates for the coefficients on payment for time not worked and for in-kind benefits actually increase, while that on social insurance contributions falls below -1. But, again, the coefficients are so imprecisely measured that the null hypothesis of \( \tau_j = 0 \) cannot be rejected in any of the cases.
Table: 5
Hedonic Wage Function: Estimations

<table>
<thead>
<tr>
<th></th>
<th>Eq 1</th>
<th>Eq 2</th>
<th>Eq 3</th>
<th>Eq 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.93*</td>
<td>8.63*</td>
<td>5.60*</td>
<td>5.87*</td>
</tr>
<tr>
<td></td>
<td>(1.05)</td>
<td>(2.13)</td>
<td>(1.13)</td>
<td>(2.54)</td>
</tr>
<tr>
<td>BTC</td>
<td>2.73*</td>
<td>- .36</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(1.05)</td>
<td>(1.35)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDC</td>
<td>0.6</td>
<td>.017</td>
<td>.06</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>(.45)</td>
<td>(.09)</td>
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<td>.003*</td>
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<td>(.001)</td>
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<tr>
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<td>.78</td>
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Note: Estimates result from application of OLS to equation (4) in the text. For ease of reading, an asterisk is attached to those estimates for which the coefficient point estimate is at least twice its standard error.

Thus, these results provide no support for the view that the value of social benefits provided by firms in Eastern Europe exceeds their reported costs. For the most part, point estimates were positive, implying that employees must actually be compensated for benefits. The data set is far from ideal for this purpose, and perhaps more sophisticated methods would yield different results. At this point, however, all we can say is that this approach has failed to find evidence of $\tau_j < -1$. 

24
Policy Conclusions

This paper has investigated several aspects of the social protection activities and labor market behavior of firms in Eastern Europe. It began by pointing out that firms may function as part of the "welfare mix" through a variety of means. One critical, but often overlooked way that firms may provide protection or insurance to their employees is by choosing methods of adjustment to exogenous shocks which avoid large-scale layoffs, for instance through worksharing. Job security is particularly important in economies where many social services are provided by firms rather than the state, so that social insurance for the unemployed is unavailable or inadequate. However, such employment stabilizing arrangements may also have the drawback of discouraging the reallocation of labor, which is part of the essence of the transition in Eastern Europe. And they also protect insiders, those already in good jobs, and place greater hardships on outsiders, such as new entrants to the labor force. Public policy would ideally take this tradeoff into account, encouraging labor shedding in such places and at such a rate that the growing sectors may absorb the displaced workers and that provision from markets and government may replace lost benefits, while elsewhere encouraging job preservation, worksharing, and generally more gradual adjustment. The difficult aspect in the East European context, of course, is for the state, given its poor record, to make and implement such decisions.

The paper then analyzed the possibility that the provision of social services by firms may itself carry implications for the adjustment strategy the firm chooses. Because many services represent per-worker rather than per-hour costs, a firm which is attempting to reduce costs will have increased incentives to lay workers off rather than reducing their work hours, the greater the proportion of such benefits in total compensation. This argument is strengthened if the firm faces difficulties in unbundling its social assets, either for political reasons or because of the lack of development of markets. Policymakers must be aware of the potential tradeoff between the two types of social protection activities of firms, for a policy to encourage firms to retain benefits may be more likely to lead to job losses. In an analysis of the employment and hours behavior of Romanian industries, however, only weak empirical support for these effects was found.

The paper then documented recently released information on the structure of labor compensation in the Czech Republic and Romania, and compared this structure with those in the United States and several West European countries. The surprising (to the author) result was that, as a proportion of compensation, every type of measured benefit in the Czech Republic and Romania falls within the Western range. The aggregate data, therefore, suggests
no more important role for firms as a "social protection pillar" than would be the case in the West.

However, it is also possible that standard cost accounting practices, insofar as they are based on current cash flows rather than capital budgeting, fail to measure the true value of social services provided by firms. The importance of social protection expenditures by firms could far exceed their nominal cost, carrying large implications for policies. The paper examined the hypothesis that the value of benefits exceeds their accounting cost by estimating a hedonic wage function. Although the limitations of both data and method preclude strong statements, no evidence for the hypothesis was found.

Who, then -- firms, families, or the state -- should provide social protection in Eastern Europe? Is it appropriate for the state to mandate that firms provide insurance and services to their employees? In favor, one may argue that if the organizational and physical capital to support the services already exists in firms, then it may be costly to change. Governments may be less efficient providers, and markets may exhibit small supply elasticities, particularly in the short run. But this presumes that employees of East European firms value the services more than they would the cash equivalent, a contention for which the paper could find no empirical support.

To this may be added standard Western arguments about avoiding the "public provision trap" and the smaller distortion of mandated provision as compared with taxation plus state provision. Both are significantly weakened in the East European context. The former claims that the variety and quality of services will be lower under state provision than if they are organized in a decentralized fashion, but in Eastern Europe the critical issue currently is whether they are provided at all. The latter presumes that the internal functioning of firms is already efficient, and the state can exploit this through requirements consistent with social objectives. In Eastern Europe, however, firms have huge internal distortions and inefficiencies; not allowing them to adjust by imposing restraints on their behavior hardly seems the way to promote a smooth transition to a market economy.

Thus, in addition to the problems of inadequacy of coverage of "outside" groups -- the unemployed, the retired, etc. -- a policy of mandating benefit provision in Eastern Europe faces quandaries peculiar to the transition. The state may be incompetent as provider of social services, but it may be no better at monitoring firms, and firms may be no better at providing. If some firms have cost advantages, for instance due to sunk investments, they will provide benefits; others will not. The continued provision of benefits by firms may also have the effect

26These arguments are summarized in Summers.
of decreasing the mobility of labor, certainly undesirable given the massive reallocation of labor the transition demands.

But the most fundamental objection to mandating benefits in Eastern Europe is that it represents continued involvement by the state in the behavior of firms. Policies in the transition should be designed with careful attention to their effect on clarity of the boundary between the state and private sectors. The problems of monitoring firms imply that enforcement will be uneven, and therefore at least somewhat arbitrary. Tempting as it may be to "save state resources," scarce as they admittedly may be, by requiring firms to provide social services, it carries the danger of perpetuating the murkiness of the permitted spheres of public and private action and thus of slowing the growth of the autonomous private sector.

References


