

## **Restructuring, Productivity, and Job Creation**

Faced with radical institutional and policy changes, enterprises in all transition countries have been forced to adapt their behavior. Some have been able to seize new opportunities, but many others have simply tried to survive in a market to which they were unaccustomed and ill-prepared. The ensuing process of restructuring has involved shifts in technology, suppliers, and customers; abandoning old production lines and introducing new ones; and hiring and (more often) laying off workers—and has resulted in improved productivity of some firms, but also in the death of many others.

The pace and depth of enterprise restructuring and the restructuring and reallocation of resources across firms are determined by the extent to which previously nonexistent control mechanisms of enterprise efficiency have emerged during the transition. A number of key factors are responsible for these efficiency increases, including improvements in corporate governance (for example, changing of managers), brought on by privatization, and stronger competition in product markets, not least because of the opening to foreign markets. The systemic environment of firms (that is, the investment climate) has also improved, with the liberalization of conditions for entry, the reduction of state paternalism via the hardening of the budget constraint, price liberalization, and macroeconomic stabilization. All these factors have taken different forms in CEE, CIS, and SEE, with

very different implications for output, productivity, and employment growth.

How successful have countries been in reallocating resources to more productive uses? Is the process over, or are countries still struggling with restructuring their economies? Moreover, is there a role for policy to influence the pace and nature of the process of labor reallocation? And are different approaches to reallocation and restructuring associated with different labor market outcomes?

## **The Required Transformation of the Transition Economies and Progress So Far**

### **Economic Structures Were Often Far from Those in Market Economies**

One way to assess the size of the structural gap that transition economies inherited from the centrally planned period is to compare their employment distribution by sectors with those prevailing in market-oriented economies of similar income per capita.<sup>1</sup> This exercise offers only an illustration of the potential scope of structural changes expected in the transition economies in their process of convergence toward market-based economic systems, not least because the latter vary a great deal across market economies. Bearing in mind these caveats, table 4.1 shows the distribution of employment by sector for transition economies at the beginning of the transition and in 2002.<sup>2</sup> In the table, the sectoral deviations from the market benchmark are also aggregated into a synthetic distortion index, which measures the deviation from the market benchmark (see box 4.1).<sup>3</sup>

Taken at face value, the distortion index suggests that at the beginning of the transition period, CEE countries had an economic structure that was further from the market economy benchmark than that of the CIS countries. Given their level of income per capita, CEE countries already had a relatively small agricultural sector and a largely oversized industrial sector.

During the transition, all countries experienced a sideways-U shape change in the employment structure, driven by the evolution of output, with an initial large decline followed by a recovery. By 2002, CEE countries had managed to move closer to a market-based structure of the economy. The European CIS countries have also shown some sign of convergence toward the market benchmark in recent years, but are still very far away from it and would require major adjustments in the years to come. The other CIS countries have

**TABLE 4.1**  
**The Employment Structure in CEE and CIS Countries**

Share in employment	CEE countries		CIS countries	
	1989–90	2002	1989–91	2000
<b>Agriculture</b>				
Actual	17.8	14.5	30.9	39.0
Benchmark	23.2	22.3	32.1	43.1
<b>Industry</b>				
Actual	42.0	32.4	30.3	18.3
Benchmark	26.0	26.2	23.8	20.4
<b>Market-oriented services</b>				
Actual	20.9	29.7	13.6	17.9
Benchmark	28.5	28.9	24.3	19.4
<b>Nonmarket services</b>				
Actual	18.8	23.3	23.3	23.0
Benchmark	22.4	22.7	19.8	17.0
<b>GDP per capita (1995 US\$)</b>	7,268	7,627	4,603	2,706
Distortion index	17.0%	12.1%	13.7%	13.0%

Source: Bank staff calculations.

Note: The distortion index is defined as half the sum of the absolute value of  $(s - s^*)$  where  $s$  is the actual share of employment in a sector and  $s^*$  is the benchmark share. The benchmark shares are calculated as described in the text.

seen increases in agriculture and little progress in the development of a modern service sector. They have moved closer to the market benchmark by becoming poorer rather than by progressing toward modern economies (see figure 4.1 for the example of the Kyrgyz Republic; see Scarpetta and Vodopivec [2005] for the other countries). It could be argued that with the removal of subsidies from the Former Soviet Union, these countries have reverted to the income levels that are more consistent with their comparative advantages and underlying economic characteristics.

### Shifts to Market Services in CEE

Looking at changes in the sectoral composition of employment suggests that all transition countries experienced a process of deindustrialization, but this was associated with significantly different patterns across them. In most CEE countries, except for Romania, deindustrialization was associated with a reduction in employment in agriculture. In 2002, the share of agriculture in total employment in most CEE countries was close to what is seen in many EU countries. By contrast, the CIS countries—and, within the group, the poorest countries in particular—saw a rise in relative and even absolute employment in agriculture (see figure 4.1 and Scarpetta and Vodopivec

## BOX 4.1

**Economic Development and the Employment Structure**

Using large cross-country data sets, a number of stylized development patterns have been identified (Chenery and Taylor 1968; Rowthorn and Ramaswamy 1997). The share of agriculture in GDP and employment tends to fall as economies grow richer. The share of industry in GDP and employment tends to increase with income per capita, but the relation is nonlinear (that is, at higher levels of income per capita, employment in industry shifts toward services). Finally, the share of services and, in particular, market-oriented services rises monotonically with income per capita. Raiser, Schaffer, and Schuchhardt (2003) propose a market-economy benchmark based on regression analyses on a cross-section of 50 countries. For each sector, the share in employment is regressed on the log of GDP per capita and its square. (The results are shown in the table below.) Because all sectoral regressions fit the data quite well, this section uses the fitted curves as benchmarks in the analysis of the distortion in economic structures and the evolution of these structures over the transition. It should be stressed that similar conclusions concerning the distance from the market-based economic structures can be obtained using real benchmarks, such as the EU average or the North EU and the South EU benchmarks (see Aiginger and others 1999 and Landesmann 2000).

More important, benchmark comparisons are generally performed to compare underlying features of economies at their steady state. Transition economies are in fact evolving rapidly, and the observed employment structures—even in most recent years—should not be taken to represent their new steady state equilibrium.

**Benchmarking Regressions (standard errors in parentheses)**

Independent variables	Dependent variable: share of employment in			
	Agriculture	Industry	Market service	Nonmarket services
Log GDP per capita	−0.38390 (0.036)	0.32560 (0.019)	0.08198 (0.576)	−0.03740 (0.808)
(Log GDP per capita) <sup>2</sup>	0.01082 (0.293)	−0.01600 (0.042)	0.00058 (0.945)	0.00548 (0.533)
Constant	2.78970 (0.001)	−1.37035 (0.023)	−0.49013 (0.441)	0.12316 (0.853)
R <sup>2</sup>	0.883	0.4544	0.7141	0.4784
F(2, 47)	176.4	19.57	58.71	21.55
Number of observations	50	50	50	50

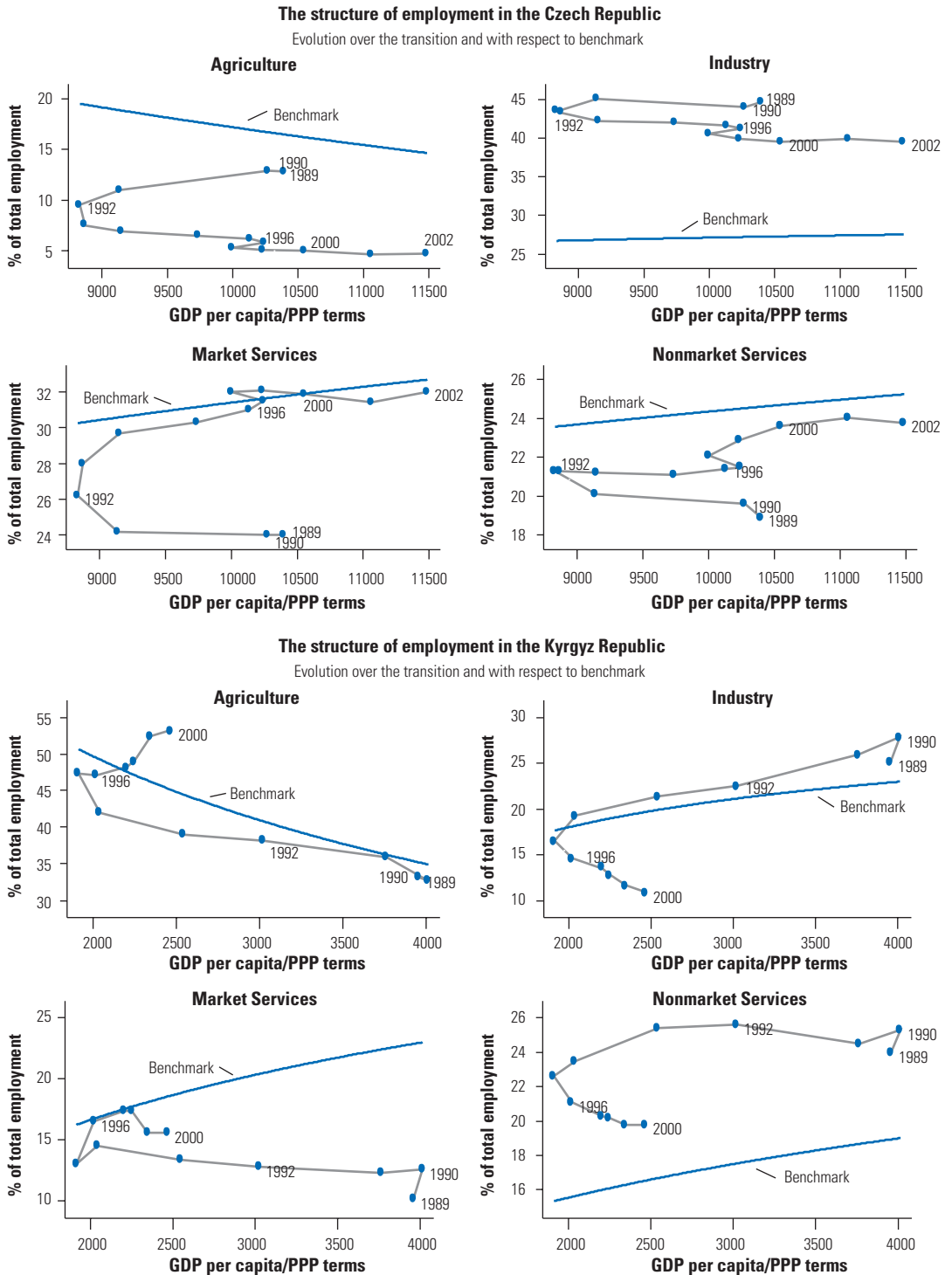
Source: Raiser, Schaffer, and Schuchhardt 2003.

[2005]), often as the employer of last resort, given the lack of job openings in other sectors.

Further downsizing in industry could be expected in CEE countries if they are to move toward a market economy industrial structure. Moreover, despite some significant shifts in employment toward mar-

FIGURE 4.1

Different Patterns of Labor Reallocation across Transition Economies

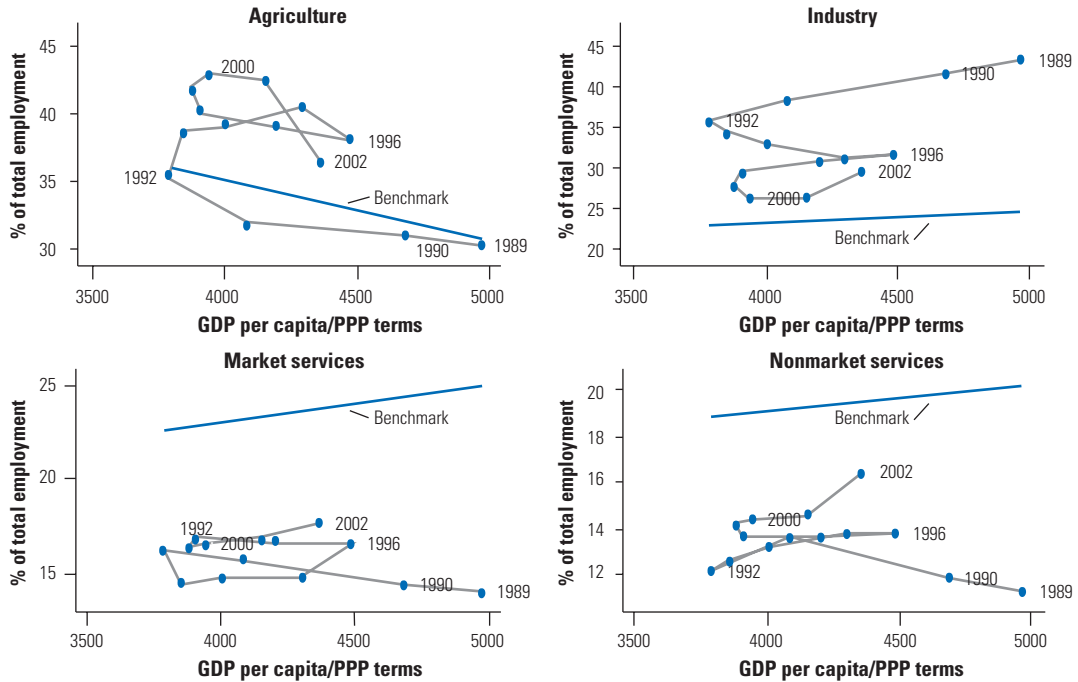


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FIGURE 4.1 (continued)

**The structure of employment in Romania**

Evolution over the transition and with respect to benchmark



Source: Authors' calculations.

ket services (trade, finance, transport, and communication), they still have only 30 percent of employment in these activities, and Romania has an even smaller market service sector. At the same time, most CEE countries have shares in employment in nonmarket services (public administration and social services) that are greater than what would be expected in market economies at a similar level of development, with significant implications for public finances.

**Backward Shifts to Agriculture in Many CIS Countries**

For the middle income CIS countries, there are signs of positive convergence (that is, associated with income growth) in the most recent years. The size of the required employment reallocation, however, remains daunting. Major shifts can be expected away from agriculture and possibly industry, especially toward market services. This will imply major changes in skill requirements and in work habits, as well as changes in the location of workers away from declining regions and toward expanding areas.

The poorer CIS countries, by restructuring the least, are paradoxically quite close to the market-based benchmark. The lack of reforms has been associated with major declines in income per capita, which has in turn brought them closer to low-income market economy benchmarks. Sustained economic growth in these countries is likely to trigger major pressures to reallocate labor along the lines of their European counterparts. But there are greater uncertainties as to whether the poorer CIS countries have the economic and institutional capabilities to pursue an aggressive transformation of their economies.

### **What Is the Role of Firm Restructuring and the Entry and Exit of Firms for Job Creation?**

The analysis of shifts in employment across sectors hides a greater dynamism taking place within sectors, because of new firms entering the market and displacing obsolete units and because of within-firm restructuring in the struggle to survive and possibly expand market share. In this context, it is of importance to first assess the size and characteristics of job flows (job creation and destruction) and then link them to productivity and output growth.

#### **Job Creation and Destruction Have Surged Rapidly**

Not surprisingly, job reallocation (the sum of job creation and destruction) increased dramatically in response to transition: from less than 10 percent of the workforce in the late 1980s to more than 20–25 percent in the 1990s (see box 4.2). Job creation and job destruction rates in transition countries exceeded those in developed countries or were at about the same level, and they lagged slightly behind the average job flows in the sample of developing countries (figure 4.2). Once the initial years of transition are excluded, the average rates of job reallocation and excess job reallocation for the transition countries were 25 and 21 percent, respectively, thus exceeding the average of developed countries with 24 and 20 percent, respectively, but falling behind developing countries. It is quite remarkable that it took only a few years for the job flows in transition countries to increase from very low levels to the levels of flow present in mature market economies.

#### **In Some Countries, Job Creation Has Lagged behind Job Destruction**

The timing of job creation and destruction has played an essential role in shaping labor market outcomes. In all transition economies, job

## BOX 4.2

**A Consistent International Firm-Level Database**

Available data at the firm level are usually compiled for fiscal and other purposes, and (unlike macroeconomic data) there are few internationally agreed-on definitions and sources, although harmonization has improved over the years. The data used in this chapter are based on a harmonized firm-level database for 24 OECD, transition, and emerging economies. The data set used in the study was collected in various stages. Most recently, the firm-level project organized by the World Bank collected indicators for 14 countries (Estonia, Hungary, Latvia, Romania, and Slovenia; Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela; Indonesia, Republic of Korea, and Taiwan [China]). An earlier OECD study collected indicators based on information on firms from Canada, Denmark, Germany, Finland, France, Italy, the Netherlands, Portugal, the United Kingdom, and the United States (see Bartelsman, Haltiwanger, and Scarpetta [2004] for details). The main source of the data and the period covered for the five transition economies included in the sample are presented in the table below. The analysis of firm demographics is based on business registers, censuses, social security databases, or employment-based registers containing information on both establishments and firms. Data for the analysis of productivity growth come more frequently from business surveys. Using these data, time-series indicators on firm demographics were generated for disaggregated sectors for each country.

**Basic Characteristics of the World Bank Firm-Level Database**

Country	Firm demographics and survival			Labor productivity			
	Source	Period	Threshold	Source	Period	Threshold	Sectors
Estonia	Business Register	95–01	Emp ≥ 1	Business Register	95–00 to 96–01	Emp ≥ 1	All
Hungary	Fiscal register (APEH)	92–01	Emp ≥ 1	Fiscal register (APEH)	92–96 to 97–01	Emp > 1	All
Latvia	LURSOFT and State Social Insurance Agency	96–02	Emp ≥ 1	LURSOFT and State Social Insurance Agency	96–01 to 97–02	Emp ≥ 1	All
Romania	Business register	92–01	Emp ≥ 1	Business register	95–98 to 96–99	Emp ≥ 1	All
Slovenia	Statistical Office of Slovenia, Accounting data. Business registry data	92–01	Emp ≥ 1	Statistical Office of Slovenia, Accounting data. Business registry data	92–97 to 97–01	Emp > 1	All

Source: Bartelsman, Haltiwanger, and Scarpetta 2004.

destruction surged first in the early 1990s, but the response of job creation differed across countries. Many CEE countries, which advanced rapidly in the transformation of their economies, saw job creation rapidly catching up with job destruction (see, for example, Estonia and Slovenia in figure 4.3), giving rise to balanced (synchronized) job flows. In other countries lagging behind in economic transformation, job creation continued to be lower than job destruction for prolonged

### Definition of Key Concepts

*Entry rate* is defined as the number of new firms divided by the total number of incumbent and entrant firms in a given year.

*Exit rate* is defined as the number of firms exiting the market in a given year divided by the population of origin (that is, the incumbents in the previous year).

*Labor productivity growth* is defined as the difference between the rate of growth of output and that of employment<sup>a</sup> and, whenever possible, controls for material inputs.

*Job creation rate* equals employment gains summed over all plants that expand in a given year, divided by the average employment in the period.

*Job destruction rate* equals employment losses summed over all plants that contract in a given year, divided by the average employment in the period.

*Job reallocation rate* is the sum of all plant-level employment gains and losses that occur in a given year.

### Comparability Issues

Two prominent aspects of the data have to be borne in mind while comparing firm-level data across countries:

*Unit of observation.* The data used in this study refer to “firms” rather than “establishments.” Firm-based data are likely to more closely represent entities that are responsible for key aspects of decision making, compared with plant-level data. Nevertheless, business registers may define firms at different points in ownership structures; for example, some registers consider firms that are effectively controlled by a “parent” firm as separate units, while others record only the parent company.

*Size threshold.* Although some registers include even single-person businesses, others omit firms smaller than a certain size, usually in the number of employees, but sometimes in other measures (such as sales). Data used in this study exclude single-person businesses.

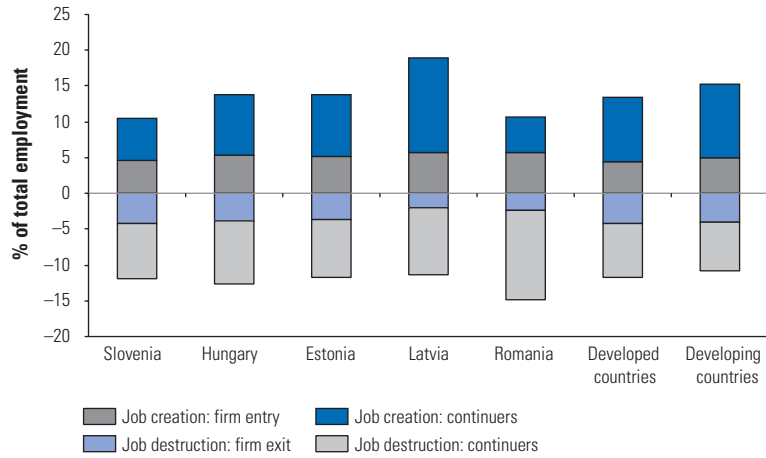
Source: Bartelsman, Haltiwanger, and Scarpetta 2004.

a. Available data do not allow the control for changes in hours worked, nor do they distinguish between part- and full-time employment.

periods (see, for example, Russia and Romania in figure 4.3), giving rise to either large increases in unemployment or falls in participation.

The main differences across countries are in job creation rather than job destruction. Although countries lagging behind on reforms were able to contain job destruction in the early phases of transition, job destruction later took off to high levels. At the same time, however, delaying macro- and microreforms prevented new private initia-

**FIGURE 4.2**  
**Large Job Flows in Transition Economies**



Source: Bartelsman, Haltiwanger, and Scarpetta 2004.

Note: Estonia: 1997–2000. Hungary: 1994–2000. Latvia: 1994–99. Romania: 1994–2000. Slovenia: 1993–2000. Developed countries: West Germany 1978–99, USA 1989–97, Italy: 1988–93, U.K. 1987–98, Portugal 1984–94, Finland 1989–98, France 1991–96, Canada 1985–97, Denmark 1982–94, Netherlands 1994–97. Developing countries: Argentina 1997–2001, Mexico 1987–2000.

tives from emerging and creating new jobs. Thus, job creation did not catch up with job destruction, leading to net job losses. In other words, slowing down the required transformation of the economy cannot prevent job destruction, but risks reducing incentives for job creation, with a consequent buildup of unemployment or nonparticipation.

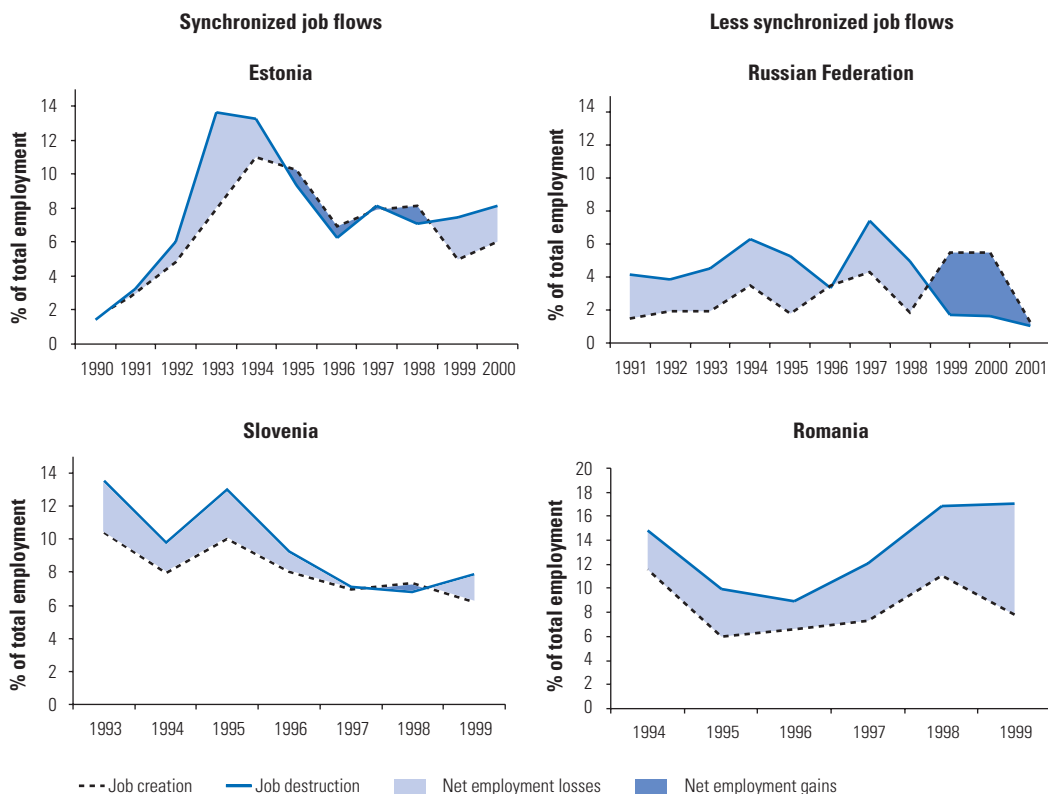
### **Job Creation Largely Depends on the Ability of New Firms to Enter the Market and Hire Workers**

An essential channel for job creation in transition economies is the creation of new firms. As an example, in Russia, before the transition, firm turnover (entry and exit of firms) accounted for less than 20 percent of overall job turnover. During the transition, the contribution of firm turnover to job flows increased strongly. In the countries for which firm-level data are available, during the initial phases of the transition, the entry of firms contributed from about 40 percent of total job creation in Estonia, Latvia, and Hungary to more than 70 percent in Romania and Slovenia.

Moreover, there is a stronger (positive) correlation between the number of entrant firms in a given country and industry and the overall job creation in that country and industry in transition countries than in OECD countries. By contrast, there is almost no correlation between exit of firms and job destruction in transition countries, while

FIGURE 4.3

### Unsynchronized Job Creation and Destruction Can Give Rise to Unemployment or Underemployment



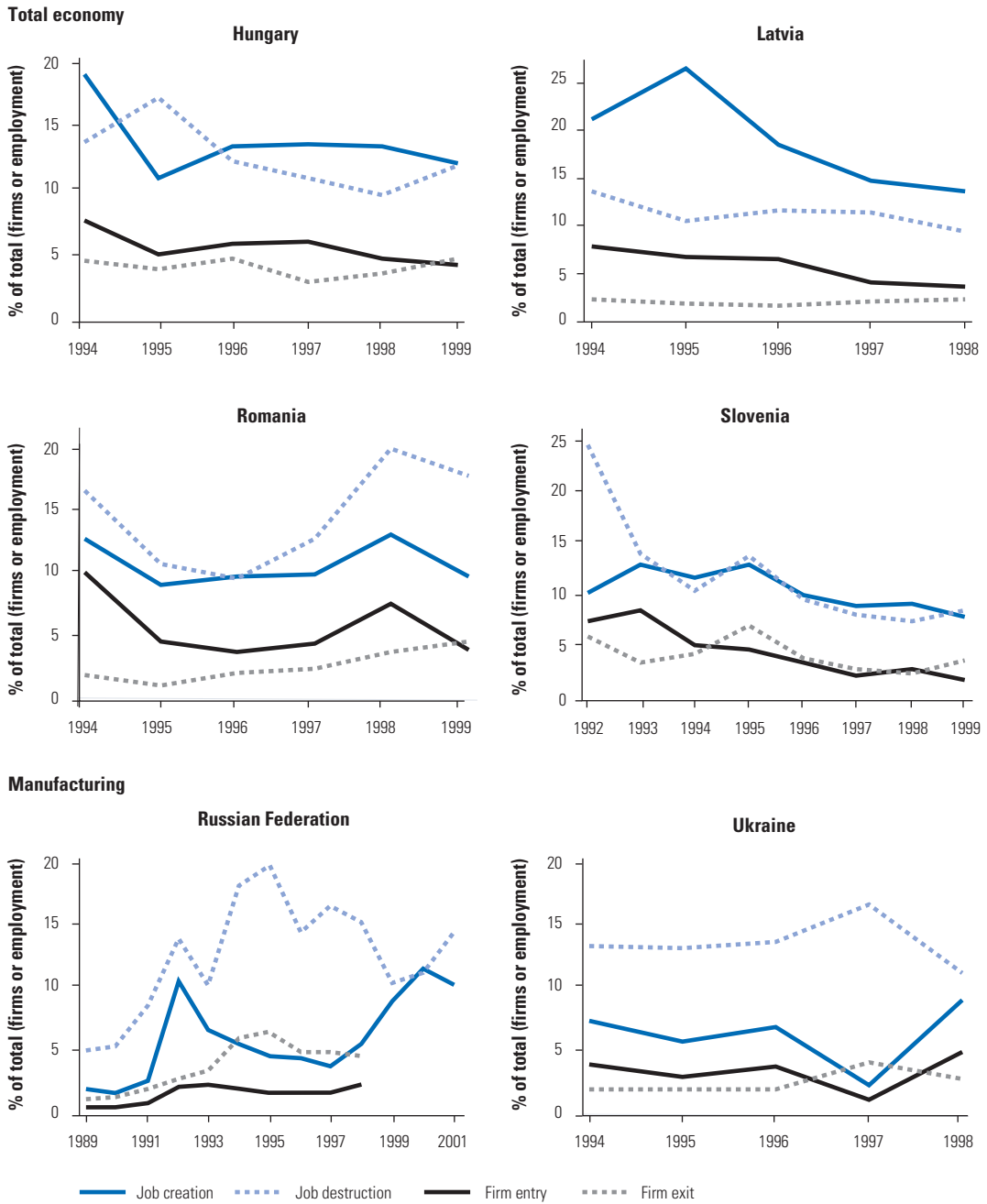
Source: Bartelsman, Haltiwanger, and Scarpetta 2004.

in OECD countries this correlation is stronger. In other words, entry plays a significant role for job creation, but the exit of obsolete firms, while promoting productivity, does not strongly contribute to job destruction, which largely comes from downsizing of surviving firms.

Not surprisingly, the contribution of firm entry to overall job creation declined over the transition period (see figure 4.4). After having filled the pretransition void in certain activities, the characteristics of job flows converged toward those observed in market economies: job creation and destruction come increasingly from within firm adjustment, rather than from the entry and exit of firms. In this context, Russia and Ukraine—two laggard reformers—saw the reverse patterns, with an increasing role of firm entry to total job creation in the second half of the 1990s.

Notably, the contribution of firm closure to job destruction followed the opposite trend than that of firm entry and job creation.

**FIGURE 4.4**  
**Job Flow Rates, Selected Transition Countries, 1990–2001 (percentage)**



Sources: Bartelsman, Haltiwanger, and Scarpetta 2004; Brown and Earle 2004.

Competitive pressures have increased over the transition process, and in all the countries for which data are available, the share of job destruction resulting from firm exits increased later in transition.

How does the share of job flows attributable to firm turnover compare with that of nontransition countries? For the sample of countries included in the analysis, the entry of firms contributed (on average) 38 percent to the total job creation rate (ranging from 25 percent in Latvia to 50 percent in Romania), exceeding this share in OECD countries and developing countries, where it amounted to slightly more than 30 percent (on average). This suggests that the entry of firms indeed played an exceptionally important role in job creation in transition countries. In contrast, at 28 percent, the average share of firm exits in job destructions was below that in the group of OECD and developing countries, where it was around 35 percent.

### **What Is the Role of Firm Restructuring and the Entry and Exit of Firms for Productivity and Output Growth?**

If restructuring and creative destruction are important for employment, they are also essential for promoting productivity and output growth. At least during the initial phases of the transition, these two objectives—employment growth and productivity—have been conflicting because firms have attempted to promote productivity by reducing overstaffing.

### **In Manufacturing, Productivity Growth Is Largely Resulting from Within-Industry Restructuring**

The effects of restructuring and reallocation of labor on productivity are analyzed at different levels for a group of CEE countries, Russia, and Ukraine.<sup>4</sup> This is first done by exploring the reallocation across manufacturing industries (see box 4.3). Then it is done by looking at how productivity growth is accounted for by within-firm growth, shifts in employment across existing firms, and the entry and exit of firms.

In CEE economies, despite major changes in relative prices and revealed comparative advantages, most productivity growth over the past decade has come from changes within each manufacturing industry, rather than from shift of resources from less- to more-productive industries (figure 4.5). The effect of reallocation of labor from less- to more-productive industries is positive, albeit small. The results of the decomposition also suggest that those industries that contributed the most to aggregate labor-productivity growth in manufac-

## BOX 4.3

**Assessing the Impact of Labor Reallocation on Productivity Growth**

The effects of shifts in sectoral shares on aggregate productivity growth can be calculated using different techniques. In all cases, it is crucial to consider the shift of employment not only from sectors with low-productivity growth to sectors with high-productivity growth but also from sectors with low-productivity levels to those with high-productivity levels. The reason is that the positive contribution to aggregate productivity of the high-growth sectors may be offset by their lower-than-average productivity levels. One approach (equation 4.1) is to express the productivity for the economy as a whole as the sum of the productivity level of each sector weighted by the sectoral employment shares:

$$P_m = \frac{Y_m}{L_m} = \frac{\sum_{j=1}^n Y_j}{\sum_{j=1}^n L_j} * \frac{L_j}{L_m} = \sum_{j=1}^n P_j * S_j \quad (4.1)$$

where  $Y$  is output,  $L$  is employment by sector ( $j = 1, \dots, n$ ) and the total economy ( $m$ ),  $P$  is labor productivity ( $Y/L$ ), and  $S$  is the sectoral employment share. In a discrete time perspective, the expression (equation 4.1) can be rewritten as follows:

$$\frac{P_m^t - P_m^0}{P_m^0} = \frac{\sum_{j=1}^n (P_j^t - P_j^0) * S_j^0}{\sum_{j=1}^n P_j^0 * S_j^0} + \frac{\sum_{j=1}^n P_j^0 * (S_j^t - S_j^0)}{\sum_{j=1}^n P_j^0 * S_j^0} + \frac{\sum_{j=1}^n (P_j^t - P_j^0) * (S_j^t - S_j^0)}{\sum_{j=1}^n P_j^0 * S_j^0} \quad (4.2)$$

for a current year  $t$  and a base year 0.

The first term on the right-hand side is the *within industry contribution* to overall productivity growth. The second term can be defined as the *net shift effect* (that is, the contribution coming from changes in the sectoral composition of employment). The third term is derived as a residual and represents the joint effect of changes in employment shares and sectoral productivity: it is positive if sectors with above-average productivity growth increase their share of total employment; it is negative if either expanding sectors have below-average productivity growth or sectors with high-productivity growth are also declining in their shares of total employment.

The data used for the productivity decomposition in this study refer to 14 manufacturing industries in the manufacturing sector of 11 CEE countries. They refer to 1989–2002, although for a number of countries data coverage is more limited.

turing were also shrinking in size, while those with below-average productivity growth gained—in relative terms—in employment shares.

### **Industries Have Boosted Productivity by Reducing Overstaffing**

The dominance of within-industry changes in total productivity growth is a common result for OECD countries, especially in recent years. But in previous decades, when structural changes were more marked, even in OECD manufacturing, productivity was also largely driven by substantial shifts in employment from less- to more-productive industries. Why is this not occurring on a large scale in CEE economies, despite massive changes in the patterns of demand, trade, and the use of production factors?

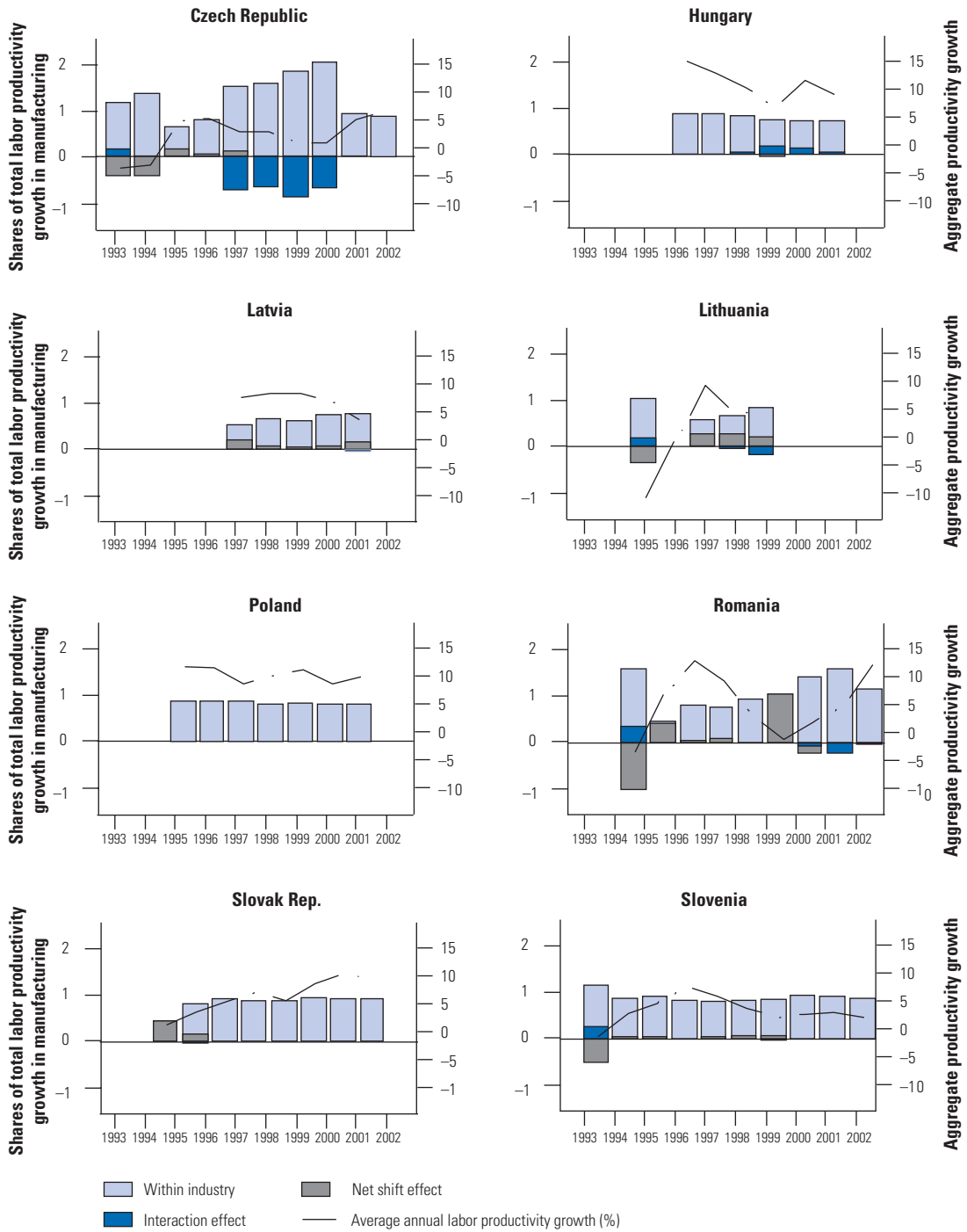
Most industries have experienced job losses: first because of the decline in demand, and then to maintain or reinforce productivity by reducing the large overstaffing of the centrally planned era. The fact that the industries with above-average productivity growth are those that have shed relatively more labor confirms the hypothesis advanced above: productivity growth has been driven by a process of “defensive restructuring” rather than by reallocation of production factors to the most-productive uses (strategic restructuring).<sup>5</sup> Also, many low-productivity industries—being sheltered from competitive pressure—have managed to contain job destruction, but may still have to go through a period of downsizing and restructuring, with further effects on employment and unemployment rates.

### **Wage Growth Did Not Vary as Much as Productivity Growth across Industries**

Have wages responded to different productivity performance of industries and firms during the transition? Table 4.2 presents the average growth rates of labor productivity, real wages, and unit labor costs in manufacturing during the early phases of the transition and the most recent period. It also shows the within-manufacturing dispersion of each of these variables (coefficients of variation), as well as the correlations between labor-productivity growth and real-wage growth.

The picture is rather heterogeneous across transition countries and time periods. Two of the countries (Romania and Slovenia) even had a negative interindustry correlation between real-wage growth and labor-productivity growth, and in most of the other countries the cor-

**FIGURE 4.5**  
**Decomposition of Labor Productivity Growth, CEE Countries**



Source: Bank staff calculations.

relation was positive, but not very strong. Most likely, industries that were more exposed to competitive pressures and privatization combined downsizing with wage moderation to survive, while industries sheltered from competition were able to resist restructuring and maintained real-wage growth despite poor productivity performance. The second phase of the transition saw a significant increase in the interindustry correlation of real wages and productivity, indicating that market mechanisms played their role in a more effective way. The closer association between real-wage and productivity growth in the more recent years is also related to the fact that it is often difficult to reduce nominal or even real wages to compensate for negative or only modest productivity growth, as observed in the early phases of the transition.

Another interesting element emerging from the table is that across manufacturing industries, many countries had a lower dispersion in interindustry real-wage growth than in labor-productivity growth in the second phase of the transition. The result is that differences in labor-productivity growth also showed up in changes in relative unit labor costs (that is, industries with above-average productivity growth also improved their relative position in relative unit labor costs).

### **CEE Countries Are Gaining Comparative Advantages in High-Technology Industries**

These changes in unit labor costs are modifying the comparative cost advantages of industries in most transition countries. At the beginning of the transition, most countries had comparative advantages with respect to Western European countries in low-technology industries (textiles, clothing, footwear, and leather products) and in resource-intensive industries (wood, chemicals, nonmetallic minerals, and so forth). Over time, however, one can observe a general pattern of catching up of productivity by medium- and high-technology industries such as machinery, electrical equipment, and transport, outpacing productivity increases of low-technology industries where relative productivity growth has been stagnant or very small (Landesmann 2000). By contrast, real-wage growth has been similar in these industries to that observed in medium- and high-technology industries that experienced major productivity improvements. This wage drift between industries implies that countries are gaining comparative (unit cost) advantages in the medium- and high-technology industries or alternatively that they are losing comparative advantages in those sectors that are labor-intensive and where transition countries were expected to gain significant shares of EU market shares.

TABLE 4.2

## The Evolution of Productivity, Wages, and Unit Labor Costs

		Manufacturing					
		1992–95			1996–02		
		Average <sup>1</sup>	Corr. coef. <sup>2</sup>	Corr.	Average <sup>1</sup>	Corr. coef. <sup>2</sup>	Corr.
Bulgaria	Avg. labor productivity growth				0.69	0.60	
	Avg. real wage growth (3)				2.66	-0.16	
	Avg. unit labor cost (EURO) growth (4)				7.83	1.43	
	Correlation labor productivity and real wages (5)						0.61
Croatia	Avg. labor productivity growth				5.78	1.61	
	Avg. real wage growth (3)				2.66	1.23	
	Avg. unit labor cost (EURO) growth (4)				0.10	0.18	
	Correlation labor productivity and real wages (5)						0.48
Czech Rep.	Avg. labor productivity growth	0.33	-0.37		3.90	0.55	
	Avg. real wage growth (3)	-1.25	-0.80		3.81	3.17	
	Avg. unit labor cost (EURO) growth (4)	4.48	1.95		4.34	0.94	
	Correlation labor productivity and real wages (5)			0.51			0.84
Estonia	Avg. labor productivity growth	6.28			10.02	2.88	
	Avg. real wage growth (3)	5.20			4.52	0.58	
	Avg. unit labor cost (EURO) growth (4)				2.58	1.90	
	Correlation labor productivity and real wages (5)						0.58
Hungary	Avg. labor productivity growth	14.91	2.05		8.28	0.96	
	Avg. real wage growth (3)	0.23	-0.13		3.40	2.97	
	Avg. unit labor cost (EURO) growth (4)	-8.83	-1.56		-1.00	0.32	
	Correlation labor productivity and real wages (5)			0.40			0.35
Latvia	Avg. labor productivity growth	1.57	-0.08		7.22	1.49	
	Avg. real wage growth (3)	7.70	0.46		2.02	1.11	
	Avg. unit labor cost (EURO) growth (4)				4.03	0.72	
	Correlation labor productivity and real wages (5)			0.12			0.23
Lithuania	Avg. labor productivity growth				5.78	0.98	
	Avg. real wage growth (3)				5.06	1.97	
	Avg. unit labor cost (EURO) growth (4)				14.40	2.80	
	Correlation labor productivity and real wages (5)						0.71
Poland	Avg. labor productivity growth	10.67	2.39		8.92	3.28	
	Avg. real wage growth (3)	3.13	1.27		2.94	1.84	
	Avg. unit labor cost (EURO) growth (4)	1.03	0.37		0.83	0.35	
	Correlation labor productivity and real wages (5)			0.39			0.41
Romania	Avg. labor productivity growth	0.90	0.09		5.18	0.93	
	Avg. real wage growth (3)	-6.18	-2.64		-1.09	-0.16	
	Avg. unit labor cost (EURO) growth (4)	-4.66	-0.42		0.96	0.42	
	Correlation labor productivity and real wages (5)			-0.44			0.24
Slovak Rep.	Avg. labor productivity growth	1.82	0.24		7.68	1.46	
	Avg. real wage growth (3)	2.45	1.13		3.19	2.51	
	Avg. unit labor cost (EURO) growth (4)	13.48	3.04		0.87	0.50	
	Correlation labor productivity and real wages (5)			0.78			0.75
Slovenia	Avg. labor productivity growth	2.56	0.60		2.92	-0.07	
	Avg. real wage growth (3)	3.08	1.68		4.41	2.03	
	Avg. unit labor cost (EURO) growth (4)	3.68	0.49		3.80	0.56	
	Correlation labor productivity and real wages (5)			-0.31			0.73

Source: Authors' calculations.

Note:

1. Weighted average across 14 manufacturing industries (in percent)
2. Unweighted average divided by the standard deviation (in percent)
3. Average monthly wages, real (defl. CPI) annual changes in percent.
4. Unit labor cost (EURO) - annual in percent
5. Correlation between average growth rates in real wages and labor productivity growth.

## Firm Creation and Destruction Is Also Vital for Promoting Productivity Growth

One interesting result emerging from the previous section is that productivity growth was largely driven by performance within each manufacturing industry, rather than by reallocation of resources across manufacturing industries. To shed more light on this result and proceeding to the level where the core action of restructuring is taking place, this section analyzes firm-level data to assess how restructuring of existing firms and the process of creative destruction (that is, the entry of new firms that displace old and obsolete units) contribute to productivity growth.

There are a number of ways in which aggregate productivity can be decomposed into a within-firm component and other components related to the reallocation of resources across firms. The approach used in this section distinguishes five different components of productivity growth: the *within component*, accounting for productivity growth taking place within firms; the *between component*, capturing the increases in aggregate productivity that come from high-productivity firms gaining market shares or from low-productivity firms losing market shares; the *covariance* or *cross component*, a term that combines changes in market shares and changes in productivity (it is positive if enterprises with growing productivity also experience an increase in market shares); and components attributable to *entry* and *exit* of firms (see box 4.4 for further details).

### BOX 4.4

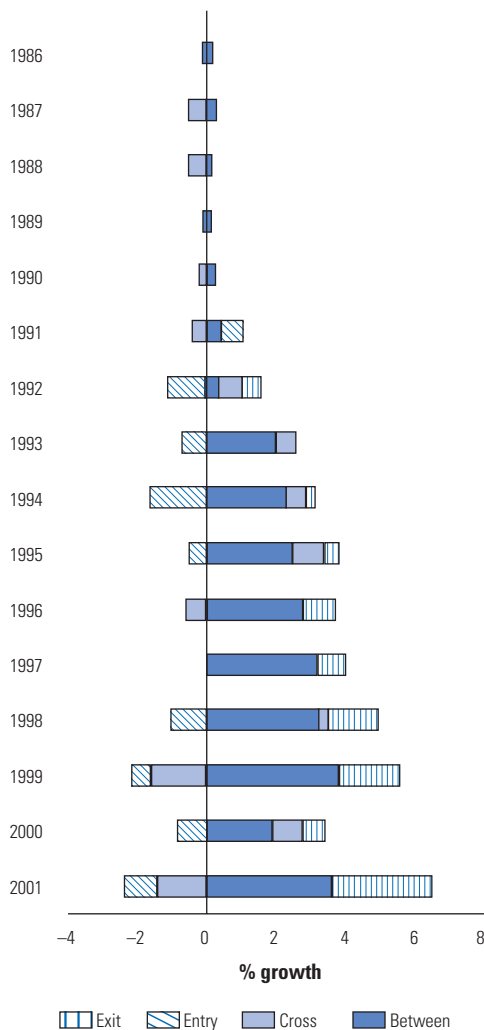
#### The Decomposition of Productivity Growth Using Firm-Level Data

One approach (equation 4.3) used to decompose productivity growth is from Foster, Haltiwanger, and Krizan (2001). It uses base-year market shares as weights for each term of the decomposition:

$$\Delta P_t = \sum_{\text{Continuers}} \theta_{it-k} \Delta p_{it} + \sum_{\text{Continuers}} \Delta \theta_{it} (p_{it-k} - P_{t-k}) + \sum_{\text{Continuers}} \Delta \theta_{it} \Delta p_{it} + \sum_{\text{Entries}} \theta_{it} (p_{it} - P_{t-k}) - \sum_{\text{Exits}} \theta_{it-k} (p_{it-k} - P_{t-k}) \quad (4.3)$$

where  $\Delta$  means changes over the  $k$ -years' interval between the first year ( $t - k$ ) and the last year ( $t$ );  $\theta_{it}$  is the share of firm  $i$  in the given industry at time  $t$  (it could be expressed in output or employment);  $p_i$  is the productivity of firm  $i$ , and  $P$  is the aggregate (that is, weighted average) productivity level of the industry. The first term is the *within component*, the second term is the *between component*, the third term is the so-called *covariance* or *cross component*, and the fourth and fifth terms are the *entry component* and *exit component*, respectively.

**FIGURE 4.6**  
**Contribution of Reallocation to Russian Labor-Productivity Growth, 1986–2001**



Source: Brown and Earle 2004.

Note:

between = productivity growth resulting from reallocation of labor across existing firms

entry = productivity growth resulting from entry of new firms

exit = productivity growth resulting from exit of firms

cross = changes in market share and changes in productivity

Firm-level data for a sample of CEE countries plus Russia and Ukraine suggest that since the beginning of the transition, reallocation of employment across firms and industries has gained a stronger role in promoting productivity growth (figures 4.6 and 4.7).<sup>6</sup> Nevertheless, efforts to promote greater efficiency within each firm also play an

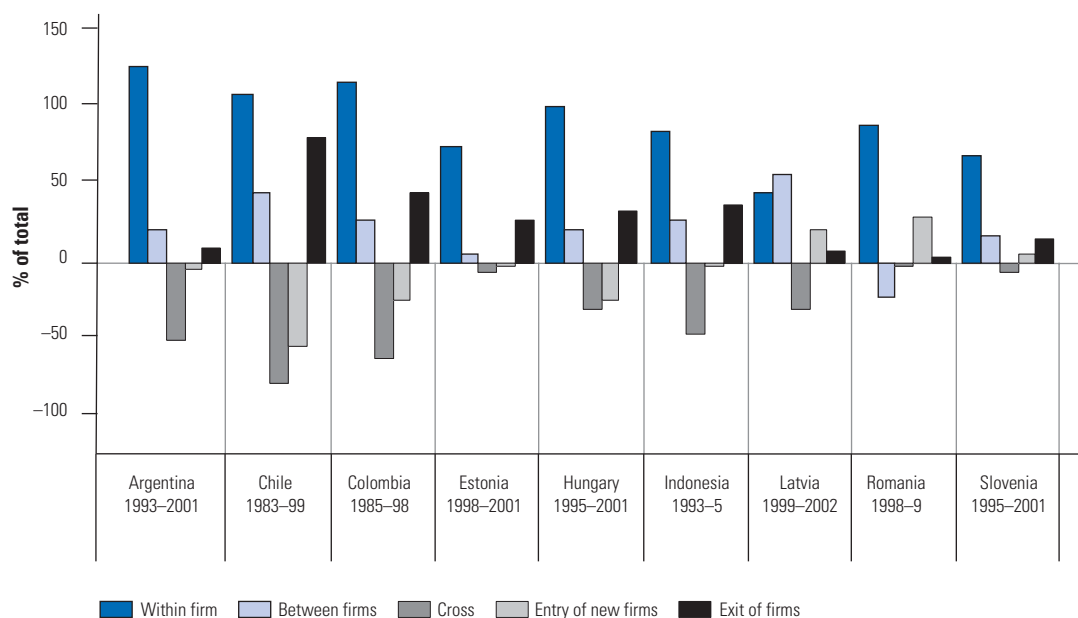
important role. Also, confirming the findings obtained with more aggregate data, there is little evidence of labor reallocation across existing firms from the least- to most-productive units. If anything, firms experiencing an increase in productivity were also losing employment shares (that is, their productivity growth was associated with restructuring and downsizing, rather than expansion) (figure 4.7).

The net entry effect (entry plus exit) is generally positive in most transition countries, accounting for between 20 percent and 50 percent of total productivity growth. In particular, there is clear evidence that the exit of obsolete firms released resources that could be used more effectively by new or existing firms. Although lack of experience and small size often make new firms less productive than the average incumbent in OECD countries, new firms in transition economies are (on average) more efficient than the incumbents. They have been able to fill in new market niches and adopt new and more efficient technologies, thereby contributing to productivity and output growth.

**FIGURE 4.7**

### Sources of Productivity Growth in Transition and Emerging Economies

Labor productivity decomposition shares: manufacturing, three-year differencing, real gross output



Source: Bartelsman, Haltiwanger, and Scarpetta 2004.

*Note:*

Within = within firm productivity growth  
 between = productivity growth resulting from reallocation of labor across existing firms  
 entry = productivity growth resulting from entry of new firms  
 exit = productivity growth resulting from exit of firms  
 cross = changes in market share and changes in productivity

### In Medium- and High-Technology Industries, New Firms Are Better at Harnessing New Technologies

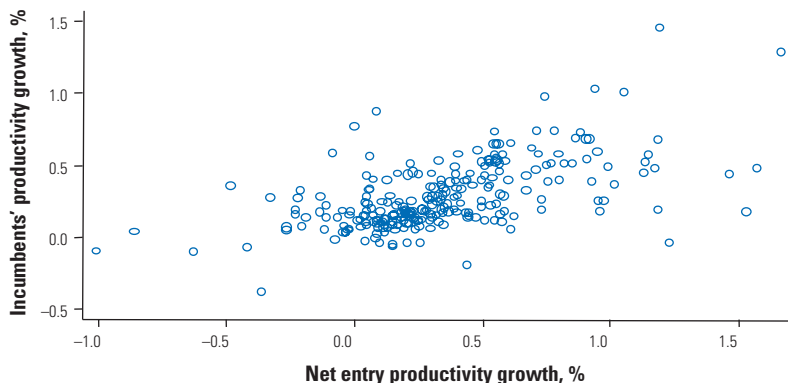
Dividing manufacturing industries into a low-technology group and a medium- and high-technology group suggests important differences in the sources of productivity growth. Defensive restructuring seems to be largely concentrated in low-technology industries, where the contribution of new firms to productivity growth is modest (Scarpetta and Vodopivec 2005). By contrast, the entry of new firms plays a strong role in boosting productivity in medium- and high-technology industries. This is consistent with the idea that in areas where there are greater opportunities for adopting newer and better technologies, new firms play an essential role.

### New Firms Also Promote Productivity of Incumbents by Raising Market “Contestability”

The role of entry and exit of firms is also important in reinforcing competitive pressure on incumbents. The risk that new firms may steal market shares from incumbents and the risk of failure both act as strong disciplinary devices to promote better performance by incumbents. A first look at such contestability effects is provided in figure 4.8, which presents the correlation between the contribution of net entry in a country or sector (using time averages from the

**FIGURE 4.8**  
**Relationship between Net Entry Contribution and Productivity Growth of Incumbents**

Firm entry and productivity growth of incumbents: five-year differencing, real gross output, country and industry time averages



Source: Bartelsman, Haltiwanger, and Scarpetta 2004.

Note: Correlation coefficient: 0.58, statistically significant at 1 percent. Each dot is one country-industry observation. Excludes Brazil and República Bolivariana de Venezuela. Outliers excluded.

country-sector-year data) and the productivity growth from incumbents (the *within component* in the productivity decomposition). Interestingly, a strong positive and statistically significant correlation exists between the net entry contribution and the productivity growth of incumbents. This finding is suggestive that there is a relationship between the creative destruction and within-firm sources of productivity growth.<sup>7</sup>

In sum, while existing firms have largely responded to the need to improve performance by reducing overstaffing—especially in traditional sectors—the creative destruction process has boosted productivity growth, both directly by the entry of new, more-productive firms that have displaced less-productive units and indirectly by reinforcing market contestability.

## What Drives Restructuring of Existing Firms?

### Restructuring of Existing Firms Has Been Largely Influenced by Privatization

Privatization has often been the main trigger of firm restructuring, and transition countries have used different privatization methods, have transferred ownership at different paces, and have left different roles for the state as shareholder in privatized firms. All these factors have played a role in fostering the reduction in inefficiency and in promoting firm development.

Transition countries have generally privatized small firms quickly and completely, while the privatization of large firms has proceeded more gradually. Among transition economies, CEE countries privatized both small and large firms faster and more comprehensively than SEE or CIS countries. The dispersion of both small- and large-scale privatization progress has been by far the largest in the CIS, while it has been relatively uniform in CEE countries, particularly for small-scale privatization.

### Privatization Has Promoted Firm Performance

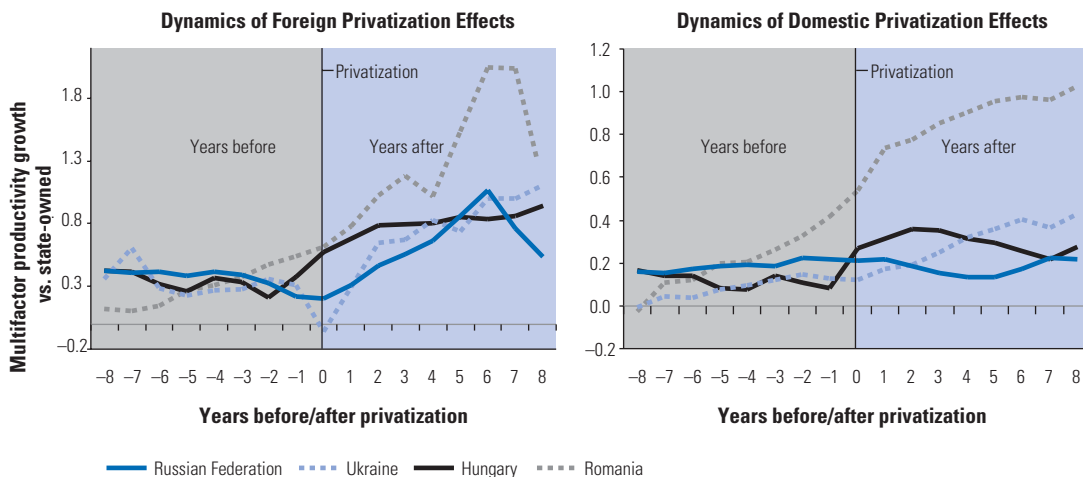
Privatization strongly improved enterprise performance, but its effects vary substantially by type of privatization and by groups of countries. The recent “quantitative” survey of Djankov and Murrell (2002), based on meta-analysis of 93 empirical studies from various transition countries, finds that outside owners have been more effective in improving performance than insiders and that privatization methods

generating concentrated ownership—particularly by foreigners—improved performance the most. Firms with diffused outsider ownership performed virtually the same as state firms, and worker-owned firms performed the worst. Productivity effects of privatization also vary strongly across countries. In Central and Eastern Europe, these effects have been more statistically significant and greater in size (often adding several percentage points to enterprise growth) than in the CIS (Djankov and Murrell 2002).<sup>8</sup>

A more in-depth assessment of the privatization process in four countries (Hungary, Romania, Russia, and Ukraine) sheds further light on these issues (figure 4.9). It suggests that the effect of foreign privatization on performance is strikingly similar across countries, in contrast to the effects of domestic privatization. This suggests that foreigners’ advantages in accessing finance, new technologies, the latest managerial techniques, and world markets far outweigh any disadvantages resulting from unfamiliarity with local conditions and weak political connections.

The privatization methods used in Hungary and Romania also resulted in concentrated ownership from the time of privatization, whereas mass privatization in Russia and Ukraine led to dispersed ownership by employees and small outside investors.<sup>9</sup> Secondary trading has resulted in more-concentrated ownership in Russia and Ukraine, but this has taken time. This raises the possibility that if ownership concentration is a necessary condition for privatization to have a positive effect, then the effect may have appeared sooner in Hungary and Romania than in Russia and Ukraine.

**FIGURE 4.9**  
**Effects of Foreign and Domestic Privatization on Multifactor Productivity Growth (MFP)**



Source: Brown and Earle 2004.

## Positive Effects on Job Creation Are Found among Foreign-Owned Privatized Firms

Privatization has also had significant effects on workers (see figure 4.10). Evidence from these four countries suggests that foreign privatization has increased employment and wages in all countries, though the effects are not always large. Domestic privatization has been less kind to workers, however, because wages suffered in all four countries and employment rose only in a few instances.

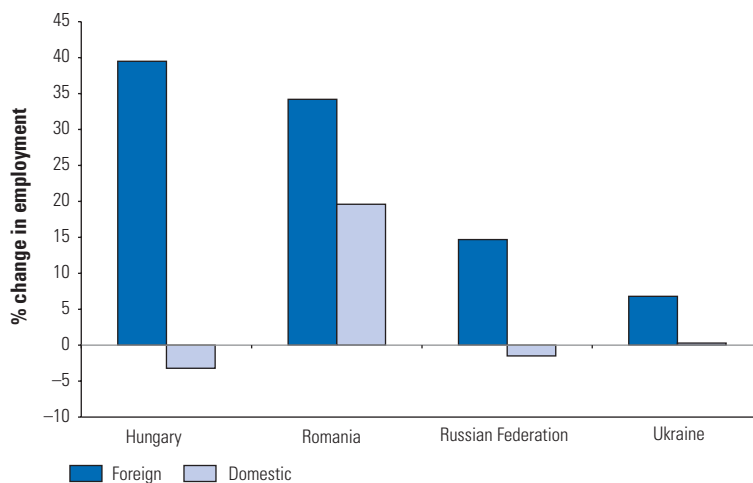
But there are also significant differences across types of workers. Thus, employment composition and relative wage changes have been significantly biased toward white-collar employees. This is consistent with the idea that foreign privatization, by promoting the upgrading of production processes with new technologies, tends to be skill-biased. It also suggests that although foreign privatization has improved the welfare of workers overall, it has also increased inequality.

## How Many Firms Enter and Exit the Market in Transition Countries?

### Much Creation and Some Destruction of Firms

As emphasized earlier, firm dynamics—especially firm entry—have been an essential driver of job creation and an engine for productiv-

**FIGURE 4.10**  
Effects of Foreign and Domestic Privatization on Productivity, Employment, and Wages



Source: Brown and Earle 2004.

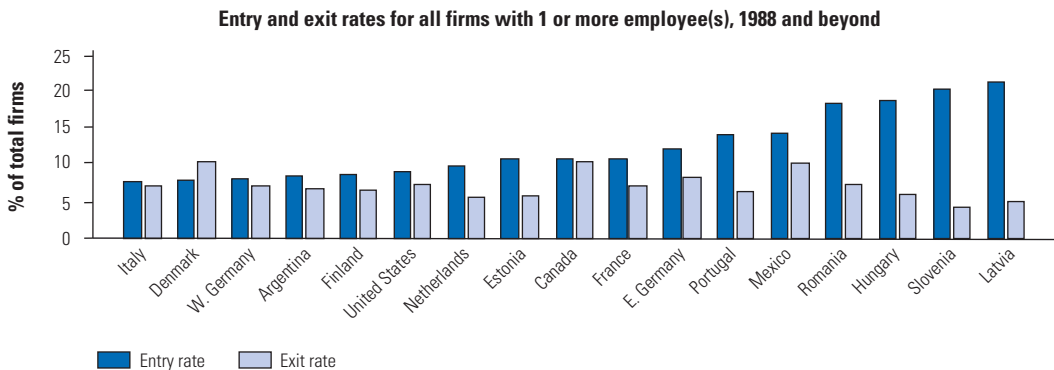
ity growth. How many firms enter and exit the market in transition economies? What are their characteristics, compared with those of the incumbents?

A common fact in all market economies is that many firms enter and exit most markets every year. This is particularly true in transition economies where 20–25 percent of firms (with at least one employee) have entered or exited the market (on average) annually in the past decade (figure 4.11). Moreover, in transition economies, firm entry largely outpaced firm exit. Obviously, this is related to the process of transition and is not sustainable over the longer run. Still, it points to the fact that new firms not only displaced obsolete incumbents in the transition phase but also filled in new markets that were either nonexistent or poorly populated in the past. This is also reflected in the discrepancies between firm entry and exit across firm size. Indeed, the entry of firms is particularly large among microunits (20 or fewer employees). During the centrally planned system, there were relatively few of these microfirms; however, they exploded during the transition in most business service activities.

### Even Successful Entrants Do Not Expand Significantly

A high entry rate is in itself a signal of market dynamism, and especially in transition economies, it is essential to develop new private activities. However, in most market economies, high entry sectors are also characterized by high exit rates, involving many young businesses that are censored by the market. So, how much do new firms displace old, obsolete units, and how high are failure rates among newcomers in the first years of their life?

**FIGURE 4.11**  
**How Many Firms Enter and Exit the Market?**



Source: Bartelsman, Haltiwanger, and Scarpetta 2004.

Compared with the OECD economies, new firms in transition countries seem to have higher survival rates (Scarpetta and Vodopivec 2005). Except for Romania, more than 70 percent of entrant firms are still in the market after four years, while the proportion is often around 60 percent in the OECD countries.

However, the expansion of successful new firms is limited, and new firms remain of relatively small size. This is common to many European countries and largely differs from other markets, including the United States, where successful entrants double in size in the early years of life.<sup>10</sup> These results point to the fact that the performance of new firms may be affected not only by entry conditions but also by factors that affect the decision to expand and hire more workers. These include access to finance, labor adjustment costs, and stability of the economic and regulatory environment (see chapter 5).

### **Summing Up: Entry Conditions and Incentives to Create Jobs Are Essential for Improving Job Creation in the Region**

At the onset of transition, the presence of many inefficient state-owned firms offered a unique challenge for countries in the Region, but also a major opportunity for vast productivity improvements and sustained ameliorations of living standards. Because of large misallocation of resources, reallocation of labor and other resources—across firms, sectors, and locations—was perceived as one of the foremost tasks of transition. New control mechanisms of firm efficiency were put in place, dictating the pace and depth of restructuring. The process of creative destruction (that is, the exit of unprofitable firms, paving the way for the creation of new, more-productive ones), invigorated by privatization and competition, was expected to be exceptionally important in raising productivity in transition countries.

To a large extent, these expectations were borne out. Transition brought a remarkable surge of job flows. Firms destroyed low-productivity jobs and created high-productivity ones. The entry of new private firms in the market has been exceptionally large by international standards, contributing to the creation of many new jobs. But the exit of obsolete firms also accounted for a large share of job destruction. Because of restructuring and ensuing resource reallocation, the sectoral structure of employment strongly changed, with the increase of market services, deindustrialization, and reduction of employment in agriculture being the main outcomes. However,

this general picture hides large differences across transition economies. For example, reflecting harsher adjustment conditions and slower progress in transforming the institutions to market standards, the share of agriculture in total employment increased in most CIS countries.

The reallocation of resources also proved to be efficiency-enhancing: although productivity increases have largely been driven by within-firm forces, resulting in defensive restructuring, firm entry has strongly increased productivity. In particular, not only have many new firms been relatively more productive than existing ones in transition—a fact that is uncommon in OECD countries—but their entry has also contributed to igniting competitive pressure on incumbents promoting their restructuring.

Investment climate conditions are also of great importance to stimulating the expansion of successful firms, often constrained by lack of access to finance or uncertainties about the institutional and market environment in which they operate. And by continuing to provide budgetary support to ailing firms (albeit often not as direct subsidies), many transition countries have not provided consistent and credible enforcement of firm exit (the share of job destruction resulting from exit of firms has been below that in nontransition countries, and increasing it would quite possibly be productivity- and welfare-increasing). These countries have therefore underutilized the potential exit of firms as a disciplinary device, as well as the actual exit of firms as a means of freeing resources to other, more-productive uses.

The main engine to enterprise restructuring has been the transfer of ownership to the private sector. Most pretransition firms have been privatized in Eastern Europe and the Former Soviet Union, although the method of privatization and the governance of the new private entities vary a great deal across countries of the Region. Most of these privatized firms have pursued defensive restructuring, with large layoffs. Their ability to move toward more strategic restructuring—with new investment and job creation—depends on the same investment climate conditions affecting newly created firms. The evidence that foreign-owned privatized firms have had better productivity and employment performance than domestically owned firms suggests possible difficulties in accessing new technologies, in exploring foreign markets, and in management.

The stance of the investment climate in transition economies and its impact on firm performance and job creation are reviewed in the next chapter of this report.

## Notes

1. Previous studies have used two types of benchmark to assess how far away transition countries were from market economy structures and how much they had progressed over the transition periods toward these market structures. The first approach uses the GDP and employment structure of the neighboring Western European countries as a reference, using Northern and Southern European countries as two possible benchmarks (Aiginger and others 1999; Landesmann 2000). Alternatively, other studies have used regression analyses based on cross-country data for a large number of nontransition market economies (Raiser, Schaffer, and Schuchhardt 2003). The first approach is more relevant for accession countries, whose level of development is relatively close to their Western European counterparts; for these countries, both approaches yield similar conclusions. The second approach, however, is more adequate to assess CIS countries, whose market-structure benchmark is probably to be found in low- or low-to-middle-income developing countries and is used in this study.
2. The data refer to 1989–2002, although for a number of countries data coverage is more limited.
3. The distortion index is calculated as the sum of the observed distortion in each macrosector of the economy. The market benchmarks are obtained through regressions of sectoral employment shares on GDP per capita levels and its square. In this respect, the distortion index is a measure of the overall distance of an economy from a market economy with the same per capita income. See also Raiser, Schaffer, and Schuchhardt (2003) for more details.
4. Given data availability, the decomposition is limited to 14 manufacturing industries in 11 CEE countries. This limits the scope of the analysis because, as stressed above, most of the reallocation of labor has been driven by shifts away from manufacturing into business services, rather than within manufacturing. Still, it helps to assess whether market forces have promoted reallocation of labor toward those industries with greater growth potentials.
5. See Grosfeld and Roland (1996) for a discussion of defensive versus strategic restructuring.
6. The analysis focuses on Estonia, Hungary, Latvia, Romania, and Slovenia, and it is based on business register and enterprise survey data. For more details, see Bartelsman, Haltiwanger, and Scarpetta (2004).
7. It might be, however, that the correlation is resulting from the impact of technological advances for both continuing firms and for the creative destruction process. With technological advances, it can be observed that incumbents who survive increase productivity and that entering businesses (which presumably adopt the latest advances) are more productive than the exiting businesses. To focus on the contestability hypothesis more directly, Bartelsman, Haltiwanger, and Scarpetta (2004) also examine the relationship between the firm turnover rate and the productivity growth of incumbents. They again find a positive and statistically significant correlation. This latter finding provides even more direct evidence

of a connection between the competitiveness or contestability of markets and the productivity growth within incumbent firms.

8. Nearly all the studies covered by Djankov and Murrell (2002) are based on small surveys conducted soon after privatization. Since then, a few studies have used comprehensive manufacturing firm data with long time series to provide more rigorous tests of the effects of privatization. Orazem and Vodopivec (2003) find no effect of either domestic private or foreign ownership on total factor productivity in Slovenia during 1994–2001, but a strong effect of market competition. Lizal and Svejnar (2002) find a clear positive effect of foreign ownership on firm productivity and employment growth in the Czech Republic during 1992–98, but no effect of domestic ownership. The insignificant domestic ownership effect on productivity is surprising at first glance, given that the postprivatization ownership structure was concentrated in the hands of investment funds. These investment funds were poorly regulated, however, and many were at least temporarily owned by state banks.
9. Romania used management-employee buyouts early in the privatization process, but employees voted as a group, unlike in Russia and Ukraine.
10. Among the few CEE countries for which data are available, Romania is an exception: not only are failure rates higher than in the other countries but even successful entrants have very limited opportunities of expanding.