

*John S. Earle*

# Evaluating Labor Market Performance

## Employment Reallocation and Productivity Growth in Russia

**T**he Russian transition from socialist planning toward market-based allocation provides an interesting opportunity to measure the role of the labor market in generating economic growth. A common but relatively little examined assumption of economists is that employment (or labor) allocation in market economies responds to productivity differentials across alternative uses, with labor tending to flow away from lower-valued uses and toward those that are higher-valued. During the Soviet period, however, jobs were allocated across industries and enterprises according to the dictates of central planners, who were in turn guided by the political leaders' preferences for developing some sectors and types of firms rather than others. For instance, the mining, heavy manufacturing, and public transportation industries received many resources, as did larger firms and those connected with the military, while the consumer goods manufacturing and service sectors, as well as smaller firms, tended to be neglected.

How well did the Soviet planners do, measured as the contribution of job reallocation across firms to increased productivity? And how has the relationship between job and productivity growth by industry changed since the dramatic liberalization of markets and the privatization of much of the economy in the early 1990s? To what extent have the patterns of job reallocation come to more closely resemble those found in the United States, and what factors tend to

increase the degree to which job reallocation is productivity-enhancing?

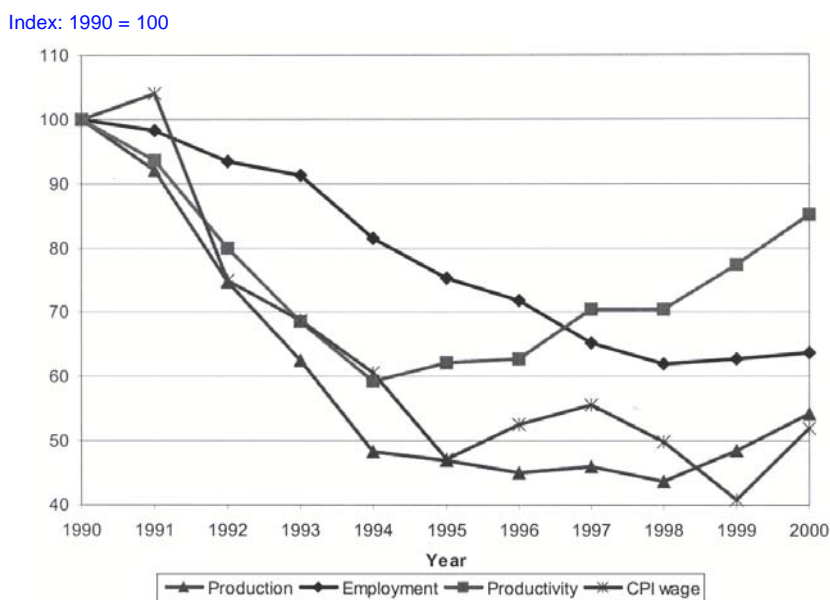
Analysis of recently available data on Russian firms provides some answers to these questions. The data cover all industrial enterprises in Soviet Russia in 1985–1991 and all medium- and large-sized industrial enterprises since the breakup of the Soviet Union in late 1991. Firms with fewer than 100 employees are excluded. The data, which provide information similar to that in the U.S. Annual Survey of Manufacturers (except that they pertain to firms rather than establishments), are well suited for investigating the job reallocation process

in the old industrial sector that was established during the socialist period. The behavior of the old industrial firms—where socialist planning resulted in a large concentration of capital and skilled labor, and where the price, technology, and competition shocks of transition have been particularly severe—is of particular interest in Russia and other transition economies.

### Labor Market Developments in Russian Industry

Figure 1 displays information on the evolution of industrial production, employment, labor productivity, and the real wage in Russia from 1990 to 2000. Although the large magnitude of the output decline in the early 1990s must be taken somewhat cautiously (chiefly due to problems in measuring inflation), the broad trends are well accepted. The “output shock” was especially severe in Russia, where official industrial production fell by more than 50 percent in just the first four years of the 1990s. The employment decline was also quite drastic by international and historical standards, with a fall of nearly 40 percent by 1998. Nevertheless, the drop in employment was more gradual than that

**Figure 1 Production, Employment, Productivity, and Wages in Russian Industry, 1990–2000**



SOURCE: Russian State Statistical Committee (Goskomstat).

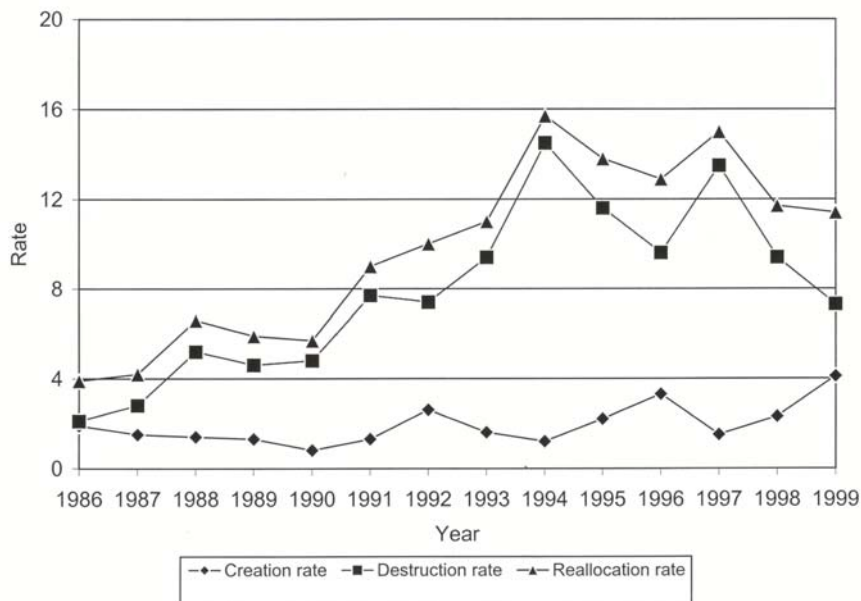
of output, resulting in a large initial decline in labor productivity followed by a partial recovery. Measured real wages, here deflated by the official CPI, also fell in the years to 1995 and have been volatile since then.

The aggregate data show a clear picture of an industrial sector in deep depression during the 1990s. This raises questions concerning the nature of the decline. Does the rapid deindustrialization reflect a process of Schumpeterian creative destruction, whereby the economy gets rid of its over-built, inefficient elements? Or does the aggregate industrial decline reflect a depression in which all economic activity declines simultaneously and roughly proportionately? A final possibility is that the decline is actually more severe in the more productive sectors of the economy, suggesting sclerosis in an excessive preservation of inefficient jobs and unhealthy pressures on more productive firms and sectors. Sclerosis is quite plausible in Russia, where governments (particularly local and regional governments) may protect weak enterprises, successful firms are subject to public and private predation, and stripping of assets—most likely from productive firms with valuable assets—is notoriously widespread. Addressing these questions requires an analysis of firm-level data that permit an assessment of differences across firms and sectors in employment and productivity growth.

### Firm-Level Job Flows

The firm-level analysis follows standard methodologies used in the United States for measuring job creation and job destruction, as the sources of growth and decline in employment at the firm level, respectively. The creation rate is defined as the ratio of employment growth in all expanding firms to total employment, and the destruction rate is the ratio of employment decline in all contracting firms to total employment. The reallocation rate—a measure of the total movement of jobs across firms—is defined as the sum of the creation and destruction rates. Figure 2 contains calculations of these rates on an annual

**Figure 2 Job Creation and Job Destruction in Russia**



SOURCE: Brown and Earle (2002).

basis for the Russian industrial sector from 1985 to 1999.

Job creation is low in this sector throughout the period, but it does rise significantly in the later years. If the years are grouped into a rough “pre-reform” period (1985–1991) and a “post-reform” period (1992–1999), the creation rate rises from an average of 1.4 percent in the first period to 2.4 percent in the second. Note that the grouping of years is defined around 1992, the year of the “big bang” liberalization in Russia.

Job destruction exceeds creation in every year, and it rises even much more in the early 1990s, reaching the typical range of the U.S. economy by 1992–1993. The gap between destruction and creation widens substantially, confirming the net employment decline in the official aggregate data. Comparing the pre- and post-reform periods, the average job destruction rate more than doubles, rising from 4.5 percent to 10.3 percent. As a consequence of the rise in both creation and destruction, the reallocation rate also rises, from an average of 5.9 percent in the pre-reform period to an average of 12.7 post-reform.

### Job Flows and Firm Characteristics

How do the patterns of job flows relate to observable firm characteristics? In research on the United States, a principal focus has been on variables that may be associated with costs of labor adjustment, such as size, capital intensity, average wage, and labor productivity. The general finding has been that each of these variables tends to reduce the magnitude of job reallocation. Analysis of the Russian data shows that these characteristics had an inconsistent relationship with these variables in the pre-reform period; however, all of these relationships moved strongly toward negative. This suggests that economic reforms have produced patterns of job flows more akin to those in market economies, and that Russian firms have become more sensitive to adjustment costs.

Of particular interest in the Russian transition are the effects of market competition and firm ownership on job reallocation. Employment movements may be taken as a measure of restructuring, which the policies of liberalization and privatization were intended to promote. The data, however, show no systematic tendency for firms of private ownership or those operating in

less concentrated product markets to engage in higher levels of reallocation.

### Productivity-Enhancing Job Reallocation

How is job reallocation related to productivity differentials across firms? Do less productive firms tend to lose jobs while the more productive tend to gain them? Or is there no relationship, or even possibly a negative one, between job flows and relative productivity levels?

These questions can be addressed using a decomposition of aggregate industrial labor productivity growth. Our analysis of the data suggests that while average firm productivity was falling in the post-reform period, which may be an artifact of overstated inflation, changes in the composition of Russian industry partially offset this effect. The changes in the relative employment shares of different industries and of firms within industries each worked to increase productivity by more than 2 percent per year, on average, in the post-reform period. Taken together, the two types of job flows produced nearly 5 percent annual productivity growth.

These results contrast starkly with those for the pre-reform period, when the estimated contributions of job flows to

productivity growth are actually negative. The magnitudes are tiny, implying that the reallocation of labor under Soviet planning was largely unrelated to productivity differentials.

Finally, what is the impact of firm characteristics, particularly ownership and competition, on the job flows and productivity growth? While private ownership and market dispersion have no tendency to raise the level of job reallocation, the analysis finds that they have strong positive effects on the relationship of reallocation with productivity differentials. This suggests that privatization and liberalization policies worked to focus job destruction in the firms and sectors that were the least productive in the Russian economy.

### Conclusion

Basic economics teaches us that a primary function of the labor market is to allocate labor to its highest valued uses. In the simplest textbook case of homogeneous labor and perfect competition, efficiency requires that the marginal productivity of labor be equal in all firms and all sectors of the economy. In response to changes in the environment (such as shifting consumer demand, increased competition, or technological

innovation), an “efficient” labor market is supposed to facilitate adjustments that reallocate labor to raise productivity.

This study of the Russian labor market finds that prior to reforms, when Russia was governed by Soviet planners, the labor market functioning was not consistent with this textbook model. The movement of jobs across firms and sectors was largely unrelated to productivity differentials. After reforms, however, Russian labor market performance changed drastically, and job reallocation worked to raise productivity growth.

### Suggestions for Further Reading

Brown, David J., and John S. Earle. 2002. “Gross Job Flows in Russian Industry Before and After Reforms: Has Destruction Become More Creative?” *Journal of Comparative Economics* 30(1): 96–133.

Davis, Steven J., and John Haltiwanger. 1999. “Gross Job Flows.” In *Handbook of Labor Economics*, Orley Ashenfelter and David Card, eds. Amsterdam: Elsevier, pp. 2711–2805.

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## 2002 Grant Awards

This year’s research grant recipients and their projects are:

David Fasenfest and Heidi Gottfried, Wayne State University: “New Economy Employment Relations in an Old Economy Region: Temporary Employment and Low-Wage Labor Markets”

John A. Turner, AARP: “Public Policy Towards Defined Contribution Pensions: A Comparative Analysis”

Nan L. Maxwell, California State University, Hayward: “Entry-Level Jobs: What Employers Want and What Low-Income Workers Have”

Trond Petersen, University of California, Berkeley: “The Impact of Family Adaptions on Careers and Wages”

Mark D. Partridge, St. Cloud State University, and Dan S. Rickman, Oklahoma State University: “When Does Local Economic Growth Reduce Poverty Rates? A Comparison of the 1980s and 1990s.” Western Michigan University: Department of Economics Guest Lecture Series 2002–2003.

Five mini-grants were also awarded this year. They are:

Paul Devereux, University of California, Los Angeles: “The Effects of Industry Growth and Decline on Earnings and Wages”

David J. Jaeger, The College of William and Mary: “Contracting and Job Stability in Spain: 1987–2001”

Laura Peck, Arizona State University: “Using Cluster Analysis to Create Experimental Subgroups and Measure the Impacts of Social Programs on Key Subgroups”

Arthur Sweetman, Queen’s University, and Peter J. Kuhn, University of California, Santa Barbara: “Use It or Lose It: Alternative Skill Atrophy and the Earnings of Displaced Workers”

Erdal Tekin, Georgia State University: “Child Care Subsidies, Welfare, and Nonstandard Employment of Mothers”