Enterprise Restructuring and Economic Policy in Russia

Edited by
Simon Commander
Qimiao Fan
Mark E. Schaffer
Other EDI Development Studies
(In order of publication)

Infrastructure Delivery: Private Initiative and the Public Good
Edited by Ashoka Mody

Trade, Technology, and International Competitiveness
Irfan ul Haque

Corporate Governance in Transitional Economies:
Insider Control and the Role of Banks
Edited by Masahiko Aoki and Hyung-Ki Kim

Unemployment, Restructuring, and the Labor Market
in Eastern Europe and Russia
Edited by Simon Commander and Fabrizio Coricelli

Monitoring and Evaluating Social Programs in Developing Countries:
A Handbook for Policymakers, Managers, and Researchers
Joseph Valadez and Michael Bamberger

Agroindustrial Investment and Operations
James G. Brown with Deloitte & Touche

Labor Markets in an Era of Adjustment
Edited by Susan Horton, Ravi Kanbur, and Dipak Mazumdar
Vol. 1—Issues Papers; Vol. 2—Case Studies

Does Privatization Deliver? Highlights from
a World Bank Conference
Edited by Ahmed Galal and Mary Shirley

The Adaptive Economy: Adjustment Policies
in Small, Low-Income Countries
Tony Killick

Financial Regulation: Changing the Rules of the Game
Edited by Dimitri Vittas

The Distribution of Income and Wealth in Korea
Danny Leipziger and others

Public Enterprise Reform: The Lessons of Experience
Mary Shirley and John Nellis
(Also available in French and Spanish)

Privatization and Control of State-Owned Enterprises
Edited by Ravi Ramamurti and Raymond Vernon

Finance at the Frontier: Debt Capacity and the Role of Credit
in the Private Economy
J. D. Von Pischke
Enterprise Restructuring and Economic Policy in Russia

Edited by
Simon Commander
Qimiao Fan
Mark E. Schaffer

The World Bank
Washington, D.C.
The Economic Development Institute (EDI) was established by the World Bank in 1955 to train officials concerned with development planning, policymaking, investment analysis, and project implementation in member developing countries. At present the substance of the EDI's work emphasizes macroeconomic and sectoral economic policy analysis. Through a variety of courses, seminars, and workshops, most of which are given overseas in cooperation with local institutions, the EDI seeks to sharpen analytical skills used in policy analysis and to broaden understanding of the experience of individual countries with economic development. Although the EDI's publications are designed to support its training activities, many are of interest to a much broader audience. EDI materials, including any findings, interpretations, and conclusions, are entirely those of the authors and should not be attributed in any manner to the World Bank, to its affiliated organizations, or to members of its Board of Executive Directors or the countries they represent.

The material in this publication is copyrighted. Requests for permission to reproduce portions of it should be sent to the Office of the Publisher at the address shown in the copyright notice above. The World Bank encourages dissemination of its work and will normally give permission promptly and, when the reproduction is for noncommercial purposes, without asking a fee. Permission to copy portions for classroom use is granted through the Copyright Clearance Center Inc., Suite 910, 222 Rosewood Drive, Danvers, Massachusetts 01923, U. S. A.

The backlist of publications by the World Bank is shown in the annual Index of Publications, which is available from Distribution Unit, Office of the Publisher, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, U.S.A., or from Publications, Banque mondiale, 66, avenue d'Iéna, 75116 Paris, France.

Simon Commander is principal economist in the New Products and Outreach Division of the World Bank's Economic Development Institute; Qimiao Fan is an economist in the World Bank's Country Operations Division II of the Europe and Central Asia Country Department III; and Mark E. Schaffer is professor of economics at the Centre for Economic Research in Transition, Heriot Watt University in the United Kingdom.

Library of Congress Cataloging-in-Publication Data

Enterprise restructuring and economic policy in Russia / edited by Simon Commander, Qimiao Fan, Mark E. Schaffer. p. cm. -- (EDI Development studies, ISSN 1020-105X) Includes bibliographical references and index.

ISBN 0-8213-3725-4

HG4189.2.E57 1996 338.6'44'0947—dc20 96-21160 CIP
Contents

Foreword xi

Acknowledgments xii

Contributors xiii

Abbreviations and Acronyms xiv

1. Introduction 1
Simon Commander, Qimiao Fan, and Mark E. Schaffer
Shocks and Restructuring  2
Employment Decisions and Worker Compensation  3
Firms' Budget Constraints  5
Privatization and Firm Behavior  8
Prospects and Summary  10

Part I. Employment, Wages, and the Provision of Social Benefits

2. How Russian Firms Make Their Wage and Employment Decisions 15
Simon Commander, Sumana Dhar, and Ruslan Yemtsov
Branch Evolution: Evidence from Official Data  17
Firm Evolution: Survey Evidence  21
Ownership Effects  31
Firm Objectives  35
Explaining Insider Influence  37
Bargaining in the Firm  39
### Contents

Conclusions 48  
References 49  
Notes 50  

3. **Social Benefits and the Russian Industrial Firm** 52  
Simon Commander, Une J. Lee, and Andrei Tolstopiatenko  
What Benefits Are Provided? 55  
Costs of Social Benefits 68  
Cost Recovery 70  
Structure of Compensation, Benefit Pricing, and Incentives 73  
Conclusions 76  
Appendix 78  
References 81  
Notes 82  

Part II. **Financial Aspects of Enterprise Restructuring**

4. **“Arrears” in the Russian Enterprise Sector** 87  
Gilles Alfandari and Mark E. Schaffer  
Late Payment versus Bad Debts: From Financial Stress to Financial Distress 89  
Definitions and Measurement 91  
Arrears in Perspective: Aggregates and International Comparisons 97  
Macroeconomic Policy, Liquidity, and Financial Distress 108  
Arrears and Liquidity 109  
Concentration of Arrears in Financially Distressed Firms 110  
Microevidence on Arrears 116  
The Responses of Enterprises and Policy Implications 128  
Appendix: Definitions and Coverage of Goskomstat Data 134  
References 136  
Notes 138  

5. **Firms, Banks, and Credit in Russia** 140  
Qimiao Fan, Une J. Lee, and Mark E. Schaffer  
General Features 142  
The Distribution of Bank Debt and the “Bad Debt” Problem 145  
Bank Credit Supply and Demand 154  
Banks’ Influence on Enterprise Decisions 157  
Concluding Remarks and Some Policy Implications 162  
References 164  
Notes 165
6. Government Financial Transfers to Industrial Enterprises and Restructuring 166
Gilles Alfandari, Qimiao Fan, and Lev Freinkman
   Overview 167
   The Nature of Government Financial Transfers 171
   Concentration of Financial Transfers 176
   Financial Transfers to Enterprises: Implicit Government Objectives 182
   Government Financial Transfers and Enterprise Performance 194
   Conclusions and Policy Recommendations 197
   Appendix 199
   References 200
   Notes 201

Part III. Corporate Governance and Competition

7. Ownership Structures, Patterns of Control, and Enterprise Behavior in Russia 205
John S. Earle, Saul Estrin, and Larisa L. Leshchenko
   Alternative Ownership Forms and Enterprise Behavior:
      Some Hypotheses 206
   Evolution of Governance Form 212
   Institutional Features of Russian Privatization 213
   Corporate Control in Russian Enterprises 215
   Ownership and Control in Russian Firms 221
   Ownership and Enterprise Behavior 225
   Reorientation of Firms' Objectives and Restructuring 233
   Conclusions 243
   References 247
   Notes 249

8. The Performance of De Novo Private Firms in Russian Manufacturing 253
Andrea Richter and Mark E. Schaffer
   Sample Characteristics and Methodology 255
   Basic Characteristics of De Novo Firms 258
   Economic Performance of De Novo Firms 263
   Performance Expectations 268
   Russian De Novo Performance Compared with Their Polish Counterparts 269
   Conclusions 270
   References 272
   Notes 273
Appendix. The World Bank Survey of 439 Industrial Enterprises 275
Une J. Lee
Sample Selection 276
The Survey Instrument 277
Classification 278
Overview of Sampled Enterprises 279
Notes 283

Index 285

Tables
2-1. Structure of Industrial Employment 18
2-2. Decomposition of Unit Labor Costs in Industry, 1992-94 21
2-3. Descriptive Statistics: Mean and Coefficient of Variation for Firms 22
2-4. Firms Classed by Excess Employment, 1994 26
2-5. Probit Estimation Relating Below-Poverty-Line Wages to Firm and Other Attributes 28
2-6. Relative Influence in Decisionmaking, 1994 30
2-7. Employment Stability by Ownership Type 32
2-8. Employment Changes: Delayed Privatizers and High Government-Shareholding Firms Compared with Other Privatizers 34
2-9. Correlation Matrix between Labor Orientation and Shares of Different Actors 34
2-10. Firm Objectives, 1994 and 1990/91 35
2-11. Correlation Matrix among Firm Objectives 36
2-12. Ordered Logit Estimation Relating Firm Objectives to Firm and Other Attributes 38
2-13. Regression of the Change in Employment 42
2-14. Regression of the Change in Wage Rate 43
2-15. Ratio of Wage to Gross Profit per Worker, 1993 and 1994 45
2-16. Regression of the Ratio of Wage to Reservation Wage 47
3-1. Provision of Benefits, Mid-1994 and 1990/91 56
3-2. Ownership of Benefits, Mid-1994 58
3-3. Provision of Benefits and Size of Enterprise, Mid-1994 59
3-4. Provision of Benefits by Main Industrial Sectors, Mid-1994 60
3-5. Provision of Benefits and Ownership, Mid-1994 61
3-6. Provision of Benefits by Region, Mid-1994 62
3-7. Provision of Benefits and Firm Setting, Mid-1994 64
3-8. Number of Social Benefits, Ordered Logit Estimation 65
3-9. Change in Benefit Levels, Ordered Logit Estimation 66
3-10. Cost of Benefits, Mid-1994 69
Contents vii

3-11. Adjusted Cost of Benefits, Mid-1994 70
3-12. Financial Transfers, OLS Regression 72

4-1. Simplified Balance Sheet of a Russian Enterprise 92
4-2. Structure of Liabilities and Receivables, and Portions in Arrears, Survey and Goskomstat Data 95
4-3a. Balance Sheet of Russian Industrial Sectors, 1 January 1995, General Items and Selected Assets 100
4-3b. Balance Sheet of Russian Industrial Sectors, 1 January 1995, Selected Liabilities 101
4-4. Arrears in Russian Industry since 1992 102
4-5. Trade Credit and Overdue Trade Credit in Western and Transition Economies 104
4-6. Partial Correlations of Assets and Liabilities in Arrears with Money Holdings 111
4-7. Concentration of Liabilities and Arrears 114
4-8. Correlations of Arrears with Arrears 118
4-9. Simple and Partial Correlations between Arrears and Firm Characteristics 119
4-10. Arrears, Demand, and Response to Change in Demand 120
4-11. Arrears and Financial Indicators 121
4-12. Term Structure of Arrears 123
4-13. Frequency of Occurrence of Arrears 124
4-14. Cited Causes of Overdue Payables 126
4-15. Payment Priorities and Financial Distress: Ranking of Payment Obligations in Order of Urgency 127
4-16. Methods Used to Control Overdue Receivables 130
4-17. Obstacles to Pursuing Debtors 131

5-1. Ownership Cross-holdings in Banks and Firms 144
5-2. Bank Credit and Overdue Bank Credit in Russia, 1990–95 146
5-3. Bad Debt and the Rollover Problem: “Have You, in the Past Two Years, Failed to Repay or Service a Bank Debt on Time?” 149
5-4. Term Structure of Overdue Liabilities to Banks 150
5-5. Concentration of Bank Debt in Financially Distressed Firms 151
5-6. Characteristics of Firms with Significant Amounts of Overdue Bank Credit 153
5-7. Ease of Obtaining Bank Credit on Commercial Terms 154
5-8. Main Problems in Obtaining Bank Loans 155
5-9. Factors Affecting the Supply of Bank Credit, Ordered Logit Results 158
5-10. Which Firms Hold Bank Credit? 159
5-11. Bank Influence on Decisions of Enterprises 160
6-1. Average Size of Enterprises by Groups, 1994  170
6-2. Average Gross Transfers and Transfers per Unit  172
6-3. The Largest Recipients  181
6-4. Gini Indexes on Employment, Output, and Financial Transfers  182
6-5. Transfers and Ownership  185
6-6. Comparison of 1994 Recipients and Nonrecipients  186
6-7. Logistic Regressions, Controlling for Ownership and Sectors  187
6-8. Correlations with the Probability of Being a Recipient  190
6-9. Correlations with the Current Amount of Financial Transfers Received  191
6-10. Explained Variable: “Being a Recipient in 1994”  194

7-1. Comparison of the Impact of Alternative Ownership Forms in Attaining Objectives of Transition  208
7-2. Distribution of Ownership by Dominant Owner Type  217
7-3. Legal Form by Dominant Owner Type  218
7-4. Branch by Dominant Owner Type  219
7-5. Dominant Owner by Industry Sector Group  220
7-6. Region by Dominant Owner Type  220
7-7. Clarification of Property Rights: Influence of Actors by Dominant Owner Type  222
7-10. Decisions Concerning Allocation of Profits, Major Investments, Sale or Lease of Major Assets, Financial Issues Generally  223
7-11. Correlation of Ownership and Influence  224
7-12. Depoliticization  228
7-13. Depoliticization Regressions  230
7-15. Depoliticization Regressions: Magnitude of Government Assistance  233
7-16. Responses on Importance of Management Strategies  235
7-17. Company Performance  237
7-18. Sales in 1994  239
7-19. Percentage of Sales Exported to Non-Former Soviet Union Economies  240
7-20. Capacity Utilization in 1994  241
7-21. Proportion of Capital Stock More than Fifteen Years Old  242
7-22. Full-Time Employment  242
7-23. Average Monthly Wage of Managers  243
7-24. Average Monthly Wage of Workers  244
### Contents

8-1. Size Distribution of Firms 257  
8-2. Geographical Distribution 259  
8-3. Sectoral Distribution 260  
8-4. Vintage of the Capital Stock 261  
8-5. Wage and Labor Data 262  
8-6. Output, Employment Growth, and Capacity Utilization 263  
8-7. Job Creation and Job Destruction, Mid-1993 to Mid-1994 264  

A-1. Distribution of Sample by Ownership 279  
A-2. Distribution by Size of Enterprise 280  
A-3. Distribution over Industrial Branches 280  
A-4. Sample Distribution over Regions 281  
A-5. Enterprises within the Military-Industrial Complex (MIC) 282

### Figures

2-1. Industrial Output and Employment, 1991–94  16  
2-2. Change in Employment Related to Change in Output,  
2-3. Change in Output Related to Change in Relative Wage,  
2-4. Monthly Wage by Branch, June 1991 and June 1994  20  
2-5. Scatter of Hiring Rate to Firing Rate (1991–94 to 1991 Employment)  25  
2-6. Log of Average Wage by Groups  29  
2-7. Outsiders' Share and Ratio of Layoffs to Separations  33  
2-8. Labor Market  41  
2-9. Cumulative Density of Wage/Gross Surplus per Worker, 1994  46  
2-10. Cumulative Density of Wage/Gross Surplus per Worker, 1993  46  
3-1. Change in Average Wages and Cost of Social Benefits, 1990–94  74  
4-1. Structure of Liabilities of Industrial Enterprises, 1 April 1994  98  
4-2. Trade Credit in Arrears and Inflation in Russia  103  
6-1. Structure of Financial Flows by Type of Transfer  174  
6-2. Sectoral Distribution of Financial Flows  177  
6-3. Sectoral Concentration of Recipients  179  
6-4. Concentration of Subsidies among Recipient Enterprises  180  
6-5. Concentration of Financial Flows According to Enterprise Size  192  
6-6. Labor Productivity  196

### Box

4-1. Penalty or Unpaid Interest Included?  94
Foreword

This book is the result of a large research program that was launched at the World Bank in collaboration with Russian institutions and individual researchers in a number of countries. The work was generously supported by the Europe and Central Asia Department, the Economic Development Institute, and the Research Committee of the World Bank. In Russia, the enterprise questionnaire that forms the basis for the research was implemented by the All Russia Centre for Public Opinion Research (VCIOM). Some of the earlier results from this research program were presented initially at a workshop held in Washington, D.C., in March 1995, and then at a larger conference in St. Petersburg, Russia, in June 1995. The latter event was jointly organized with the Ministry of Economy of the Russian Federation and the Leontieff Center in St. Petersburg.

Vinod Thomas
Director
Economic Development Institute
Acknowledgments

The editors would particularly like to thank the following colleagues at the World Bank for their support and encouragement throughout the project: Yukon Huang, Gregory Ingram, Costas Michalopoulos, Pradeep Mitra, Marcelo Selowsky, and Vinod Thomas. In addition, and at various stages of the work, Charles Blitzter, Barry Bosworth, Bingsong Fang, Alan Gelb, Richard Jackman, Martha de Melo, John Nellis, Gerhard Pohl, Randy Ryterman, Paulo Vieira da Cunha, and Wayne Vroman generously gave their time and much-appreciated advice. Stefan Koeberle was actively involved in the design of the questionnaire and in the preliminary analysis of results, as was Alexander Morozov in Moscow. At VCIOM the work of administering the questionnaires was ably completed under the direction of Marina Krassilnikova. We particularly thank Sergei Vasiliev and Elvira Nabiullina from the Ministry of Economy and Elena Belova and Irina Karelina from the Leontieff Center for their cooperation and support in the organization of the conference held in St. Petersburg, Russia, in June 1995 to present the results of this research program. Caroline McEuen has done a marvelous job in editing the manuscript. John Didier in the Economic Development Institute, with his customary charm and efficiency, handled the whole publication process. Throughout, administrative support for the project was superbly provided by Yolanda Gedse, Michelle Mancesidor, and Natasha Veligura, with budgetary matters being handled by Kathy Hannum and Crummella Medley.

Finally, Une Lee was at the heart of the whole endeavor. That the work was completed is in large measure a tribute to her considerable professional and personal skills. We are indeed very thankful.
Contributors

Gilles Alfandari The World Bank, Washington, D.C.
Simon Commander The World Bank, Washington, D.C.
Sumana Dhar The World Bank, Washington, D.C.
John S. Earle Stanford University, Palo Alto, California, and Central European University, Budapest
Saul Estrin London School of Economics
Qimiao Fan The World Bank, Washington, D.C.
Lev Freinkman The World Bank, Washington, D.C.
Une J. Lee The World Bank, Washington, D.C.
Larisa L. Leshchenko Central European University, Budapest
Andrea Richter Council of Economic Advisers, Washington, D.C.
Mark E. Schaffer Centre for Economic Reform and Transformation, Heriot-Watt University, Edinburgh
Andrei Tolstopiatenko EDI, The World Bank, Moscow, and Moscow State University
Ruslan Yemtsov The World Bank, Washington, D.C.
Abbreviations and Acronyms

CBR   Central Bank of Russia
CEE   Central and Eastern Europe
CIS   Commonwealth of Independent States
CISAC Center for International Security and Arms Control
CMEA Council for Mutual Economic Assistance
CPI   Consumer price index
CSPP Centre for the Study of Public Policy
DN    De novo
DSC   Directed state credit
EBFs  Extra-budgetary funds
ESOP  Employee stock ownership plan
FARP  Fund of Workers' Shares
GDP   Gross domestic product
GKI   State Property Committee
IPI   Industrial price index
MIC   Military-industrial complex
MO    Managerially owned
MoF   Ministry of Finance
NPE   New private enterprise
OECD Organization for Economic Cooperation and Development
OO    Outsider-owned
PCI   Producer cost index
PE    Privatized enterprise
PPI   Producer price index
SMEs  Small and medium-size enterprises
SO    State-owned
SOE   State-owned enterprise
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAT</td>
<td>Value added tax</td>
</tr>
<tr>
<td>VCIOM</td>
<td>All-Russia Centre for Public Opinion Research</td>
</tr>
<tr>
<td>VTSIOM</td>
<td>Russian Centre for the Study of Public Opinion</td>
</tr>
<tr>
<td>WO</td>
<td>Worker-owned</td>
</tr>
</tbody>
</table>
Introduction

Simon Commander, Qimiao Fan, and Mark E. Schaffer

This book is concerned with a crucial issue of transition: the role and organization of the enterprise sector. This dynamic is of particular interest in the Russian context, where there has been a concerted attempt to change ownership arrangements, and hence corporate governance. To analyze the implications of such changes in a convincing manner requires disaggregated information that covers the essential dimensions of decisionmaking within the firm. This volume breaks new ground by presenting the results of a large survey of firms carried out by the World Bank in mid-1994 that included over 400 industrial firms. Selection of the main sample was random, stratified by both industrial sector and region; an additional forty-odd newly established private firms were added to the sample. Microfirms—employing fewer than fifteen persons—were excluded from the survey (for further details of the survey, see the appendix to this volume). Coming in the wake of the mass privatization program, the survey displays a wide range of ownership forms. Of the final sample of 439 firms, over 60 percent had been privatized, with dominant ownership by a variety of combinations (workers, managers, outsiders, and so forth); 25 percent were still state-owned, and 10 percent were de novo private firms. The survey thus enables us to explore the relationship between ownership change and firm behavior.
Russian industry has faced large adverse shocks that have compounded the secular slowdown in productivity that preceded the breakup of the Soviet Union. Firms have been buffeted by a combination of both aggregate demand and supply shocks, including major negative effects associated with decline in Council for Mutual Economic Assistance (CMEA) and intra-former Soviet Union trade. Over time, firms have to varying degrees had to operate as if under a hard budget constraint to respond to the decline in explicit subsidies and the diminution of cheap credits. Federal government transfers declined significantly in real terms between 1992 and 1994, although the profile of local government transfers is less clear. Faced with these shocks, industrial output has fallen dramatically. Official data report industrial production at end-1994 at roughly half the level attained in 1990. It has been argued that official output series are subject to measurement error and tend to overstate the decline in output. Information from the survey, however, yielded roughly comparable numbers, whether output change is measured according to firms' own direct estimates of the real change or the nominal values are deflated to arrive at an estimate. Furthermore, figures on capacity utilization in the sample also indicate a large contraction since 1990/91, of the order of 30 percent for state firms and 40 percent for privatized firms. The origins of this contraction and the respective time paths do vary somewhat by branch, and perhaps even more so by region. The initial impression is that measured over output, shocks appear to have been distributed in a reasonably uniform manner.

The survey allowed a look at the origins of these shocks and the subsequent response. It provided an opportunity to distinguish between an impact effect, or negative restructuring, and a longer-term, strategic, or positive restructuring decision. The former summarizes the set of responses that firms have had to make as a result of these shocks, which can be considered a weak measure of restructuring, while the latter provides a stronger measure of restructuring by looking at dynamic choices that relate to changes in trading partners, introduction of new product lines, changes in skill distributions in employment, and so on.

The overall story that emerges is that firms have indeed been forced to restructure, but primarily through negative restructuring, generally with reductions in employment, working hours, and wages. Nevertheless, em-
Employment adjustment in particular has been relatively slow. There is less evidence of more positive restructuring in both state and privatized firms. While nearly two-thirds of the firms included in the sample have experienced major changes in product mix, primarily through introduction of new products and raising the number of product types, and many firms have initiated new trading relationships for both inputs and outputs, these shifts are not at all tightly or consistently correlated with other restructuring decisions, including those governing employment and wages. Only one-quarter of firms reported that they had phased out production of any products, a surprisingly low figure, and another indication of inertial behavior. The main exceptions to this picture are the de novo private firms. While still small in aggregate terms, this sector has been growing rapidly, and the de novo firms in the survey reflect this dynamism in their performance and behavior.

**Employment Decisions and Worker Compensation**

Chapters 2 and 3 in this volume use the survey to analyze the aspects of wage and employment decisions of Russian firms. In Eastern Europe the predominant pattern has been that the first, or negative, stage of restructuring involves reductions in employment and some initial wage flexibility, because workers have given priority to employment. This appears to be broadly true in the Russian case, but with some important caveats.

Russian firms entered the transition with large excess employment. While employment reductions have begun to accelerate in relation to the fall in output, firms have continued to retain excess labor. Although real wages fell at transition, over time there has been some real wage recovery. These combined factors have forced up unit labor costs. The unambiguous employment bias can be traced not only to insider influence at the level of the firm and the stability of its objectives, including employment and maximization of worker welfare, but also to the outside environment. With unemployment benefits providing an inadequate fall-back option for separated workers, firms have tended to act with some benevolence, retaining workers but adjusting the hours worked and the monetary components of compensation. One result has been a continuing low unemployment rate—2 percent according to registrations data; 5–6 percent in the survey. The pattern of adjustment—rather different from that observed in Eastern Europe—appears to be one of firms partially
trading down wages for employment stability. This is clearly consistent with workers placing a high value on employment in relation to wages. But this is only part of the story.

First, workers' compensation has become increasingly dominated by the nonmonetary components of compensation, principally the social benefits provided by firms, including some de novo firms. The tax regime, particularly the incidence of the excess wage tax on monetary compensation, has likely motivated some substitution of nonmonetary for monetary compensation. Firms—particularly larger firms that have experienced smaller changes to employment and have had a history of providing high benefits—have generally tried to keep up the supply of benefits, thereby anchoring household incomes, while at the same time allowing workers to allocate low effort to work in the firm. One result has been the growing prevalence of multiple jobholding as workers diversify their time allocations.

Second, the size of shocks to firm balance sheets has commonly been sufficiently negative to prevent a simple tradeoff. In short, insiders continue to extract rents even if wage levels remain low. Subsidies, tax arrears, and other transfers were still a significant factor in allowing rent-taking and in supporting the associated employment bias. Thus, signs of flexibility in the labor market, although real, need be tempered by the realization that for given financial performance, the employment bias in both state and privatized firms appears to remain genuinely large, particularly in the privatized group. As restructuring goes deeper, we can expect significant employment contraction.

In short, the picture that has been painted of the Russian path of adjustment—to take the effects of product market shocks purely through wages, while downplaying involuntary separations—is not fully consistent with what emerges on the financing side. Perhaps more significant, the form of adjustment that appears to have dominated in Russia has very ambiguous implications for dynamic restructuring. As chapter 7 demonstrates, the predominant privatization procedures in Russia have given insiders a major, continuing say in firm-level decisions. This insider control has not only ensured an absence of outside resources for financing restructuring costs, but also has enabled the continuing attachment of workers to their original firms. As chapters 2 and 3 demonstrate, this attachment is pronounced, in part because relatively stable benefits and a
rising share of total compensation provide increased incentives for workers to stay in their firms. Insofar as firms have continued to receive significant subsidies or tax breaks to finance benefits, the incentive for firms to reduce benefits provision has been correspondingly small. This imposes several major costs. First, it tends to force de novo private firms to offer equivalent compensation packages, including benefits, to workers. The likely nontrivial start-up costs associated with provision of such benefits, or with acquiring access to them for workers, may in part explain why formally established de novo firms have not grown faster. Rather, this encourages a phenomenon that has been widely observed in Russia—the informalization of the private sector. Private firms have a clear incentive to externalize the costs of benefits provision by relying on part-time or moonlight labor. Aside from the productivity effects this is likely to cause, such informalization has major fiscal implications because of the widespread tax evasion typical of such informal activities. In the longer run, an evident objective must be to lower attachment and shift the incentives for private sector job creation from informal to formal activity. To do so will require a continued contraction in the sources of soft financing for firms, including limiting the provision of social benefits in their current form. In sum, while the structure of control in Russian firms and government preferences have come together to limit the growth in open unemployment—at end-1995 unemployment as measured by the labor force survey was around 8 percent—it is not evident that this is either sustainable or ultimately desirable, given both the fiscal and restructuring implications that this approach implies.

**Firms’ Budget Constraints**

The financing environment has obviously been central to firms’ restructuring decisions. Chapter 4 looks at the problem of “arrears” in Russia, focusing on interenterprise arrears (overdue trade credit), tax arrears, and wage arrears. Arrears to banks, and bank-enterprise relations more generally, are analyzed in chapter 5. In chapter 6 government financial transfers to firms are examined.

Early in the transition the volume of subsidies remained very large—in 1992, total federal government financial transfers amounted to over 30 percent of gross domestic product (GDP). These fell sharply to around 6—
7 percent in 1994, and they have become increasingly concentrated, at least by industrial branch, with the coal and agriculture sectors the principal recipients. Fuel sector subsidies appear to have accounted for over 25 percent of all subsidies in 1994. Outside these branches, transfers have also remained highly concentrated, with around 50 percent of total reported transfers received by under 2 percent of firms. This means that while a sizable share of firms still receive some form of subsidy from the federal government—the share was around 25 percent in 1994—the average amount of transfer received was small, and declining in real terms. Federal subsidies have continued to be directed toward large firms, when measured in employment, and have likely been related to a combination of employment-stabilizing objectives and compensatory finance for the provision of social services. In general, transfers seem to have been used to finance current operations and losses rather than restructuring.

It is likely that the reported numbers understate the volume of transfers because they include only federal subsidies. A more comprehensive picture, which accurately measured transfers at a local government level, would indicate not only a far higher level of aggregate subsidy for the economy, but also a tighter link between transfers and employment. While the ultimate objective must be to reduce subsidies, it is evident that this cannot happen instantly. The main challenge in the interim will be to make more transparent the conditions under which transfers would be sanctioned. Insofar as stabilizing employment has been a major trigger for subsidies, it would probably be better to make such transfers explicit as an employment subsidy, with an announced level and time path.

Focusing only on subsidies, whether federal or local, misses some crucial features. It is important to note that nearly half the firms in the survey had accumulated tax arrears and/or payment arrears (of which more below). By 1994 the stock of tax arrears amounted to the equivalent of 4–5 percent of GDP, with the flow on the order of 2 percent of GDP. The accrual of tax arrears parallels developments in Eastern Europe for firms faced with lower explicit subsidies. Such substitution is confirmed by the tendency of recipients of small transfers to have smaller tax arrears than those who did not receive government transfers. What is also striking is the relative concentration of such arrears in financially distressed firms. Such firms comprised roughly 13 percent of the sample, but they accounted for close to half of total tax arrears. Tax arrears are a way for such firms to extract subsidies from the state.
As already noted, the knowledge that transfers and tax arrears continue to support a soft budget constraint is important in understanding the employment, wage, and other choices made by firms. What about the relationship between firms and the financial system and firms and their suppliers? Aggregate data suggest very strongly that overdue trade credit ("interenterprise arrears") remained at levels comparable to those of Organization for Economic Cooperation and Development (OECD) economies after the attempt to net out or clear arrears in 1992. The survey indicates that basic credit control mechanisms have been widely used by firms to control their overdue receivables. What is far more worrisome, as already indicated, is nonpayment of taxes. Wage arrears are also a concern, not so much in and of themselves, but because they can be used by firms when they lobby the government for subsidies or tax concessions, as occurred on a large scale in 1995.

It is also clear that firms have still been able to extract some soft financing from the banking system. Aggregate data indicate that overdue bank credit started to increase rapidly in 1994, reaching over one-third of total bank credit by mid-1995. The survey evidence suggests that late payments or arrears are mostly short term, that firms frequently fail to repay or service their bank debt on time, and that the practice of capitalizing overdue interest and rescheduling principal is widespread—all of which indicates continuing softness in the banking system. The banking system is not completely soft, however. While it is common for firms to be part-owners of banks, this apparently has not translated into easier bank credit. A poor repayment history by firms also has been commonly associated with difficulties in obtaining new credit from the banking system. Nevertheless, because significant portions of the banking system are undercapitalized and real interest rates have turned significantly positive, the large volumes of overdue bank credit and the continuing softness of the banking sector point to emerging liquidity problems and the risk of associated bank failures.

In summary, Russian industrial firms, whether state-owned or privatized, have continued to extract soft financing from government, whether at the federal or local level, and from banks through a variety of channels. With respect to government, it appears that industry associations and firms with market power have been able to extract the greatest support. Banks have rising bad debt exposure, and in many cases they have proven unable to undertake effective credit risk assessments or exercise
any effective discipline on firms. While this can partly be traced to the continuing use of directed credits—with allocation decisions in effect taken by government agency—it is also attributable to weaknesses in the banking system itself. The result of this combined softness in the banking system, in tax collection, and in federal and local support has been to weaken the budget constraint facing firms. Direct government transfers from various levels of the fiscal system can still be captured, albeit at declining real levels. This declining volume of soft money has partially been offset by higher tax arrears and by the accumulation of bad debts from the banking system. Because Russian industrial firms still do not face hard budget constraints, loss-makers, including chronically distressed firms, have been allowed to survive, effectively sanctioning decisions on current operational costs inconsistent with even a zero profit constraint.

Privatization and Firm Behavior

The question of whether changing ownership had any effects on firm behavior is considered in all the chapters in this volume, but receives particular attention in chapter 7. Given that most privatization has been done by insiders—workers and managers—with outside stakeholders playing a relatively unimportant role, there are *a priori* reasons to be pessimistic. Indeed, workers held a dominant ownership position in nearly two-thirds of privatized firms. The evidence presented suggests that insider privatization reflected not only an explicit political choice, but also the de facto importance of workers in decisionmaking at the firm level. While it is true that managers appear to have considerable discretion in decisionmaking in many firms, they rarely make decisions that are obviously at odds with the perceived interests of inside workers. One result is that ownership changes are generally rather weakly associated with most indicators of performance, including sales, wages, and employment. This can, of course, be attributed in part to the short period of time that has passed since privatization. The importance of lags may be partially confirmed, however, by the finding that firms that had already conducted their first shareholders’ meeting had significantly larger employment adjustments than those yet to convene that meeting. There was also some evidence that privatization was associated with a lower volume of transactions with the state, including receipt of subsidies, and *de novo* firms were unambiguously more weakly associated with the state in their dealings.
Of interest is that firms clearly dominated by managers tended to maintain stronger links with the state than those dominated by workers. This could be interpreted as a superior ability of managers to maintain ties to both the state and politicians. Maintaining such ties, however, was not generally associated with lower levels of restructuring. Indeed, manager-dominated firms were likely to do more restructuring than worker-dominated firms. While outsider shareholding was surprisingly important—outsiders held a dominant stake in 16 percent of privatized firms—there was also little evidence that these stakes were being turned into more direct interference in decisionmaking. There was a largely absent link between outside interest and behavioral variables.

These rather weak effects of ownership change in performance variables can in part, as already indicated, be attributable to lags, but they also need to be traced to both the financing environment of firms and the lack of translation of ownership into control. In the latter regard, the emergence of share consolidation and blockholding may begin to accelerate this translation. The overall picture of ownership that emerges is that the current share distributions are probably quite transitory and would be subject to major change, which would also depend on how the residual shareholdings of government are resolved.

The main exception to this picture has been the strong performance of newly established private firms. In general, the differences between the various ownership categories of state-owned and privatized firms (worker-controlled, manager-controlled, and the like) have remained small compared with the differences between these firms and de novo firms. The performance of the de novo sector is the subject of chapter 8. Aggregate evidence suggests that the de novo sector’s presence in manufacturing is growing—an estimate in mid-1995 puts it at 6 percent of total manufacturing employment in Russia. The de novo firms in the survey were indeed small, but they were growing rapidly, especially in employment. This strong performance by new private firms appears to be driven by factors associated with their ownership rather than their size. Indeed, the low number of small and medium-size enterprises (SMEs) prior to transition might perhaps be expected to lead to rapid growth across the category, and not just of new private SMEs. The survey indicates instead that state-owned and privatized SMEs are, if anything, doing worse than larger state-owned and privatized firms (let alone compared with de novo firms).
Prospects and Summary

Russian firms have begun to adjust in largely predictable ways. Product lines are being changed, marketing networks are being recast, and changes to employment levels, skill distributions, and relative wages are being made. But the changes in most instances have not progressed very far and remain unevenly applied. There has been a clear hardening of budget constraints, even if the volumes of subsidies, tax arrears, and soft credit remain substantial. As such, negative restructuring has dominated through most of Russian industry. Net job destruction has accelerated (even though hiring rates continue to be surprisingly high), and worker monetary compensation has remained low. But firms, particularly large firms, still act benevolently, providing employment stability as well as a significant range of nonmonetary social benefits. That this is a feasible strategy can only partially be attributed to wage flexibility. Rather, continuing access to financing outside the firm is important. Such finance comes from the various levels of government, with regional factors assuming increasing importance, as well as from the banking system. Further, investment, particularly in machinery and equipment, has declined massively, and there are only very limited indications of firms being able to obtain external financing for new and needed investment. An obsolete capital stock obviously contributes to a further slowdown in productivity. Finally, privatization has yet to show any clear effect in performance.

That defensive restructuring has dominated thus far is probably not surprising. Ownership changes have been recent, and there remains considerable uncertainty in the policy environment. Insider privatization has not brought new investment resources to bear, and this has commonly been compounded by credit market failures. In addition, transfers to the firm sector appear to have been made in a manner that impedes effective restructuring. This is either because such supports compensate for services that firms, rather than government, provide, or because they are a short-run response to financial distress used to postpone the required adjustment.

While a consistent message emerges that government is likely to remain unable to play an effective and active role in restructuring, the absence of appropriate management skills and human capital continue to limit the scope and efficacy of restructuring. Nevertheless, there are signs that managers and, in some instances, outside shareholders are consoli-
Introducing their stakes, and this may eventually translate into control and improvements in corporate governance. But it is also possible to see emerging managerial dominance as an outcome consistent with continued rent-taking and exploitation of links to the state. The absence of an effective exit mechanism must continue to affect the efficiency of any discipline that should come through consolidation in ownership.

In promoting positive restructuring, what the government does with its residual shareholding in the second stage of privatization will be crucial. In 1995 an attempt was made to involve the banks explicitly in the management of this residual share. Banks were assigned the dual function of acting as strategic investors in firms, while using government’s shareholdings as collateral for lending to government. For a variety of reasons, including a lack of transparency, this proved to be highly problematic. More generally, there are grounds for caution. First, much of the banking system remains not only undercapitalized but also has many nonperforming loans to the firm sector. Raising equity exposure could potentially accentuate the existing softness of the financial system and the emerging bad debt problem. Second, mobilizing investment resources from the banking system will obviously depend on banks being able to exercise effective control through the residual shareholding. Given the entrenched power of insiders, particularly managers, in most privatized firms, this control may prove elusive. Pulling the investment into firms that is critical for effective restructuring to proceed continues to run up against the huge concessions that have already been made to insiders, whose rights of control have yet to be effectively diluted. Share consolidation and other changes may ultimately facilitate strategic alliances between dominant insider interests and outsiders, but it seems generally unlikely that insider interests can be ignored or overruled. Third, as with the financial-industrial groups that have been formed, there are potential incentive problems associated with closer bank-firm ties. These could well perpetuate close and often undesirable links among firms, banks, and government, and may actually facilitate continuing softness in firms’ budget constraints. In this context, closer ties between banks and firms lead to rent-seeking rather than the promotion of improved corporate governance.

In conclusion, this book is an attempt to understand a key part of the unique and exciting process of transformation in Russia. Within a remarkably short space of time, structural changes to the economy have
been put in place. The findings of the survey show that in many critical respects, these changes have yet to be completed. This is hardly surprising. While the nature of the privatization in Russia poses a serious challenge to improvements in corporate governance and performance, the chapters in this book also give testimony to the fact that crucial shifts, including the emergence of a new private sector, are now under way.
Part I

Employment, Wages, and the Provision of Social Benefits
How Russian Firms Make Their Wage and Employment Decisions

Simon Commander, Sumana Dhar, and Ruslan Yemtsov

Despite large cumulative declines in output, a striking feature of Russian firms has been their continuing unwillingness to shed labor. This is quite evident at an aggregate level from figure 2-1, in which cumulative changes to employment at end-1994 can be seen to have greatly lagged those to output, at least for the industrial sector. Given the initial conditions—firms entered the transition with large labor hoarding—this apparent unwillingness to reduce employment, in contrast with much of the experience in Eastern Europe, begs explanation. One line of argument has been to emphasize the combination of technological factors, benevolence, and continuing access to soft credits, with employment emerging as the chief object of bargaining among firms, the financial system, and government (as in Commander, McHale, and Yemtsov 1995). Another has been to stress the willingness of workers to trade down wages for employment stability (Layard and Richter 1994). It has also been argued that changes in ownership status—and ultimately in governance—will accelerate

We thank Richard Jackman, Saul Estrin, Mark E. Schaffer, and Wayne Vroman for detailed comments on previous drafts of this chapter, as well as the participants at workshops and conferences in Budapest, St. Petersburg, and Washington, D.C.
elimination of any employment bias by raising the relative bargaining power of management and, in some cases, outside investors (Schleifer and Vasiliev 1994). The impact of privatization on these factors is yet to be adequately understood, in part because of the short elapse of time, and in part because of a lack of adequate data. The evidence that we are now able to present, however, suggests that with the massive preponderance of insider privatization, significant subsidies to firms from various levels of government, softness in the banking system, and the continuing reluctance of government to sanction high unemployment, the effectiveness of privatization in reducing excess employment has been quite weak.

This chapter represents an attempt to understand the factors governing firms' wage and employment decisions at the start of transition and, more recently, in the wake of the mass privatization program. The focus is exclusively on the monetary component of wages; chapter 3 takes a closer look at another important part of compensation, social benefits or in-kind compensation. While these additional considerations do change the overall picture, it is probably appropriate to think of firms and work-
ers as primarily concerned with setting monetary compensation and employment in line with their respective preferences, bargaining powers, and budget constraints. That benefits do not appear to have been used as an explicit substitute for cash wages similarly suggests that by focusing on monetary compensation and employment, we are effectively dealing with the primary objects of bargaining. It is important to add, however, that the provision of firm-specific social assets has continued to foster attachment, and hence should be seen as one of the impediments to the creation of a better functioning labor market.1

This chapter is largely based on a World Bank survey of 439 industrial firms. For the bulk of the variables presented there are at least three consistent datapoints relating to the pretransition situation in 1990/91, to 1992 and/or 1993, and to mid-1994. The organization of the data clearly pushes us toward exploring the cross-sectional properties, as well as the changes over time that we can isolate. The survey comprises both quantitative and qualitative sections that enable us to evaluate not only the evolution of financial and real variables, but also the factors internal and external to the firm that have governed decisionmaking. At the same time, by covering the period of 1990 through mid-1994, the dataset picks up a significant segment of firms that have been privatized or have entered the process. Indeed, by mid-1994 just over 20 percent of firms in the sample were currently and prospectively state-owned. This rapid evisceration of the state sector indicates that, at least in legal status, the period encapsulated by the survey has seen a dramatic transformation. We attempt to deal with some of the possible behavioral effects and their lags in this chapter.

Branch Evolution: Evidence from Official Data

Before looking at the survey results, we will briefly consider the evidence and the story that emerges from official series at branch-level disaggregation. Apart from anything else, this allows us to cross-check the structure of survey responses against information for the industrial sector as a whole. Table 2-1 portrays the structure of employment at two points—1991 and the first two quarters of 1994—for all industrial branches using Goskomstat and survey data. Several discrepancies can be seen. Capital goods producers in machine-building are significantly overrepresented in the survey, as are firms in the fuel and energy branches. There is signifi-
Table 2-1. Structure of Industrial Employment

| Source                        | Employment by branch |  |  |
|-------------------------------|----------------------|--------------------------|
|                               | Goskomstat           | World Bank Survey        |
|                               | (1-2Q)               | (1-2Q)                   |
| All industry                  | 100.0                | 100.0                    |
| Energy                        | 2.9                  | 4.3                      |
| Fuels                         | 5.1                  | 7.1                      |
| Ferrous metals                | 4.7                  | 5.4                      |
| Nonferrous metals             | 3.0                  | 3.8                      |
| Chemical and petrochemical    | 6.2                  | 7.0                      |
| Machine-building              | 45.0                 | 40.7                     |
| Timber, wood, and paper       | 8.8                  | 7.9                      |
| Building materials            | 4.5                  | 4.7                      |
| Light                         | 8.4                  | 8.0                      |
| Food                          | 7.1                  | 8.3                      |
| Other                         | 4.3                  | 2.6                      |
|                               |                      |                          |

cant underrepresentation in food, building materials, and ferrous metallurgy. The main bias that results, however, will undoubtedly come through the overrepresentation of machine-building. Between 1991 and 1994 roughly two-thirds of the employment contraction in Russian industry has been concentrated in machine-building. This suggests that the employment results reported below will tend to overstate the adjustment. For the other branches, the change in relative shares in both the Goskomstat data and the survey are roughly consistent (figure 2-2).

We have already signaled the partial adjustment of employment with respect to output. Figure 2-2 goes a bit further by showing the clear correlation between the size of shocks to output and those to employment, but it confirms the apparent lag in employment adjustment in relation to output. Figure 2-3 uses official data to show that branches with large relative output declines have also tended to experience some deterioration in their relative wage. Figure 2-4, however, also indicates a strong inertial component in the wage setting. Relative wage levels and ordering at the start of transition have shifted surprisingly little, although there is clear evidence of the emergence of a wider wage range. In short, there is some evidence that the relative performance of branches has had some playback to wages, but by 1994 relative wages had not moved that significantly.
Figure 2-2. Change in Employment Related to Change in Output, by Industry, 1990/91-1994

Employment change, June 1994 to January 1991

Figure 2-3. Change in Output Related to Change in Relative Wage, by Industry, 1990/91-1994

Nominal relative wage change, June 1994 to January 1991
Figure 2-4. Monthly Wage by Branch, June 1991 and June 1994

The very large shocks to output reported in official series and the lagged employment adjustment have obviously reduced labor productivity sharply. This is, however, sensitive to correction for hours adjustment, because significant numbers of Russian firms have placed workers on short time and involuntary leave. In the first quarter of 1994 nearly 6 percent of the Russian labor force was subject to a short-time work spell, and an additional 8 percent to involuntary leave. Nevertheless, survey evidence has also shown that spells of short-time work have not necessarily been protracted (Commander and Yemstov 1995), and the estimates of labor productivity presented in table 2-2 make no allowance for hours adjustment. Table 2-2 requires some further explanation. In presenting our calculations of unit labor costs and their decomposition, we use a producer-price deflator based on output, rather than the unreliable official producer price series (Koen 1994). The result is the emergence of a significant deterioration in labor productivity over the period 1992-94. This did not lead to an increase in unit labor costs in 1992, largely because
Table 2-2. Decomposition of Unit Labor Costs in Industry, 1992–94 (percent)

<table>
<thead>
<tr>
<th>Item</th>
<th>1992</th>
<th>1993</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in unit labor cost</td>
<td>-35.9</td>
<td>7.2</td>
<td>12.1</td>
</tr>
<tr>
<td>Change in real consumption wage</td>
<td>-28.2</td>
<td>-0.2</td>
<td>-12.4</td>
</tr>
<tr>
<td>Change in PCI/PPI</td>
<td>-23.8</td>
<td>18.1</td>
<td>17.5</td>
</tr>
<tr>
<td>Change in labor productivity</td>
<td>-16.1</td>
<td>-10.7</td>
<td>-17.2</td>
</tr>
<tr>
<td>From change in Y</td>
<td>-19.3</td>
<td>-18.3</td>
<td>-26.7</td>
</tr>
<tr>
<td>From change in N</td>
<td>3.2</td>
<td>7.7</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Source: Center for Economic Forecasting and World Bank.

real consumption wages fell significantly. Further, in 1992 the wedge of consumption over product prices actually decreased. But in 1993 and 1994 unit labor costs for Russian industry increased as a result of the combined action of the wedge and productivity.

In short, two-digit data tell a story of large output declines alongside considerable inertia in employment, but with some evidence of relative wages responding to relative output shock. Declines in real consumption wages and, at least initially, a decrease in the wedge led to a fall in unit labor costs. This has subsequently been reversed. The deterioration in labor productivity over this period would be reduced if hours adjustment were factored into the calculation.

Firm Evolution: Survey Evidence

Output

Firms in the sample have generally experienced large declines in output and capacity utilization. For the total sample, output in constant prices by mid-1994 was barely 35 percent of the 1990 level, and capacity utilization had dropped from over 80 percent to about 50 percent in the same period. Table 2-3 shows some clear variation across ownership classes. Here the categories are determined by mid-1994 legal status. It can be seen that capacity utilization has fallen sharply and equivalently in both state and
Table 2-3. Descriptive Statistics: Mean and Coefficient of Variation for Firms

<table>
<thead>
<tr>
<th>Classification by ownership, 1994</th>
<th>De novo</th>
<th>State-owned</th>
<th>Privatized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>cv</td>
<td>n</td>
</tr>
<tr>
<td>1990 Output (1991)</td>
<td>21.6</td>
<td>223.4</td>
<td>9</td>
</tr>
<tr>
<td>Capacity (1991)</td>
<td>80.4</td>
<td>33.9</td>
<td>19</td>
</tr>
<tr>
<td>Employment</td>
<td>20</td>
<td>217</td>
<td>33</td>
</tr>
<tr>
<td>Sales</td>
<td>19.9</td>
<td>182.4</td>
<td>7</td>
</tr>
<tr>
<td>Wage</td>
<td>72.9</td>
<td>276.1</td>
<td>31</td>
</tr>
<tr>
<td>1993 Output</td>
<td>378.7</td>
<td>146.8</td>
<td>33</td>
</tr>
<tr>
<td>Capacity</td>
<td>74.9</td>
<td>29.9</td>
<td>39</td>
</tr>
<tr>
<td>Employment</td>
<td>81</td>
<td>130</td>
<td>43</td>
</tr>
<tr>
<td>Sales (1992)</td>
<td>72.3</td>
<td>186.3</td>
<td>25</td>
</tr>
<tr>
<td>Wage</td>
<td>45,214.9</td>
<td>99.1</td>
<td>37</td>
</tr>
<tr>
<td>1994 (1-2Q) Output</td>
<td>419.8</td>
<td>148.6</td>
<td>35</td>
</tr>
<tr>
<td>Capacity</td>
<td>71.3</td>
<td>36.8</td>
<td>39</td>
</tr>
<tr>
<td>Employment</td>
<td>97</td>
<td>152</td>
<td>43</td>
</tr>
<tr>
<td>Sales</td>
<td>379.4</td>
<td>135.4</td>
<td>38</td>
</tr>
<tr>
<td>Wage</td>
<td>186,256.1</td>
<td>61.6</td>
<td>38</td>
</tr>
</tbody>
</table>

Note: Unit: output and sales, million rubles; wage, rubles; capacity, percent.

privatized firms. Two-thirds of the latter were involved in the mass privatization program, which occurred mostly in 1993/94. De novo private firms, by contrast, had fairly stable capacity rates. Output losses have been distributed over branches in a manner quite closely replicating aggregate data. Branches—such as light industry and capital goods producers—have registered particularly profound drops in output.

These output losses have been associated with some degradation in profitability, although this remains far more ambiguous given the interaction of obscure accounting practices, selective opportunities for firms to exploit market power, and continuing subsidy flows. Indeed, the survey results indicate that between 25 and 30 percent of firms received subsidies through the federal budget between 1992 and 1994, although at significantly lower real levels toward the end of the period.
Employment

Employment clearly remains high in relation to output nearly three years after the start of transition. For the full sample, employment at mid-1994 had declined by around 25 percent from 1990 levels. The underlying large increase in employment for each unit of output provides a simple but striking measure of the continuing employment bias in these firms.

The distribution of employment changes is quite revealing. Average employment in de novo private firms has increased more than fourfold, even though the share of de novo private firms in total employment remained considerably below 1 percent by mid-1994. Firms privatized by 1994 cut employment by an average of over 30 percent between 1990 and 1994. The average decline in state firms was significantly lower, around 20 percent (table 2-3). While firms with larger negative shocks have induced larger employment adjustments, the association has remained quite weak, a feature we explore more systematically below. The largest firms in the sample—the bulk of which remained in the state sector—have actually increased employment slightly despite large shocks to output!

The response on employment is mildly sensitive to market structure. Firms that reported no competition to their main product clearly had lower net changes to employment, and their share of layoffs in total separations has been lower than in competitive firms. As might be predicted, firms that face significant foreign competition also appear to have experienced larger net adjustments to employment, with more layoffs and employment changes that are more sensitive with respect to output than other firms. Nevertheless, the differences across firms classified by market position is generally not that significant.

What is also striking is that involuntary separations, particularly involving large layoffs, have been very infrequent. No more than 15 percent of the sampled firms reported an involuntary element in total separations exceeding 20 percent. In these cases, layoffs were primarily attributed to financial constraints and lack of demand for firm products; restructuring and associated changes in product mix were relatively minor explanatory factors. The absence of large-scale layoffs can also be attributed to nontrivial adjustment costs, with compulsory notification and severance. More generally, however, less than one-third of firm management considered employment reductions to be a high priority, and explicit priority for plant closures and more drastic restructuring measures
were accorded even less importance. The obvious impression is that Russian firms have shed labor only in extremis, and rarely as part of a conscious restructuring program.

**Gross Flows**

The striking differences between Russia and Eastern Europe appear to include not only the small net reduction in employment stocks, but also the high gross flows between firms. Job-to-job transitions have been large, particularly in the major urban labor markets such as Moscow and St. Petersburg (as reported in Commander and others 1993). Unfortunately, the survey does not allow us to get a precise picture of flows, but it does at least permit us to relate hirings and separations that occurred during 1992–94 to the stock of end-period employment. While over 80 percent of firms saw no major hiring in this period—an outcome reasonably common across sectoral categories—it is also clear that incremental hiring has continued. Figure 2-5 relates the separations rate to the hiring rate over the period 1991–94. While for most observations the separations rate is significantly superior to that for accessions, it is notable that larger firms—the size of the individual circle scales for employment—tend to be distributed along or below the 45-degree line. While their gross flows resemble those of other firms, larger firms appear to have far smaller changes in the net. There is also significant churning across the spectrum of firms.

There appears to be no predictable relationship between hiring and decisions consistent with restructuring. Thus, relating the change in investment to the hiring rate, we find no predictable association. While firms with positive investment had the highest hiring rate, it was not significantly different from that of firms where investment had collapsed by more than 50 percent! In short, restructuring decisions, including those on skills, appear not to be the dominant motivation behind hiring.

**Labor Hoarding**

In this environment of high initial employment and large gross flows, it is hardly surprising to find that excess employment remains common. As table 2-4 makes plain, over 20 percent of the sample acknowledged that labor hoarding was above 10 percent of their 1994 employment level, and
a further 25 percent reported excess employment in the range of 5–10 percent. But while 45 percent reported employment to be roughly at the right level, it is revealing that over half of these firms had significant numbers of workers on short or part time, an indication that their estimates of excess labor may be biased downward.

Labor hoarding is clearly negatively associated with changes to output, and positively associated with firm employment size (table 2-4). Indeed, relating so-called optimal employment—as judged by firm management for current output—to its actual level, the great bulk of firms were significantly below the diagonal, and this generally increases with firm size. It is striking, however, that the management of the largest firms perceived employment levels to be less distorted, even though their output shocks have been large. Classifying by ownership status makes clear that excess employment was distributed with reasonable commonality in both remaining state firms and in firms that have either been privatized or are in the process of privatization. By contrast, over half of the
Table 2-4. Firms Classed by Excess Employment, 1994

<table>
<thead>
<tr>
<th>Class in 1994</th>
<th>Output 1994–93 (%)</th>
<th>Output 1993–90 (%)</th>
<th>Employment 1994–90 (%)</th>
<th>Mean employment (%)</th>
<th>Capacity separations (%)</th>
<th>Layoffs/employment (%)</th>
<th>Part-time/employment (%)</th>
<th>Unpaid leave (%)</th>
<th>Wage (000 rubles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (&gt; 10%)</td>
<td>-41</td>
<td>-23</td>
<td>-30</td>
<td>2,323</td>
<td>46</td>
<td>17</td>
<td>20</td>
<td>10</td>
<td>734</td>
</tr>
<tr>
<td>n = 88</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate (5–10%)</td>
<td>-32</td>
<td>-35</td>
<td>-22</td>
<td>3,215</td>
<td>54</td>
<td>7</td>
<td>10</td>
<td>6</td>
<td>696</td>
</tr>
<tr>
<td>n = 110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor (employment right)</td>
<td>-24</td>
<td>-36</td>
<td>-8</td>
<td>1,339</td>
<td>55</td>
<td>7</td>
<td>57</td>
<td>3</td>
<td>745</td>
</tr>
<tr>
<td>n = 196</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative (employment low)</td>
<td>-23</td>
<td>-35</td>
<td>-12</td>
<td>752</td>
<td>61</td>
<td>29</td>
<td>16</td>
<td>8</td>
<td>887</td>
</tr>
<tr>
<td>n = 35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

private firms believed that their employment levels were correct, and over 20 percent considered employment to be too low.

While the great majority of firms with excess labor expected to reduce employment further by early 1995, it is striking that at least one-third of firms with excess labor at mid-1994 projected that the surplus would be either the same or higher in the future. Of interest is that labor-hoarding firms emphasized an expected output and demand recovery as the principal factor sanctioning hoarding, while of almost equal weight was benevolence, with nearly one-third of respondents citing "social and ethical" reasons for not reducing employment. By contrast, worker opposition and employee opinion voiced through share ownership in privatized firms were of negligible significance. This bolsters the point that the employment bias is a clear choice of the coalitions that govern firms, and one that has thus far appeared to be weakly disturbed by changes in legal form. Finally, firms with high or moderate labor hoarding appear not to have experienced anything more than a slight deterioration in the wages of their members compared with firms without perceived labor hoarding.

**Wages**

Associated with these employment decisions have been those on wages. Aggregate wage series show that real consumption wage levels have remained low and fairly stable since 1992, although this ignores the in-kind component of compensation. The survey data clearly support the view that monetary compensation levels are low. Indeed, at least 20 percent of wage observations at mid-1994 fell below the comparable regional poverty line. Table 2-5 reports a probit estimation relating a below-poverty-line wage to firm and other attributes. Firms in branches with large negative shocks—light industry, machine-building, timber, and enterprises in the military-industrial complex—tend to pay low wages. This is also true for firms located in the south of the country. Absence of investment and low wages are positively associated, while in terms of ownership, low wages appear to be more probable in firms where insiders dominate; the reverse is true for private firms. Neither of the size variables are significant. And a low wage is negatively and significantly associated with the change in firm-specific revenues, which suggests that wage settlements are predictably linked to firm financial performance, an issue we return to in more detail below.
Table 2-5. Probit Estimation Relating Below-Poverty-Line Wages to Firm and Other Attributes

<table>
<thead>
<tr>
<th>Dummy variable</th>
<th>Wage below the poverty line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>-0.3783*</td>
</tr>
<tr>
<td>Insider worker control</td>
<td>0.3652**</td>
</tr>
<tr>
<td>Big</td>
<td>-0.0821</td>
</tr>
<tr>
<td>Small</td>
<td>0.1802</td>
</tr>
<tr>
<td>Light industry</td>
<td>0.9368***</td>
</tr>
<tr>
<td>Machine-building</td>
<td>0.5609**</td>
</tr>
<tr>
<td>Wood and paper</td>
<td>0.8139**</td>
</tr>
<tr>
<td>Military-industrial complex</td>
<td>0.5405*</td>
</tr>
<tr>
<td>Siberia</td>
<td>-0.8348**</td>
</tr>
<tr>
<td>Moscow/St. Petersburg</td>
<td>-0.1204</td>
</tr>
<tr>
<td>South Russia</td>
<td>0.8585***</td>
</tr>
<tr>
<td>No investment</td>
<td>0.5480***</td>
</tr>
<tr>
<td>Change in sales revenue</td>
<td>-0.2359**</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.5873***</td>
</tr>
<tr>
<td>n</td>
<td>265</td>
</tr>
</tbody>
</table>

Note: Firms with wage under the poverty line = 54. Significant at 1%, **; significant at 5%, *; significant at 10%, .

Relating wage changes at the firm level to changes in employment, we find some evidence for a positive association—firms with relatively large net employment reductions have experienced some deterioration in relative wages, controlling for region. Further, wages that were below the poverty line were generally reported for firms with larger than average employment reductions. Firms with higher shares of layoffs to total separations were marked by lower wage levels. In addition, using aggregate data to look at regional wage evolution suggests that a conventional inverse association between regional employment rates and wage changes has emerged. These features would appear to indicate a growing responsiveness of regional wage setting to a regional activity variable (Commander and Yemtsov 1995).

Figure 2-6, however, qualifies any presumption that we have been witnessing a sharp increase in wage dispersion as a result, at least in terms of skills. The main impression is that with these broad skill categories, relative wages have displayed considerable inertia. If we look at rela-
Decisionmaking in Firms

The preliminary indicators reported above suggest that there are institutional features, likely associated with the continuing dominance of insiders, that appear to support an employment bias with a reasonably common wage outcome.

We can think of possible sources of insider influence in firm-level decisionmaking in both the depth and degree of influence in the wage and
Table 2-6. Relative Influence in Decisionmaking, 1994 (percent)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Current operations&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Worker wages and employment</th>
<th>Management wages and employment</th>
<th>Financial decisions&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Little</td>
<td>High</td>
<td>Little</td>
<td>High</td>
</tr>
<tr>
<td>Management/Board of Directors</td>
<td>7</td>
<td>80</td>
<td>11</td>
<td>76</td>
</tr>
<tr>
<td>Manager-shareholder</td>
<td>13</td>
<td>66</td>
<td>16</td>
<td>65</td>
</tr>
<tr>
<td>Worker agencies in firm</td>
<td>64</td>
<td>8</td>
<td>46</td>
<td>14</td>
</tr>
<tr>
<td>Outside trade union</td>
<td>94</td>
<td>1</td>
<td>86</td>
<td>3</td>
</tr>
<tr>
<td>Worker-shareholder</td>
<td>71</td>
<td>6</td>
<td>68</td>
<td>8</td>
</tr>
<tr>
<td>Outside individual shareholder</td>
<td>88</td>
<td>5</td>
<td>91</td>
<td>2</td>
</tr>
<tr>
<td>Outside institutional shareholder</td>
<td>83</td>
<td>5</td>
<td>87</td>
<td>2</td>
</tr>
<tr>
<td>Local government</td>
<td>81</td>
<td>4</td>
<td>81</td>
<td>3</td>
</tr>
<tr>
<td>Federal government</td>
<td>74</td>
<td>9</td>
<td>86</td>
<td>3</td>
</tr>
<tr>
<td>Banks</td>
<td>77</td>
<td>8</td>
<td>92</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note: Expressed as share of respondents (%); residual shares ascribed to "moderate influence."

<sup>a</sup> Sales, production.
<sup>b</sup> Allocation of profit, investment.


employment setting. For the former, we can assume that employment and wages, given decisions on layoffs, are jointly bargained. We now need to understand more about the degree of insider influence and its distribution over workers and managers.

Table 2-6 presents a ranking of influence for different actors over the kinds of decisions made at the firm level. It reflects the responses of managers, and as such it may be biased. While managerial discretion in decisions on worker employment, operational decisions, and managerial pay and employment clearly prevails, workers inside the firm clearly do exert some significant influence on employment, wages, and profit allocation in at least half our sample. Their weight in decisionmaking quite obviously exceeds that of outside shareholders, individual or institutional, let alone that of financial institutions and government agencies.
Wage decisions appear to be conditioned primarily by firm-specific financial variables, liquidity and profitability, but also appear sensitive to constraints imposed by the excess wage tax rule and the need to pay competitive wages to maintain attachment. But the most important consideration is the explicit association of wages with consumer price changes. This effective indexation also partially accounts for the absence of large movements in relative wages. In bargaining, however, it appears that workers' explicit interference in setting wages is largely absent. Around two-thirds of respondents considered worker demands through trade unions or collectives to be of no importance in the wage setting. Indeed, despite significant union presence, we find a clear absence of militancy; strikes were reported in only four cases, with a threat of industrial action in only twenty-four cases.\(^6\) Bargaining appears to be largely cooperative.

The presence of a relatively common wage-setting procedure suggests that firm-specific differences in bargaining will largely be reflected in employment. An obvious starting point is to try to control for ownership, given the scale of the privatization that has been completed, and to see whether privatization has been associated with any change in behavior.

Ownership Effects

We now ask whether the employment bias has been affected by privatization. The dominant privatization route in our sample has been through Option 2—where workers and managers received 51 percent of voting equity—but all channels under the mass privatization have effectively yielded the same outcome: insiders have come to control between 51 and 68 percent of shares, levels higher than those assigned by law. Outside shareholding has averaged 21–23 percent, with government retaining the residual. Government shareholding appears to be more concentrated among the larger firms as measured by employment. These share distributions closely reflect the original allocations; by mid-1994 little redistribution had occurred.

We are interested in separating out the influence of share distributions on labor decisions. We hypothesize that greater outside shareholding could likely translate into larger employment adjustments, including involuntary separations, given the initial conditions. By contrast, in firms with delayed privatizations or where the government share has remained large, we could imagine a far weaker effect. Similarly, insider-dominated
firms could be expected to give priority to the interests of incumbents with, again, possibly higher employment stability. We would also expect these differences to spill into expected behavior or priorities.

The first exercise we undertake is to look at whether share distributions yield different employment outcomes. We construct a simple measure of employment stability. For firms that existed in 1991, we relate total separations in the interval 1991–94 to the initial employment stock to get a crude probability of survival at that firm. While the measure is clearly biased—it excludes any reemployment possibilities—table 2-7 clearly tells us two things. First, share structure is rather uninformative about the employment survival probability. It does appear that Option 1 privatizations—where workers received 25 percent of nonvoting shares for free—have a larger survival probability, as does being attached to a state-owned firm, a result that we could expect. Second, these probabilities are generally quite low, again highlighting the importance of flows. Repeating this exercise and controlling for initial legal status of the firm yields similar results.

We now go further, and ask whether share allocations make any difference in the kind of separation found. Our working hypotheses are that firms with larger outside shareholdings will have experienced higher shares of involuntary separations, because outside influence induces restructuring and amendment of the skill mix. By contrast, firms with delayed privatization or large government shareholding will be more

Table 2-7. Employment Stability by Ownership Type

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privatizers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 1</td>
<td>0.55</td>
<td>0.24</td>
</tr>
<tr>
<td>Option 2</td>
<td>0.51</td>
<td>0.27</td>
</tr>
<tr>
<td>Option 3</td>
<td>0.42</td>
<td>0.19</td>
</tr>
<tr>
<td>Lease</td>
<td>0.52</td>
<td>0.25</td>
</tr>
<tr>
<td>Other</td>
<td>0.61</td>
<td>0.26</td>
</tr>
<tr>
<td>Always private</td>
<td>0.61</td>
<td>0.26</td>
</tr>
<tr>
<td>State</td>
<td>0.59</td>
<td>0.24</td>
</tr>
</tbody>
</table>

inertial. To test the effect of outside influence, figure 2-7 relates outsiders’ shareholding distribution to the share of layoffs in total separations. Each circle represents an observation, and the size of the circle in the figure represents a scaling by 1994 employment. The scatter shows no clear relationship. Table 2-8 tries to control for possible delays in privatization, measured in the change in the Board of Directors. Privatized firms that have not yet had their first shareholders’ meeting not only report a lower separations rate and lower involuntary separations compared with other privatizers, but also greater inelasticity in the change of employment in relation to output over the period 1991–94. There appears to be some evidence that changes may be dependent on the timing of the first shareholders’ meeting, and hence we should control for lags. The table also reports the result of repeating the same exercise and controlling for a high government shareholding. Firms with high relative government shares have slightly lower involuntary separations, but overall there are no significant differences.
Table 2-8. Employment Changes: Delayed Privatizers and High Government-Shareholding Firms Compared with Other Privatizers

<table>
<thead>
<tr>
<th>Employment change</th>
<th>Delayed privatizers</th>
<th>Other privatizers</th>
<th>High government-shareholding firms</th>
<th>Other privatizers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean values</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layoffs to separations</td>
<td>0.050</td>
<td>0.094</td>
<td>0.090</td>
<td>0.098</td>
</tr>
<tr>
<td>Layoffs to employment</td>
<td>0.079</td>
<td>0.133</td>
<td>0.105</td>
<td>0.162</td>
</tr>
<tr>
<td>Net employment change</td>
<td>-0.158</td>
<td>-0.103</td>
<td>-0.102</td>
<td>-0.100</td>
</tr>
<tr>
<td>Employment change to output change</td>
<td>0.069</td>
<td>0.160</td>
<td>0.163</td>
<td>0.142</td>
</tr>
</tbody>
</table>


Finally, we try to relate strategic preferences to share distributions in an attempt to overcome the problem of lags and to see whether the shareholding structure tells us anything about forward-looking managerial objectives. Table 2-9 presents a correlation matrix for different shareholders and their ranking of employment and wage objectives. The main difference that emerges is that insider shareholding is negatively associated with employment-reducing strategies, as well as with hiring. Outside shareholding appears to be negatively associated with a wage-enhancing strategy. But overall, the size of the coefficients suggests that any predictable influence from different kinds of shareholders remains weak. This is

Table 2-9. Correlation Matrix between Labor Orientation and Shares of Different Actors
(n = 227)

<table>
<thead>
<tr>
<th>Option</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government</td>
</tr>
<tr>
<td>Reduce employment</td>
<td>0.028</td>
</tr>
<tr>
<td>Increase employment</td>
<td>0.051</td>
</tr>
<tr>
<td>Reduce wage</td>
<td>0.100</td>
</tr>
<tr>
<td>Increase wage</td>
<td>0.033</td>
</tr>
</tbody>
</table>

further confirmed by looking at the influence of shareholders on decisions concerning management, including the employment and compensation of managers. Our simple prior is that outside influence would tend to translate into greater control over managerial appointments and pay. This is not confirmed by the data. Outside influence is very attenuated, and it is no greater in firms that have changed their Board of Directors. Rather, inside managers are easily the most important actors in these decisions. Further, managers are clearly converting such dominance in decisionmaking into dominance in shareholding. Outside shareholders exert little apparent influence on managerial variables.  

In summary, changes in ownership as measured by share distributions generally suggest little difference across categories. Outside influence is notably absent.

Firm Objectives

To get a better idea of the degrees of bargaining power, we need to understand the objectives of the main parties in the bargain—in short, managers and workers. Table 2-10 provides some indication of the weight of specific goals for the current management. It also allows us to contrast current objectives with those before transition in 1990/91. One thing is clear: a history of attaching great weight to an objective is a very good predictor of current objectives, and giving high importance to worker welfare and/or employment is, and was, common. Indeed, by 1994

<table>
<thead>
<tr>
<th>Objective: increase/maintain</th>
<th>Unimportant</th>
<th>Of some importance</th>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>8</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Employment</td>
<td>30</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Worker income/welfare</td>
<td>7</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Profit</td>
<td>7</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Privatization</td>
<td>45</td>
<td>61</td>
<td>17</td>
</tr>
<tr>
<td>Shareholder dividends</td>
<td>32</td>
<td>81</td>
<td>29</td>
</tr>
</tbody>
</table>

Note: Expressed as share of respondents for that year.
roughly 70 percent of respondents cited worker welfare as a major objective, a clear increase over 1990/91. Stabilizing or increasing employment was cited as unimportant in only slightly over 25 percent of cases. Even so, increasing profits and sales as objectives had clearly become more important by 1994. At the same time, for managers of profitable firms, allocations of profits to productive fixed investments and/or increasing working capital were the main priorities. Raising wages or bonus payments, or actions possibly consistent with short-run decapitalizing behavior, were given a minor weight.10

Perhaps most significant is the overlap in objectives. Thus, for firms attaching maximum importance to profits—a ranking of 3—a (3,3) pair with worker incomes occurred in 73 percent of cases, a (3,1) pair in 6 percent of cases. For profits and employment, a (3,3) pair was found in 38 percent of cases, a (3,1) pair in 30 percent of instances. When giving priority to sales, (3,1) pairs with employment or worker income were still less frequent.

Table 2-11 presents a simple correlation matrix of goals. Giving priority to sales is more tightly correlated with the employment and income objectives than with profits. The latter objective is very weakly correlated with the other goals. In particular, giving priority to profits negatively correlated with giving priority to employment. This is quite understandable, because jointly maximizing sales and worker welfare would be a goal quite consistent with the former system. Profit maximization is clearly different, but few firms appear to accord priority to profits at the expense of other worker-related interests.

The picture emerging from the above discussion is that while revenue, even profit, maximization is an important priority for most Russian

Table 2-11. Correlation Matrix among Firm Objectives

<table>
<thead>
<tr>
<th>Objective: increase/maintain</th>
<th>Increase/maintain</th>
<th>Sales</th>
<th>Employment</th>
<th>Worker income</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>0.271</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worker income/welfare</td>
<td>0.197</td>
<td>0.344</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit</td>
<td>0.121</td>
<td>-0.031</td>
<td>0.158</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

firms, the welfare of workers in both the wage and employment dimensions enters quite explicitly into their objectives.

Explaining Insider Influence

We now turn to look in a bit more detail at the characteristics of firms where worker objectives in income and employment are related to firm-specific attributes. We do so by relating the declared objectives of firms and the consistency of those objectives to firm characteristics.

For this exercise, the dependent variable is variously the importance given by each firm to objectives—profit, sales, shareholder dividends, and the like—in 1994 and at the beginning of transition. This allows us to pick up a time dimension as well. We try to ascertain what happens to other objectives when either a high or low importance is attached to employment or worker's welfare/income. The estimation is by ordered logit, where the ordinal values of importance of the objectives are regressed on a vector of firm characteristics. The categorical variables on the right-hand side are the industrial branches (compared with “other industries”), the area including the cities of Moscow and St. Petersburg (compared with the rest of Russia), the ability to generate profit, the existence of price controls/fixed profit margins for the firm, the vintage of the technology used by the firm (compared with machinery older than thirty years), the existence of government financial support in 1994, the share of the labor force organized in new trade unions (compared with firms that do not have any new trade unions), and market dedication (greater than 50 percent) to the state sector both in the acquisition of inputs and the sale of output.

Table 2-12 provides the main results for the objectives of employment, worker welfare/income, sales, and profit. The regressions are followed by predictions of the probability associated with each level of importance of the stated objective if the firm simultaneously holds the objective of employment and worker welfare in polar importance (very high or very low). The industrial branch of the firm generally has little effect on the objective of maintaining employment, except in heavy and agricultural machinery. In these branches, the effect is positive and the worker welfare objective is also positively affected. These two branches and metallurgy give a negative effect on the objective of increasing profit and sales. It is interesting to note that if the firm belongs to the military-industrial
### Table 2-12. Ordered Logit Estimation Relating Firm Objectives to Firm and Other Attributes

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Worker</th>
<th>Employment</th>
<th>Welfare</th>
<th>Sales</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial branch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy          **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel            -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallurgy       +**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals       **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy machinery    +**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine tools    -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile       -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural machinery       +**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military-industrial complex     -***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood and paper    -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction material -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light industry    +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agroprocessing    -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit-maker     -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price control    -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government support in 1994 -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moscow/St. Petersburg       +**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market dedication to state sector            -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inputs          -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output          +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vintage of technology                +*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 0–10 years       -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 10–30 years       **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation in new trade unions               -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 0–50%      -**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 50–99%       **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%          **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Categories</td>
<td></td>
<td>Observed probability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not important  0.29</td>
<td>0.08</td>
<td>0.08</td>
<td>0.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some importance 0.34</td>
<td>0.23</td>
<td>0.13</td>
<td>0.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Important       0.37</td>
<td>0.70</td>
<td>0.80</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n                377</td>
<td>382</td>
<td>383</td>
<td>380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predicted probability of objective being important</td>
<td></td>
<td>Sales</td>
<td>Profit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worker objectives important  n = 141</td>
<td>0.80</td>
<td>n = 133</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worker objectives not important n = 24</td>
<td>0.74</td>
<td>n = 23</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** +, positive coefficient; -, negative coefficient; ***, significant at 1%; **, significant at 5%; *, significant at 10%.

**Source:** World Bank survey.
complex, the effects on worker welfare, profit, and sales are negative. Receipt of government support in 1994 (which is very closely correlated to receipt of such support in the previous years) has a positive effect on employment, but it seems to be unimportant for the other objectives. The market dedication (of output) to the state sector is positively related to employment, worker welfare, and sales. The location of the firm in or around a metropolis has a positive effect on the objectives of worker welfare and sales, as expected, but the profit objective is negatively affected and employment is unaffected. For all the objectives, new technology has a positive, significant effect.

We have already noted the coexistence of multiple objectives. We now predict the probability associated with each level of importance of the stated objective of maximization/maintenance of sales and profit if the firm simultaneously considers worker objectives of high/very low importance (poles). When the profit objective is ranked high, employment and worker welfare objectives will tend to be of low importance. By contrast, the predicted probability of holding sales in high importance rises in step with high importance being attached to worker objectives. From this exercise, we can also reasonably conclude that inertia is a very important factor for these firms in ordering their priorities. If one attempts to predict future from current behavior, objectives for sales, employment, and worker income are likely to move in tandem. By contrast, where privatization and profit are given high importance, employment and worker income will be given a lower weight.

Bargaining in the Firm

The discussion thus far has indicated that Russian industrial firms have begun to adjust, but that this process has been halting and generally invariant to changes in ownership. Managers appear for the most part to be the dominant players, with outside stakeholders exerting marginal influence. But workers' bargaining power inside firms is far from inconsequential, even if it appears to be largely implicit. A clear employment bias has been maintained, which can be partially explained by the specific objectives of the firms, but also needs to be related to the respective threat points of the main agents in firm bargaining. Given that insiders—managers and workers—clearly must bargain over both wages and employment, we now look more directly at the resulting wage-employment combinations.

Our starting assumption is that the manager will try to pursue profits, constrained by the influence of incumbent workers. Workers are as-
40  Employment, Wages, and the Provision of Social Benefits

assumed to act as a collective, maximizing the aggregate utility of its members. Our framework corresponds to the standard two-party Nash bargain, where the players are the firm (manager) and a workers' collective. The objective function for the firm is the Nash product:

\[ Z = (\pi - \pi^*)(C - C^*) \]

where \( C = N u(w) + (M - N) u(\bar{w}) \).

The \( \pi \) is profit and \( \pi^* \) is the fall-back that the manager can get in the absence of agreement. \( C \) is the total utility of workers, and \( C^* \) the fall-back for workers. The feasible set for bargainers is given by the value function, \( V(N) \) where \( V'(N) \geq 0 \) and \( V''(N) \leq 0 \) and profit is defined as:

\[ \pi = V(N) - w(N). \]

The workers' function is increasing in both wage and employment, indicating the potential for them to select a higher probability of employment for a lower wage. In the event of disagreement, and most generally, we assume that the manager might get some income outside the firm, or even within, but without the cooperation of the workers. This may also be true for the workers; they could continue, for example, to produce, but without the manager. The disagreement point is then given by:

\[ d = [\pi^*, \sigma + Mu(\bar{w})], \]

where \( \sigma \) is the premium over outside income, and the objective function is:

\[ Z = \{ V(N) - wN - \pi^* \} \{ N[ u(w) - u(\bar{w}) ] - \sigma \}. \]

Maximizing this equation in terms of employment and wages, we get the first-order conditions:

\[ \delta Z/\delta N = [ u(w) - u(\bar{w}) ][ \pi - \pi^* ] + [ C - C^* ][ V'(N) - w ] = 0 \]

(2-3)

and hence the expression for the contract curve

\[ [ u(w) - u(\bar{w}) ]/[ Nu'(w) ] = [ V''(N) - w ]/N, \]

(2-5)

which will be upward-sloping in wage-employment space, with the slope given by:
The framework is familiar and flows out of the efficient contracts literature (McDonald and Solow 1981; for an application geared more to transition issues, see also Commander, McHale, and Yemtsov 1995). Looking at figure 2-8, we can imagine that at the start of transition, Russian firms would have been to the right of even the average product curve, with employment at $N_t$. Subsequent shocks to value added, such as a decline in demand, would have further decreased the marginal value product of labor, shifting the labor demand curve inward. In response to these negative shocks and to announced tightening in the budget constraint, we can think of firms being forced—at a minimum—to move onto the average product curve. The challenge is to get some idea of the wage-employment pair consistent with zero profits that arises as a result of relative bargaining powers and institutional setting.

Given that we are unable to identify directly the wage-employment combinations, an alternative approach is to look at some simple stylized relationships and to explore their time dimensions. Accordingly, we run

\[
\frac{\delta w}{\delta N} = \frac{V''(N)}{\left[ \left[ n(w) - u'(\bar{w}) \right] u''(w) \right] / [u'(w)]^2}
\]

Figure 2-8. Labor Market
three sets of discrete regressions looking at employment, wages, and the wage markup over the outside opportunity. In particular, we are interested in the responsiveness of these variables to a measure of financial performance—in this case, sales.\textsuperscript{12} Two-digit producer prices were used as deflators.

Table 2-13 reports the results of our basic employment equation. Here we relate the change in the log of employment over two periods—1994/93 and 1994/90-91—to the change in the log of sales and to a vector of characteristics, including profitability, price controls, firm size, ownership at the end of the period, receipt of government transfers, and branch dummies. The coefficients on the sales terms are significant, positive, and small. In the long panel, the employment elasticity was no larger than 0.09, while for the short panel it was 0.03. Being situated in the major urban areas of Moscow and St. Petersburg exerted a positive effect. Generating profit, facing price controls, and the size dummy exerted a small positive but insignificant effect, while receiving government transfers exerted a predictably negative influence. We also experimented with a

Table 2-13. Regression of the Change in Employment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in sales (log)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994–90</td>
<td>0.092***</td>
<td></td>
</tr>
<tr>
<td>1994–92</td>
<td>0.031***</td>
<td></td>
</tr>
<tr>
<td>Dummy variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit-maker</td>
<td>0.002</td>
<td>0.043</td>
</tr>
<tr>
<td>Price control</td>
<td>0.165**</td>
<td>0.038**</td>
</tr>
<tr>
<td>Size (&gt; 3,500)</td>
<td>0.172***</td>
<td>0.043*</td>
</tr>
<tr>
<td>Moscow/St. Petersburg</td>
<td>0.102</td>
<td>0.037</td>
</tr>
<tr>
<td>Government support in 1994</td>
<td>-0.057</td>
<td>-0.036*</td>
</tr>
<tr>
<td>Privatized</td>
<td>-0.326***</td>
<td>-0.122***</td>
</tr>
<tr>
<td>Delayed privatizer</td>
<td>-0.292***</td>
<td>-0.099***</td>
</tr>
<tr>
<td>To be privatized within 18 months</td>
<td>-0.209</td>
<td>-0.104**</td>
</tr>
<tr>
<td>De novo private and industrial branches</td>
<td>0.025</td>
<td>0.155***</td>
</tr>
</tbody>
</table>

\(n\) | 196 | 252
\(\text{Adjusted } R^2\) | 0.4 | 0.27

Note: ***, significant at 1%; **, significant at 5%; *, significant at 10%.
measure of new unionization, but this was consistently insignificant. Of obvious interest is that in relation to state firms, privatized or privatizing firms had negatively signed coefficients on the sales term, indicating again the apparently weak impact of privatization—or its prospect—on firms’ employment behavior. By contrast, *de novo* private firm status had a positive and significant effect. The branch dummies indicated that employment adjustments have been relatively large in firms in the military-industrial complex and in capital goods and light industry. In short, while we find evidence of some association between changes in employment and sales at the firm level, this association has remained weak. This confirms the picture that we had assembled from the descriptive statistics.

We now turn to the wage setting. The results from the wage equation are reported in table 2-14. Again we are interested in the responsiveness of wages to firm-specific financial characteristics. We therefore include a productivity or sales per worker variable, which we take to be a proxy for the firm’s ability to pay. Looking at the results from the long panel—1994 to 1990/91—we can see that the coefficient on the sales variable is again

| Table 2-14. Regression of the Change in Wage Rate |
|---------------------------------|--------------------|
| *Independent variable*          | *Dependent variable, change in wage rate (log)* |
|                                | 1994–90/91         | 1994–93         |
| Change in sales (log)           |                    |
| 1994–90                         | 0.083***           |
| 1994–92                         | 0.102***           |
| Dummy variable                  |                    |
| Profit-maker                    | -0.418***          | -0.137          |
| Price control                   | -0.237***          | 0.169           |
| Size                            | -0.047             | -0.381***       |
| Moscow/St. Petersburg           | 0.133              | 0.173*          |
| Government support in 1994     | -0.226*            | 0.090           |
| Privatized                      | -1.234***          | 0.017           |
| Delayed privatizer              | -1.220***          | 0.158           |
| To be privatized within 18 months | -1.122***     | -0.140          |
| *De novo* private and industrial branches | -1.021**         | -0.455*         |
| *n*                             | 172                | 215             |
| Adjusted $R^2$                  | 0.8                | 0.34            |

*Note: ***, significant at 1%; **, significant at 5%; *, significant at 10%.

small, at 0.08. There is some sign of increasing responsiveness over time, however; the coefficient for the 1994/93 estimate was 0.1. In the wage determination, being profitable was consistently negatively signed. Over the long panel, firms that received financial transfers from government had lower wage-to-productivity elasticities, but this effect had disappeared by 1994/93. Being located in Moscow and St. Petersburg exerted a positive effect. It is striking that the ownership dummies indicate that over the long panel, nonstate status at the end of the period had a very significant and negative effect. By 1994/93 this had reversed. The ownership dummies were generally insignificant, although de novo private firm status continued to imply a lower sensitivity compared with state firms. Branch dummies were generally significant.

Although we cannot jointly and directly identify the wage-employment outcomes, these estimations offer a number of hints. Given the initial conditions, firms have been weakly responsive in both their wage and employment decisions to firm-specific measures of performance. This refers back to our earlier discussion and the apparent inertia in both employment and wages. On the latter, however, we should note that we are unable to account for wage arrears, which we know to have been an increasing phenomenon through this period. If we were able to factor in wage arrears, it is possible that the true sensitivity would be larger than we report, if indeed arrears were strictly associated with sales.

Given our finding that despite substantial labor hoarding through the transition, firms have been reluctant to relate employment to sales changes, and that changes in wages have been quite weakly responsive to changes in productivity, an obvious question we must ask is whether this choice has been consistent with a hard budget constraint. Clearly the broader issue of whether this is a sustainable path of adjustment will depend on a range of factors, including the labor share, given the historically low levels of monetary compensation in Russia.

To look at how the wage per worker choice relates to firm-level performance, we directly observe the ratio of the actual wage to gross surplus per worker, as well as in the case of gross surplus per worker evaluated at the reservation wage. The reservation wage is assumed to be the branch-area minimum. Table 2-15 indicates that roughly 17 percent of firms had wages per worker in excess of gross surplus in 1993, but that this had declined to under 5 percent in 1994. For the great bulk of firms with positive values, the mean ratio was between 0.3 and 0.4 in 1993, fall-
Table 2-15. Ratio of Wage to Gross Profit per Worker, 1993 and 1994

<table>
<thead>
<tr>
<th></th>
<th>1993</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>$\pi/N$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive values</td>
<td>167</td>
<td>258</td>
</tr>
<tr>
<td>Negative values</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>$\tilde{\pi}/N$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive values</td>
<td>164</td>
<td>256</td>
</tr>
<tr>
<td>Negative values</td>
<td>35</td>
<td>13</td>
</tr>
</tbody>
</table>


ing to 0.13 in 1994. The full distributions are presented in figures 2-9 and 2-10, which report the ratio of the wage to gross surplus per worker evaluated at the reservation wage. The overwhelming majority of firms had a ratio below unity, which indicates that wage settlements were clearly constrained by the operating surplus.

These ratios, even allowing for tax, are interesting in several respects. Despite a weak association in the changes between a measure of financial performance and wages or employment, few firms show any signs of de-capitalization through the wage setting. Predatory wage setting seems to be the clear exception. The low responsiveness points instead to a continuing willingness on the part of the insiders who dominate the vast majority of these firms to sanction a continuing low level of monetary compensation. This is quite consistent with aggregate data, which revealed the apparent decline in the labor share since the start of transition, as well as the unit labor cost data that we presented in table 2-2. This also seems in keeping with a willingness on the part of insiders to give priority to employment stability. It also implicitly signals a change in the structure of compensation, particularly in the larger firms, where the non-monetary components of compensation have remained large.

Finally, we look at how responsive the wage markup has been to firm performance. We ran an OLS regression relating the ratio of the wage to the reservation wage to the difference in the log of sales per worker over the long period 1994-90, as well as 1994-92. We again include branch dummies and other characteristics (see table 2-16). Using transition probabilities for workers extracted from the Russian Longitudinal Monitoring Survey, we construct a reservation wage measure, factoring in the resec-
Figure 2-9. Cumulative Density of Wage/Gross Surplus per Worker, 1994

Cumulative density

Wage/gross surplus per worker

Figure 2-10. Cumulative Density of Wage/Gross Surplus per Worker, 1993

Cumulative density

Wage/gross surplus per worker
Table 2-16. Regression of the Ratio of Wage to Reservation Wage

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Dependent variable, wage/reservation wage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1994/90</td>
</tr>
<tr>
<td>Change in sales per worker (log)</td>
<td></td>
</tr>
<tr>
<td>1994–90/91</td>
<td>0.130***</td>
</tr>
<tr>
<td>1994–92</td>
<td></td>
</tr>
<tr>
<td>Dummy variable</td>
<td></td>
</tr>
<tr>
<td>Profit-maker</td>
<td>0.399***</td>
</tr>
<tr>
<td>Price control</td>
<td>0.095**</td>
</tr>
<tr>
<td>Privatized</td>
<td>0.300*</td>
</tr>
<tr>
<td>Delayed privatizer</td>
<td>0.384*</td>
</tr>
<tr>
<td>Privatizing within 18 months</td>
<td>0.433**</td>
</tr>
<tr>
<td>De novo private and industrial branches</td>
<td>0.882***</td>
</tr>
</tbody>
</table>

n 190 197
Adjusted $R^2$ 0.84 0.82

Note: ***, significant at 1%; **, significant at 5%; *, significant at 10%.

tive employment and unemployment probabilities. The coefficient on the sales term proved positive, very significant, and small: 0.13. Further, there was no change in the size of the coefficient over both the short and long panel. In general, branch dummies were not significant. In ownership, the main result is that both privatized and private firms were consistently positive and highly significant. Generating profit entered significantly and positively. The main result from this exercise is to confirm a statistically significant association of the wage markup with changes in firm-level sales. The size of the coefficient is stable over time.

To summarize, in this section we made an attempt to think about how insider influence translates in the setting of wages and employment. We hypothesized that faced with large adverse shocks, Russian firms would have been forced to make adjustments, but that continuing insider bargaining power would translate into a wage-employment combination on the zero isoprofit curve, with wages thus set close to average product. Firms in this setting would simply be constrained by a zero profit constraint, rather than by the labor demand curve. We experimented with some simple estimations relating the change in employment, wages, and the wage markup to the change in sales or productivity across several periods. A statistically significant relationship between the left-hand side
variables and sales or productivity was indeed identified. But the relationship was rather weak for both wages and employment. Nevertheless, looking more closely at the evolution of wages per worker, using either reported or reservation values, we found that these were generally set well within the size of the per worker distributable surplus. This would, of course, be consistent with a maintained employment bias.

Conclusions

We have tried to get a better idea of the factors influencing the wage and employment decisions of Russian firms. This is of particular interest given the apparent divergence in behavior with regard to Eastern and Central Europe. Russian firms have now begun to cut into the chronic stocks of excess labor that they carried into the transition from the previous system. There is evidence that the larger, mostly privatized, firms have yet to address the problem seriously. In short, privatization, as might be expected given its design and the weight given to insiders, has yet to feed through into substantive changes in employment. Aside from the reluctance to separate, it also appears that many firms, including those with acknowledged excess employment, continue to hire, with such accessions not obviously explained by strategic restructuring choices that require amending the skill mix.

We have tried to think about this employment bias in terms of possible insider influence at the firm level. The findings are far from clear-cut. Using qualitative evidence, we note that firm objectives have only partially changed. Indeed, the best predictor of current objectives were those preceding transition. Paradoxically, while workers have little explicit influence in decisions, whether at privatized or other firms, and union presence is not an important factor, responses by managers on firm objectives and relative influences in decisionmaking lead us to believe that workers continue to exert a subtle but important influence. Perhaps most important, the objectives of managers and workers appear in many critical aspects to coincide. The weights given to worker employment and income by managers are symptomatic of this apparent harmony in interests.

Thinking in terms of an underlying bargaining model, we then turned our attention to the identifiable factors governing firm decisions on wages and employment. We implemented simple estimations that looked at the relationship of employment, the wage markup, and financial per-
formance. The story that emerged was broadly consistent with our other results. Simply put, changes in sales or productivity do matter in wage and employment setting and in determining the size of the wage markup over the reservation wage, but the respective elasticities have remained quite small. Despite these small elasticities, firms have generally been quite effectively constrained in their wage setting by their revenues, and they do not appear to have operated as if in the presence of a soft budget constraint. Indeed, the share of firms with wages in excess of gross surplus declined significantly between 1993 and 1994. This suggests quite strongly that shocks from the product market have been partially accommodated as a result of low monetary wage levels. Thus, low responsiveness of wages to productivity changes has still been consistent with a wage-distributable gross surplus ratio significantly below unity. Insiders appear to have continued to select high employment and low monetary wage levels as the response to a deteriorating product market environment. That this choice has been feasible may partly be attributable to the continuing access to nonmonetary compensation or social benefits. These issues are explored in more detail in chapter 3.

References


Notes

1. It can also be argued that benefits have tended to attract discrete subsidization, including those achieved through tax breaks.

2. Indeed, nearly two-fifths of firms attached no importance to labor reductions, and only 20 percent were seriously considering plant or shop closures.

3. No major hirings were reported in 72-89 percent of firms; the lower end was in services. For the bulk of firms—intermediate and consumer goods producers—no major hirings occurred in over 85 percent of cases.

4. These likely understate wage differentiation given nondisclosure about fringe and other payments at the upper end of the distribution.

5. This is in accord with earlier findings based on smaller and less representative surveys reported in Commander, McHale, and Yemtsov 1995.

6. New trade unions have emerged, particularly in the medium-size and larger firms, and their membership accounted for around 20 percent of current employment.

7. This absent relationship can be replicated in a regression relating layoffs to share allocations.

8. When the Board of Directors is reported to have only four members—the number legally required for participation in the privatization—we can infer that the first shareholders' meeting has not yet occurred and we should not expect major changes.

9. We computed chi-square statistics relating types of shareholders with influence on management. For outside institutional investors, chi-square (87) = 77.6; for workers, chi-square (189) = 185.2; and for managers, chi-square (135) = 89.3.
10. Note that approximately 80 percent of firms classed themselves as normally profitable. Of these firms, increasing productive investment and working capital was cited as the best use of profits in 74 and 65 percent of cases, respectively; paying bonuses to workers or managers was cited in 19 and 3 percent, respectively.

11. The manager may not, of course, act in the interest of the owner. Indeed, lack of clarity on outside control may facilitate the manager’s appropriation of profit, even if this appropriation is unlikely to be indefinite. As such, short-run profit maximization by the manager need not imply an objective of maximizing the value of the firm.

12. Given the discrepancy in some of the datapoints, we use annualized growth rates where appropriate.

13. The gross surplus per worker measure is given by: \[ \bar{\pi} = \frac{(R - W_0L - H)}{L}, \]
where \( R \) = sales; \( W_0 \) = wage evaluated at the reservation price or actual wages; \( L \) = employment; and \( H \) = other costs. This obviously ignores taxes, and hence overestimates the effective “pie” to be distributed.

14. We thank Mark Schaffer for a great deal of help in selecting the appropriate variables in the dataset for this exercise.

15. A mean wage for the fifteen branches in each of the three geographical regions was calculated \((W_{15})\) for each year. For individuals with at least one year of service, the unemployment benefit would comprise 75 percent of their average wage over the previous twelve months for months 1–3 of any unemployment spell, 60 percent for months 4–7; and 45 percent for months 8–12. We assume that the one year of service criterion has been met. By construction, the alternative wage, \( AW \) = \([\text{probability of being employed } \times W_{15}] + [\text{probability of being unemployed } \times ((3/12) \times 75/100 + (4/12) \times 60/100 + (5/12) \times 45/100) \times W_{15}] = [\text{probability of being employed } + \text{(probability of being unemployed } \times 0.5748)] \times W_{15}\). The following transition probabilities, assuming that state and privatized probabilities were the same, were used:

<table>
<thead>
<tr>
<th></th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>0.915</td>
<td>0.085</td>
</tr>
<tr>
<td>Private</td>
<td>0.844</td>
<td>0.156</td>
</tr>
</tbody>
</table>

We thank Mark Foley for providing these transition probabilities from the Russian Longitudinal Monitoring Survey.
Russian firms have a history of providing a significant range of non-monetary benefits to incumbent workers. This component of total compensation was not only quite large, but was also intended to be an important factor in individual agents’ employment decisions. A compressed wage structure limited the power of wage differentials to guide such decisions. At the same time, an explicit objective of raising the ratio of the nonmonetary component in total compensation was to sponsor attachment, primarily through the provision of firm-managed housing. This traditional preference for a low absolute monetary wage component has extended into the transition period. It is likely to have had significant incentive effects, as well as larger implications on the demand side, particularly given that downward adjustments to money wages appear to have been larger than those to nonmonetary compensation in the early part of the transition.

In addition, because of concentration in employment, firms were broadly equivalent to local government in functions and tax assignments.

We thank Lev Freinkman, Mark E. Schaffer, Mark Sundberg, Dusan Vujovic, and Dennis Whittle for very helpful suggestions on earlier drafts of this chapter.
in a significant number of settings. To a greater extent than in Eastern and Central Europe, in Russia, firms were the providers of a wide range of services that would usually be provided by municipalities or other branches of government in market economies. Expenditure on social benefits and services by Russian firms amounted to about 4.1 percent of GDP in 1992 and 3.3 percent in 1993 (2.1 percent for industrial firms), and firms are estimated to have contributed at least one-quarter of total expenditure on housing, health, education, and cultural services in 1993. Spending on social benefits and services was also equivalent to about 14 percent of the enterprises' total wage bill in 1993 for all firms; for industrial firms, it accounted for about 20 percent. By comparison, in Poland expenditure on social and housing funds as a percentage of the wage bill (net wage cost) was no more than 10 percent for industry in 1989 (see Schaffer 1995). It is clear that Russian industry entered the transition with a higher exposure in benefits.

Providing social benefits clearly imposes nontrivial costs on firms, particularly when cost recovery remains constrained by low income levels and explicit price controls. While explicit pricing caps constrain cost recovery on housing and utilities to no more than 20 percent of cost, estimates indicate cost recovery to be significantly less. Although this may have given firms little incentive for greater cost recovery, such costs have also been offset by a combination of tax advantages and compensatory subsidies. Without changing the structure of compensation, the ability of firms to charge for services, and hence shift costs toward market values, will be constrained by the low ratio of cash wages to nonmonetary constituents of compensation. This current structure of compensation has negative implications for enterprise restructuring and the growth of the private sector in Russia.

A series of policy measures designed to cut the Gordian knot tying firms to benefits have already been implemented, including recent decrees that have forced firms to divest themselves of their social assets. The arguments for divestiture are several. First, it has been widely argued that the use of benefits to achieve worker attachment now constitutes a second-order problem, given the need for restructuring and associated employment contraction. Tying workers to firms through benefits may consequently impede labor reallocation and mobility. Second, freed through institutional change—primarily privatization—from an exogenous requirement to provide benefits, firms are likely to limit the provi-
sion of benefits that are costly or riskier for them. This may, however, have negative welfare implications. Third, firms should concentrate on raising productive efficiency and profits, liberated from a need to provide benefits. If benefits, for example, are a net burden to some firms, this may distort competition. Fourth, multiple provision of benefits through firms in a locality may be inefficient, and these losses could in principle be addressed through consolidation. Fifth, liberalizing wage setting should allow employers to use monetary compensation as the main sorting and motivational mechanism; this would likely be impeded by continuing provision of blanket access to benefits. Sixth, benefits provided by firms could either be devolved to individuals—through privatization of housing, for example—or, when that option is unavailable, through transfer to local governments.

While the economic underpinnings of the arguments above are intelligible, each has its own problem in the Russian context. First, fiscal relations among federal, oblast, and municipal tiers of the fiscal system have yet to be stabilized. For the bulk of social benefits currently delivered by firms, the issue is less that of possible efficiency gains from decentralization—regional or spatial differences in customary benefits tend not to be large—than the respective assignment of tax bases and spending. Recent evidence suggests that local administrations have tried to raise their share of existing tax bases relative to the federal government and innovate in local tax collection, often in a highly distortionary way. Aside from the multiple inefficiencies this may induce (a helpful survey of these issues can be found in Tanzi 1995), the central issue is the impact on possible net redistributions within the fiscal system when there is a large asymmetry, the result of relatively revenue-rich regions retaining higher local tax shares, while deficitary regions must continue to rely on federal support in a context of declining aggregate federal tax yields (see Wallich 1994). This problem will be expanded in contexts where a firm or small number of firms effectively comprise the local government tax and institutional base. In these cases, divesting firms of responsibility for social assets and transferring those responsibilities to municipalities does nothing to answer the financing question.

Second, the current wage-tax regulations, which impose an excess wage tax on pay settlements that exceed six times the minimum wage, are designed in a way that could encourage substitution of nonmonetary benefits for cash wages, given that the excess wage tax remains condi-
tioned on monetary payments. Payroll taxes and deductions comprise up to 40 percent of the wage bill, and there thus appears to be an incentive for firms to increase in-kind compensation. Third, institutional limitations relating to property rights and agency continue to limit the ability to devolve services away from firms. Fourth, the original objective of attaching labor to firms through benefits, particularly housing, may already be a small impediment to mobility. An earlier survey of firms in the Moscow region found that roughly 40 percent of tenants at end-1992 actually worked outside the firm controlling the housing stock, and these numbers are replicated in a World Bank survey of twenty-two firms implemented in late 1994. That there is little spatial mobility is beyond doubt; that it is attributable to controls on housing is less obvious.

This chapter cannot address all of these issues. Rather, we have a more modest objective: to provide an overview of the scale of benefits provided by Russian industrial firms. We look at the scale of provision at the start of transition and the subsequent changes in the provision of benefits through mid-1994. We are also able to pick up the widespread change in title that has occurred since the start of transition. This allows us to get some idea of the impact, if any, of ownership change on benefits provision. We also begin to look at the way in which shocks to firms have been absorbed. While the main part of this story is in the wage-employment choices that have been made, an important associated question is the extent to which changes to wages and benefits have moved together, or whether benefits and cash wages have been in some measure substitutes.

What Benefits Are Provided?

Table 3-1 provides a simple listing of the benefits provided by firms before transition and in mid-1994. The numbers are for a balanced panel, with responses in both periods. Several points emerge. First, the great majority of firms provided and continue to provide a wide range of benefits. Indeed, only 5 percent of respondents offered no benefits before transition, and this share had shifted only marginally upward, to 7 percent, by mid-1994. Close to 60 percent of firms provided four or more benefits at the end of the period; it is striking that health and childcare facilities continue to be provided by over two-thirds of industrial firms. There has been a slight increase in the number of firms providing no benefits, and a similarly slight decrease in the numbers providing most of the core bene-
Table 3-1. Provision of Benefits, Mid-1994 and 1990/91

(Percent)

<table>
<thead>
<tr>
<th>Item</th>
<th>Enterprises Mid-1994</th>
<th>Enterprises 1990/91</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childcare/childcare subsidy</td>
<td>66</td>
<td>79</td>
</tr>
<tr>
<td>Healthcare facility</td>
<td>70</td>
<td>71</td>
</tr>
<tr>
<td>Food subsidy/cafeteria</td>
<td>78</td>
<td>83</td>
</tr>
<tr>
<td>Food and/or consumer goods sold</td>
<td>60</td>
<td>52</td>
</tr>
<tr>
<td>Construction of new housing</td>
<td>50</td>
<td>73</td>
</tr>
<tr>
<td>Housing/housing subsidy</td>
<td>55</td>
<td>59</td>
</tr>
<tr>
<td>Holiday resort/holiday subsidy</td>
<td>45</td>
<td>57</td>
</tr>
<tr>
<td>Transportation/transportation subsidy</td>
<td>57</td>
<td>57</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>17</td>
</tr>
</tbody>
</table>

Number of core benefits

<table>
<thead>
<tr>
<th>Number of core benefits</th>
<th>Enterprises</th>
<th>Enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>8</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>&gt; 3</td>
<td>72</td>
<td>79</td>
</tr>
<tr>
<td>&gt; 4</td>
<td>58</td>
<td>67</td>
</tr>
</tbody>
</table>

Enterprises responding (number) 407 407

Note: Includes only enterprises that responded in both periods. Core benefits exclude “other” benefits.

In short, although table 3-1 clearly indicates some decline in the number of benefits provided and in the share of firms offering such benefits, the overall picture is one of significant inertia. The likely high-cost benefits—such as healthcare—have remained almost untouched. At this stage, however, we are unable to control for quality of benefits provision where anecdotal evidence suggests degradation. The one exception is in housing construction. Here, we already find a very significant contraction, so that by mid-1994 only half of the firms had a current construction program.
Firms were also asked about prospective changes in benefits supply over the coming year. About 60 percent of respondents providing at least one of the core benefits indicated no expectation of further reductions. Projected reductions for the 40 percent of enterprises indicating some lessening in benefits were generally in the range of one to two benefits and were concentrated in housing construction and childcare/kindergarten facilities. About 33 percent of enterprises currently providing childcare/kindergartens and 35 percent of enterprises providing housing construction expect to cut these benefits. Surprisingly, only about 14 percent and 10 percent of enterprises offering healthcare facilities and housing/housing subsidy, respectively, expected to cut these over the next twelve months. This is in contrast to the World Bank survey of twenty-two firms in nine municipalities. Over 50 percent of these firms indicated that as a result of government policy, they were transferring their housing stock to municipalities, with the remainder willing to transfer, but yet to commence negotiations with municipalities.

Perhaps more significant, in the responses to a question regarding the burden of providing social benefits, over 50 percent of respondents cited social-cum-ethical reasons for continuing to provide benefits. This response dominated all other responses, with only about 25 percent of responses citing attachment of workers as an important factor. While this response could be variously interpreted, it seems to point to an important quality of benevolence or extended social function for firms that is still shared by workers, managers, and local governments in Russia. It cautions against treating the Russian firm—state or privatized—as a standard, profit-maximizing entity. It is significant that barely 20 percent of firms considered benefits to be a major financial burden, while less than 5 percent considered benefits to be a major obstacle to firm restructuring.

We return to the cost implications of benefits supply below.

As to the asset structure associated with benefits, table 3-2 breaks down the kinds of benefits by ownership of assets. What is evident is that in the cases of housing, transportation, and cafeterias, firms were the owners in 80 percent of the cases. In some contrast, municipalities, firm workers, and/or other firms had ownership stakes in health and childcare facilities, as well as holiday homes and the like. There is little difference among the ownership categories, with a few exceptions. Far fewer de novo firms owned the social assets they provided than other ownership categories, with the exception of transportation. Privatized firms and
Table 3-2. Ownership of Benefits, Mid-1994 (percent)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Firm</th>
<th>Municipal government</th>
<th>Employees of firm</th>
<th>Other firms</th>
<th>No response (number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childcare/childcare subsidy</td>
<td>68</td>
<td>23</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Healthcare facility</td>
<td>66</td>
<td>26</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Food subsidy/cafeteria</td>
<td>87</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Food/consumer goods sold</td>
<td>84</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Construction of new housing</td>
<td>61</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Housing/housing subsidy</td>
<td>87</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Holiday resort/subsidy</td>
<td>69</td>
<td>10</td>
<td>3</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Transportation/transportation subsidy</td>
<td>86</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>81</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Out of total number of enterprises providing particular benefit.

state enterprises were nearly identical in their ownership patterns of the social assets. Municipal governments' exposure will certainly have increased since mid-1994 given recent government decrees mandating divestiture. From the survey we can also see that in cases where firms expect to cut childcare and healthcare facilities, the majority of these firms also indicated that these benefits would be transferred to municipalities. At the time of the survey, however, we find little active disposal or transfer of social assets, with only about 4 percent of enterprises that provide at least one of the core benefits indicating recent disposal of their social assets.6

Earlier results from smaller, biased samples indicated that the scale of benefits provision was tightly correlated with firm size. This is amply confirmed in table 3-3, where it can be seen that larger firms—particularly those with more than 10,000 employees—have far higher exposure to benefits. Indeed, the group of largest firms provided seven or more kinds of benefits. As with other surveys, large firms invariably provided
Table 3-3. Provision of Benefits and Size of Enterprise, Mid-1994
(percent)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>L ≤ 100</th>
<th>L &gt; 100, L ≤ 500</th>
<th>L &gt; 500, L ≤ 1,500</th>
<th>L &gt; 1,500, L ≤ 10,000</th>
<th>L &gt; 10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childcare/childcare subsidy</td>
<td>31</td>
<td>52</td>
<td>67</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>Healthcare facility</td>
<td>35</td>
<td>63</td>
<td>75</td>
<td>86</td>
<td>100</td>
</tr>
<tr>
<td>Food subsidy/cafeteria</td>
<td>31</td>
<td>66</td>
<td>90</td>
<td>98</td>
<td>100</td>
</tr>
<tr>
<td>Food/consumer goods sold</td>
<td>29</td>
<td>46</td>
<td>68</td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td>Construction of new housing</td>
<td>18</td>
<td>35</td>
<td>53</td>
<td>77</td>
<td>100</td>
</tr>
<tr>
<td>Housing/housing subsidy</td>
<td>12</td>
<td>36</td>
<td>62</td>
<td>86</td>
<td>100</td>
</tr>
<tr>
<td>Holiday resort/subsidy</td>
<td>28</td>
<td>36</td>
<td>40</td>
<td>62</td>
<td>90</td>
</tr>
<tr>
<td>Transportation/transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>subsidy</td>
<td>46</td>
<td>55</td>
<td>64</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
<td>22</td>
<td>23</td>
<td>18</td>
<td>40</td>
</tr>
</tbody>
</table>

Number of core benefits

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>&gt; 3</th>
<th>&gt; 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>enterprises responding (number)</td>
<td>68</td>
<td>126</td>
<td>81</td>
<td>94</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Core benefits exclude "other" benefits.

housing, health, and childcare facilities. In contrast, over 35 percent of the smallest firms provided no benefits; where benefits were given, the range was far smaller, with housing provided in under 20 percent of cases. Looking a little more closely at the sectoral distribution (see table 3-4), we find a fairly tight link to employment size. Branches where mean firm size is large, such as metallurgy, machine-building, and fuel and energy, have high benefits exposure. The only outlier is automobiles—despite large employment size, benefits levels were close to the mean.
Table 3-4. Provision of Benefits by Main Industrial Sectors, Mid-1994

(percent)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Energy</th>
<th>Fuel</th>
<th>Ferrous metal</th>
<th>Non-ferrous metal</th>
<th>Chemical/ petrochemical</th>
<th>Heavy machinery</th>
<th>Machine tool engineering</th>
<th>Agricultural machinery</th>
<th>Defense</th>
<th>Other</th>
<th>Wood/paper</th>
<th>Construction material</th>
<th>Light industry</th>
<th>Food processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child care</td>
<td>83</td>
<td>79</td>
<td>75</td>
<td>100</td>
<td>73</td>
<td>72</td>
<td>50</td>
<td>93</td>
<td>75</td>
<td>62</td>
<td>53</td>
<td>58</td>
<td>48</td>
<td>47</td>
</tr>
<tr>
<td>Healthcare facility</td>
<td>83</td>
<td>86</td>
<td>92</td>
<td>100</td>
<td>77</td>
<td>72</td>
<td>61</td>
<td>82</td>
<td>57</td>
<td>82</td>
<td>64</td>
<td>53</td>
<td>58</td>
<td>59</td>
</tr>
<tr>
<td>Food subsidy/cataloga</td>
<td>75</td>
<td>93</td>
<td>75</td>
<td>91</td>
<td>88</td>
<td>90</td>
<td>78</td>
<td>73</td>
<td>100</td>
<td>84</td>
<td>74</td>
<td>66</td>
<td>58</td>
<td>61</td>
</tr>
<tr>
<td>Food/consumer goods sold</td>
<td>67</td>
<td>64</td>
<td>83</td>
<td>91</td>
<td>54</td>
<td>59</td>
<td>50</td>
<td>73</td>
<td>93</td>
<td>61</td>
<td>53</td>
<td>66</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>Construction of new housing</td>
<td>67</td>
<td>79</td>
<td>75</td>
<td>91</td>
<td>83</td>
<td>49</td>
<td>33</td>
<td>55</td>
<td>64</td>
<td>54</td>
<td>40</td>
<td>47</td>
<td>45</td>
<td>25</td>
</tr>
<tr>
<td>Housing/housing subsidy</td>
<td>83</td>
<td>79</td>
<td>50</td>
<td>73</td>
<td>62</td>
<td>64</td>
<td>50</td>
<td>64</td>
<td>60</td>
<td>32</td>
<td>60</td>
<td>42</td>
<td>46</td>
<td>29</td>
</tr>
<tr>
<td>Holiday subsidy/resort</td>
<td>75</td>
<td>57</td>
<td>67</td>
<td>73</td>
<td>62</td>
<td>51</td>
<td>50</td>
<td>45</td>
<td>50</td>
<td>54</td>
<td>43</td>
<td>28</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>Transportation/transporation sub</td>
<td>75</td>
<td>29</td>
<td>42</td>
<td>0</td>
<td>42</td>
<td>13</td>
<td>28</td>
<td>18</td>
<td>36</td>
<td>15</td>
<td>17</td>
<td>31</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>enterprises responding (number)</td>
<td>12</td>
<td>14</td>
<td>12</td>
<td>11</td>
<td>26</td>
<td>39</td>
<td>18</td>
<td>11</td>
<td>14</td>
<td>67</td>
<td>47</td>
<td>32</td>
<td>31</td>
<td>56</td>
</tr>
</tbody>
</table>

Benefits (number)

<table>
<thead>
<tr>
<th></th>
<th>Energy</th>
<th>Fuel</th>
<th>Ferrous metal</th>
<th>Non-ferrous metal</th>
<th>Chemical/ petrochemical</th>
<th>Heavy machinery</th>
<th>Machine tool engineering</th>
<th>Agricultural machinery</th>
<th>Defense</th>
<th>Other</th>
<th>Wood/paper</th>
<th>Construction material</th>
<th>Light industry</th>
<th>Food processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>0</td>
<td>4</td>
<td>13</td>
<td>16</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>17</td>
<td>9</td>
<td>12</td>
<td>3</td>
<td>17</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>5</td>
<td>11</td>
<td>18</td>
<td>14</td>
<td>6</td>
<td>17</td>
<td>3</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>21</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>28</td>
<td>11</td>
<td>0</td>
<td>14</td>
<td>15</td>
<td>4</td>
<td>6</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>10</td>
<td>11</td>
<td>0</td>
<td>14</td>
<td>13</td>
<td>21</td>
<td>22</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>17</td>
<td>21</td>
<td>8</td>
<td>27</td>
<td>15</td>
<td>15</td>
<td>22</td>
<td>18</td>
<td>21</td>
<td>22</td>
<td>14</td>
<td>13</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>7</td>
<td>17</td>
<td>33</td>
<td>27</td>
<td>19</td>
<td>23</td>
<td>11</td>
<td>27</td>
<td>14</td>
<td>13</td>
<td>11</td>
<td>19</td>
<td>10</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>42</td>
<td>36</td>
<td>36</td>
<td>19</td>
<td>10</td>
<td>6</td>
<td>18</td>
<td>21</td>
<td>18</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>&gt; 3</td>
<td>84</td>
<td>92</td>
<td>74</td>
<td>90</td>
<td>61</td>
<td>86</td>
<td>61</td>
<td>63</td>
<td>84</td>
<td>81</td>
<td>59</td>
<td>69</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td>&gt; 4</td>
<td>76</td>
<td>71</td>
<td>74</td>
<td>90</td>
<td>61</td>
<td>58</td>
<td>50</td>
<td>63</td>
<td>70</td>
<td>66</td>
<td>55</td>
<td>63</td>
<td>36</td>
<td>34</td>
</tr>
</tbody>
</table>

Note: Number of benefits excludes "other"; defense sector includes shipbuilding and airplane manufacturing.
In the relationship between firm ownership and firm size, there is little to distinguish state firms from privatized entities (see table 3-5). De novo firms tended to offer a relatively small range of benefits. This is partially explained by ownership and size correlation—de novo firms are small in size (we address the question of whether, after controlling for size, de novo firms still offer fewer benefits later in the chapter). What is striking is that de novo firms do generally provide some benefits. Indeed, not only did a majority of de novo firms provide some benefits, but 23 percent offered more than four. This is consistent with the evidence from Poland, and it may indicate that private firms need to offer benefits in order to compete for workers in labor markets that until recently were charac-

### Table 3-5. Provision of Benefits and Ownership, Mid-1994 (percent)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>SOEs</th>
<th>Privatized enterprises</th>
<th>De novo enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childcare/childcare subsidy</td>
<td>68</td>
<td>69</td>
<td>23</td>
</tr>
<tr>
<td>Healthcare facility</td>
<td>75</td>
<td>72</td>
<td>27</td>
</tr>
<tr>
<td>Food subsidy/cafeteria</td>
<td>79</td>
<td>81</td>
<td>25</td>
</tr>
<tr>
<td>Food/consumer goods sold</td>
<td>66</td>
<td>62</td>
<td>14</td>
</tr>
<tr>
<td>Construction of new housing</td>
<td>53</td>
<td>51</td>
<td>11</td>
</tr>
<tr>
<td>Housing/housing subsidy</td>
<td>56</td>
<td>58</td>
<td>9</td>
</tr>
<tr>
<td>Holiday resort/subsidy</td>
<td>48</td>
<td>45</td>
<td>36</td>
</tr>
<tr>
<td>Transportation/transportation subsidy</td>
<td>62</td>
<td>57</td>
<td>48</td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>

Number of core benefits

<table>
<thead>
<tr>
<th>Number of core benefits</th>
<th>SOEs</th>
<th>Privatized enterprises</th>
<th>De novo enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
<td>5</td>
<td>36</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>23</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>16</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 3</td>
<td>80</td>
<td>72</td>
<td>23</td>
</tr>
<tr>
<td>&gt; 4</td>
<td>64</td>
<td>59</td>
<td>9</td>
</tr>
</tbody>
</table>

Enterprises responding (number)

<table>
<thead>
<tr>
<th>Enterprises responding (number)</th>
<th>SOEs</th>
<th>Privatized enterprises</th>
<th>De novo enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>92</td>
<td>71</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Core benefits exclude “other” benefits. SOE, state-owned enterprise.*
Table 3-6. Provision of Benefits by Region, Mid-1994 (percent)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of core benefits</th>
<th>Number of enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Altayskiy</td>
<td>11</td>
<td>33</td>
</tr>
<tr>
<td>Krasnoyarskiy</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Primorskiy</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Stavropol'skiy</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Arkhangelskaya</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vladimirskaya</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Vologodskaya</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Voronezhskaya</td>
<td>38</td>
<td>8</td>
</tr>
<tr>
<td>Nizhegorodskaya</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Kemerovskaya</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>Samarskaya</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>St. Petersburg</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Leningradskaya</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Moscow</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Moscovskaya</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Novosibirskaya</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Permetskaya</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Rostovskaya</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Saratovskaya</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Sverdlovskaya</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Smolenskaya</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Tyumenskaya</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bashkorstan</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Tatarstan</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: This excludes "other" benefits.
Social Benefits and the Russian Industrial Firm

The survey also allows us to look in more detail at the regional aspect, an element that has been little explored. This is potentially important because we know that given regions have higher employment concentration ratios and degrees of diversity in production. Table 3-6 breaks down the supply of benefits by region. The first point that stands out is that there is significant variation among regions. Refining this to incorporate the question of employment concentration in firms and/or industries, we also differentiate firms and their benefits supply by their setting. These categories include firms in major urban centers, effectively those located in Moscow and St. Petersburg; firms located in a dominant or single-enterprise setting, as well as in a dominant industry context; and other firms. We are also able to classify by oblast centers, other smaller urban areas, and rural contexts. Table 3-7 lists some simple statistics on the share of firms offering given benefits across the different settings. As we might expect, concentration in employment is unambiguously associated with higher shares of benefit provision across all categories. Housing, healthcare, kindergartens, cafeterias, and transportation all have notably larger firm provision in these areas than elsewhere. Inversely, the range of benefits tends to be far smaller in Moscow and St. Petersburg, and this is particularly striking in housing. Firms located in rural areas also offer a low range of benefits, including housing.

We now explore the characteristics of firms providing benefits a bit more systematically. We ran two sets of ordered logit estimations looking at both the level of benefits (as measured by the number of benefits sup-
Table 3-7. Provision of Benefits and Firm Setting, Mid-1994 (percent)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Urban industry</th>
<th>Oblast Other</th>
<th>Oblast center</th>
<th>Oblast Other</th>
<th>Rural Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>town</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Childcare/childcare subsidy</td>
<td>48</td>
<td>66</td>
<td>65</td>
<td>70</td>
<td>52</td>
</tr>
<tr>
<td>Healthcare facility</td>
<td>67</td>
<td>66</td>
<td>63</td>
<td>73</td>
<td>43</td>
</tr>
<tr>
<td>Food subsidy/cafeteria</td>
<td>81</td>
<td>71</td>
<td>70</td>
<td>75</td>
<td>57</td>
</tr>
<tr>
<td>Food/consumer goods sold</td>
<td>55</td>
<td>54</td>
<td>51</td>
<td>56</td>
<td>57</td>
</tr>
<tr>
<td>Construction of new housing</td>
<td>28</td>
<td>50</td>
<td>49</td>
<td>49</td>
<td>57</td>
</tr>
<tr>
<td>Housing/housing subsidy</td>
<td>35</td>
<td>53</td>
<td>52</td>
<td>56</td>
<td>43</td>
</tr>
<tr>
<td>Holiday resort/subsidy</td>
<td>42</td>
<td>39</td>
<td>41</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>Transportation/transportation subsidy</td>
<td>42</td>
<td>57</td>
<td>55</td>
<td>62</td>
<td>67</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>27</td>
<td>28</td>
<td>30</td>
<td>22</td>
</tr>
</tbody>
</table>

Number of core benefits

<table>
<thead>
<tr>
<th>Core benefits</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>&gt; 3</th>
<th>&gt; 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>16</td>
<td>22</td>
<td>15</td>
<td>13</td>
<td>7</td>
<td>5</td>
<td>62</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>10</td>
<td>14</td>
<td>8</td>
<td>14</td>
<td>86</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>69</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>9</td>
<td>8</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>68</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>84</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>10</td>
<td>14</td>
<td>7</td>
<td>19</td>
<td>19</td>
<td>13</td>
<td>20</td>
<td>13</td>
<td>24</td>
<td>44</td>
</tr>
</tbody>
</table>

Enterprises responding (number)

<table>
<thead>
<tr>
<th>Urban industry</th>
<th>Oblast Other</th>
<th>Oblast</th>
<th>Rural area</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>48</td>
<td>300</td>
<td>151</td>
</tr>
</tbody>
</table>

Note: Core benefits exclude "other" benefits.

For the level of benefits, we relate the number of benefits to size, ownership, measures of labor influence or power, firm setting, and wages. The results of the regression are reported in table 3-8. In determining the level of benefits, firm size proves to be significant and positive, even con-
Table 3-8. Number of Social Benefits, Ordered Logit Estimation

<table>
<thead>
<tr>
<th>Ben94</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-statistic</th>
<th>P &gt;</th>
<th>t</th>
<th>[95% Confidence-Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>0.0109522</td>
<td>0.2293347</td>
<td>0.048</td>
<td>0.962</td>
<td>0.4604399</td>
<td></td>
</tr>
<tr>
<td>NPE</td>
<td>-0.7558396</td>
<td>0.4050822</td>
<td>-1.866</td>
<td>0.062</td>
<td>-1.5497860</td>
<td></td>
</tr>
<tr>
<td>lpower</td>
<td>0.4313595</td>
<td>0.232900</td>
<td>1.849</td>
<td>0.064</td>
<td>-0.0258805</td>
<td></td>
</tr>
<tr>
<td>L_emp94</td>
<td>0.8010569</td>
<td>0.0807954</td>
<td>9.915</td>
<td>0.000</td>
<td>0.6427008</td>
<td></td>
</tr>
<tr>
<td>new_u</td>
<td>0.2301654</td>
<td>0.2646661</td>
<td>0.870</td>
<td>0.384</td>
<td>-0.2885705</td>
<td></td>
</tr>
<tr>
<td>AW</td>
<td>0.5952661</td>
<td>0.2332900</td>
<td>2.649</td>
<td>0.064</td>
<td>-0.0258805</td>
<td></td>
</tr>
<tr>
<td>profit</td>
<td>0.4337249</td>
<td>0.0901020</td>
<td>1.485</td>
<td>0.138</td>
<td>-0.1387845</td>
<td></td>
</tr>
<tr>
<td>dom_ind</td>
<td>0.8425167</td>
<td>0.3106043</td>
<td>2.713</td>
<td>0.007</td>
<td>0.2337434</td>
<td></td>
</tr>
<tr>
<td>xwage</td>
<td>-0.0826205</td>
<td>0.2030657</td>
<td>-0.407</td>
<td>0.684</td>
<td>-0.4806220</td>
<td></td>
</tr>
</tbody>
</table>

| cut1       | 6.125366    | 1.105278       |             |     | 0.3153809                |
| cut2       | 6.973138    | 1.116834       |             |     | 0.3153809                |
| cut3       | 7.691242    | 1.128282       |             |     | 0.3153809                |
| cut4       | 8.473939    | 1.143115       |             |     | 0.3153809                |
| cut5       | 9.305381    | 1.160794       |             |     | 0.3153809                |
| cut6       | 10.107320   | 1.175523       |             |     | 0.3153809                |
| cut7       | 10.953360   | 1.192265       |             |     | 0.3153809                |
| cut8       | 12.074020   | 1.214563       |             |     | 0.3153809                |

Note: Log likelihood = -627.63754; n = 339; chi² (9) = 207.35; prob. > chi² = 0.000; pseudo R² = 0.1418; ben94 = number of core benefits in 1994; PE = dummy variable = 1 if privatized enterprise, 0 otherwise; NPE = dummy variable = 1 if de novo private enterprise, 0 otherwise; AW = natural log of average monthly wage for June 1994; profit = dummy variable = 1 if enterprise is usually a profit-maker, 0 otherwise; dom_ind = dummy variable = 1 if enterprise located in dominant/one-company or industry town, 0 otherwise; lpower = dummy variable = 1 if employment or welfare of workers is considered to be an important management objective in 1994, 0 otherwise; L_emp94 = natural log of 1994 employment; new_u = dummy variable = 1 if new union coverage, 0 otherwise; xwage = dummy variable = 1 if the excess wage tax is important in determining the wage, 0 otherwise.

We do not find statistically significant differences between state-owned firms (SOEs) or privatized (PEs) entities in the number of benefits provided. The coefficient on new private firms (NPE) is negative, and is just significant (at the 10 percent level), once we control for firm size. Concentration in employment is positive and statistically significant. Firm profitability exerts no significant effect on the number of benefits supplied.

We also include two measures of labor power or influence—new union coverage and the importance attached to either employment or worker welfare (wages and benefits) within a given firm. New union cov-
verage proved insignificant, but the second labor power variable was posi-
tive and significant at the 10 percent level. We also examined the relation-
ship between wages and social benefits. It appears that the wage level
and the level of social benefits are positively and significantly associated.
This suggests that benefits are not generally treated as a substitute for
monetary compensation. Further, there seems to be no correlation be-
tween the excess wage tax and the benefits level.

In looking at the determinants of change in the level of benefits over
the two periods, we included, on the right-hand side, growth in sales and
wage growth. The results are given in table 3-9. The coefficients on the

<table>
<thead>
<tr>
<th>Table 3-9. Change in Benefit Levels, Ordered Logit Estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
</tr>
<tr>
<td>PE</td>
</tr>
<tr>
<td>NPE</td>
</tr>
<tr>
<td>l power</td>
</tr>
<tr>
<td>L_emp94</td>
</tr>
<tr>
<td>new_u</td>
</tr>
<tr>
<td>cSa9094</td>
</tr>
<tr>
<td>c_wg9094</td>
</tr>
<tr>
<td>profit</td>
</tr>
<tr>
<td>dom_ind</td>
</tr>
<tr>
<td>x wage</td>
</tr>
<tr>
<td>cut1</td>
</tr>
<tr>
<td>cut2</td>
</tr>
<tr>
<td>cut3</td>
</tr>
</tbody>
</table>

Note: Log likelihood = -199.87718; n = 179; chi² (9) = 18.10; prob. > chi² = 0.0532; pseudo R² = 0.0433; c ben = change in the level of core benefits between 1990 and mid-1994, where 1 = increase, 2 = no change, 3 = small decrease, and 4 = large decrease; PE = dummy variable = 1 if privatized enterprise, 0 otherwise; NPE = dummy variable = 1 if de novo private enterprise, 0 otherwise; l power = dummy variable = 1 if employment or welfare of workers is considered to be an important management objective in 1994 and/or prereform, 0 other-
wise; L_emp94 = natural log of 1994 employment; new_u = dummy variable = 1 if new union coverage, 0 otherwise; chs9094 = real growth in sales, from 1990 to mid-1994, in log form; chw9094 = real growth in wages, from 1990 to mid-1994, in log form; profit = dummy variable = 1 if enterprise is usually a profit maker, 0 otherwise; dom_ind = dummy variable = 1 if enterprise located in dominant/one-company or industry town, 0 otherwise; x wage = dummy variable = 1 if the excess wage tax is important in determining the wage, 0 other-
wise.
ownership variables are positive, suggesting declines are likely to be greatest in privatized and de novo firms. Neither coefficient, however, is statistically significant. The coefficient on size is positive and just significant, implying that declines are expected to be greater in larger firms. The coefficients on both wage variables—wage growth and the importance of the excess wage tax in setting wages in the firm—are insignificant. The two measures of labor influence or power, measured by the weight given to worker welfare and/or employment, as well as new union coverage, are both (just) significant and positive. This suggests that labor power as measured by these two variables, instead of hindering loss of benefits, encourages greater declines. Employment concentration is not significant. The firm's financial situation—as measured by profitability and sales growth—gives mixed results. The coefficient on firm profitability is negative but insignificant. The coefficient on sales growth, however, is negative and statistically significant. The latter is likely to be a better measure of the firm’s financial position.

In this section we have surveyed the kinds of benefits provided by firms in Russian industry, both by cross-tabulation and by two sets of simple regressions. The findings are fairly consistent with our priors and have many similarities with the Polish results (see Estrin, Schaffer, and Singh 1994). In general, Russian firms offer more benefits than Polish firms, but the percentage of firms offering given core benefits is not much greater in Russia. On the number of social benefits, firm size, as measured by employment, followed by average wage are the two most important explanatory variables in both Russia and Poland. Profitability and the excess wage tax are not important in either country, but labor power is just significant in both countries. Concentration in employment, a proxy for a company- or industry-town setting, and unique to the Russian dataset, is also strongly correlated with benefits supply. De novo private firms offer lower levels of benefits, even after controlling for size and other factors, in both Poland and Russia. There does not appear to be a robust difference across other ownership forms.

On the change in the level of benefits, we observe that in both Russia and Poland, financial health of the firm is associated with smaller declines in benefits—sales is the indicator in Russia, and profits in Poland. De novo firms are associated with increasing the benefits offered in Poland, even after controlling for size and other factors. In Russia this relationship does not hold. On the contrary, the coefficient is positive (but not
significant), suggesting larger declines in de novo firms than in other enterprises. We also see a number of other differences between the Russian and Polish results. Size is associated with increases in benefit levels in Russia, but with declines in benefit levels in Poland. Labor power is associated with smaller decreases in benefit levels in Russia, but not in Poland. The excess wage tax is associated with smaller declines in benefits in Poland, but not in Russia. Finally, we should highlight that in Russia, despite some reduction in benefits offered by firms over the period 1990/91–1994, most firms have contracted supply in relatively small magnitudes. This suggests that the benefits component of worker compensation may have been considerably less flexible than money wages.

Costs of Social Benefits

As table 3-10 indicates, the gross cost of benefits at mid-1994 averaged about 18 percent of the wage bill, with relatively little variation across the ownership forms. The share does rise, although not monotonically, with firm size and with degree of concentration in employment. There is also fair dispersion across branches. This share is not very different from the 20–25 percent range that emerges from the smaller World Bank survey of firms for 1993 and 1994Q1–3. Indeed, given that the average size of the firms in this latter sample was over 5,000 employees in the survey periods, these shares are very close to those reported for the two largest firm-size groups in the larger survey. These figures are also consistent with aggregate data (Roskomstat data). In 1994 (March), expenditure on social benefits and services by Russian industrial enterprises was about 21 percent of the wage bill. Aggregate numbers show some evidence of an increase in social benefits expenditure relative to the wage; the change, however, is not that large. In 1991/92, expenditure on social benefits for all enterprises in the national economy averaged about 8 percent of the wage bill, increasing to about 10 percent by mid-1994.

Costs data are misleading because firms will tend to underestimate the true costs of benefit provision. This occurs because the prices used to evaluate benefits are based on operational costs, and hence ignore the implicit subsidies obtained by using facilities owned by the firm. An obvious example would be inappropriately low attribution of rental costs. But arriving at a better valuation is difficult. One crude way of better estimating the market value of benefits would be to contrast the cost figures for
Table 3-10. Cost of Benefits, Mid-1994
(percentage of the wage fund)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample average</td>
<td>18</td>
<td>Branch</td>
<td></td>
</tr>
<tr>
<td>Ownership class</td>
<td></td>
<td>Energy</td>
<td>10</td>
</tr>
<tr>
<td>SOE</td>
<td>14</td>
<td>Fuels</td>
<td>21</td>
</tr>
<tr>
<td>PE</td>
<td>21</td>
<td>Ferrous metallurgy</td>
<td>21</td>
</tr>
<tr>
<td>NPE</td>
<td>13</td>
<td>Nonferrous metallurgy</td>
<td>28</td>
</tr>
<tr>
<td>Size of enterprise</td>
<td></td>
<td>Chemicals</td>
<td>20</td>
</tr>
<tr>
<td>L ≤ 100</td>
<td>9</td>
<td>Heavy machinery</td>
<td>37</td>
</tr>
<tr>
<td>L &gt; 100, L ≤ 500</td>
<td>14</td>
<td>Machine tools</td>
<td>15</td>
</tr>
<tr>
<td>L &gt; 500, L ≤ 1,500</td>
<td>17</td>
<td>Automobiles</td>
<td>19</td>
</tr>
<tr>
<td>L &gt; 1,500, L ≤ 10,000</td>
<td>25</td>
<td>Tractors/agr. machinery</td>
<td>28</td>
</tr>
<tr>
<td>L &gt; 10,000</td>
<td>17</td>
<td>Defense</td>
<td>23</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td>Other machine-building</td>
<td>19</td>
</tr>
<tr>
<td>Major urban center</td>
<td>17</td>
<td>Wood and paper</td>
<td>25</td>
</tr>
<tr>
<td>Dominant industry town</td>
<td>21</td>
<td>Construction materials</td>
<td>25</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>Light industry</td>
<td>16</td>
</tr>
<tr>
<td>Oblast center</td>
<td>16</td>
<td>Food processing</td>
<td>16</td>
</tr>
<tr>
<td>Other town</td>
<td>23</td>
<td>Other industry</td>
<td>25</td>
</tr>
<tr>
<td>Rural</td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: These are gross costs. Means are weighted by the wage bill. SOE, state-owned enterprise; PE, privatized entities; NPE, new private enterprise; L, employment. Defense sector includes shipbuilding and airplane manufacturing.

de novo private firms with those for state and privatized firms, in the belief that the costs for the de novo private firm will likely lie closer to current market values. Table 3-11 displays the results of that exercise, and it shows quite strikingly that the average cost of benefits per employee for a comparable basket of benefits rises strongly with the degree to which the firm is private. The average cost of benefits was about 25 percent in remaining state firms and about 47 percent in privatized firms, relative to de novo firms. Aside from pointing to very significant undervaluation, this suggests at the least that privatization has been accompanied by a shift toward using market values for benefits. Table 3-11 shows that imputing the cost numbers reported for de novo firms to other categories shifts the level of costs quite radically. As such, the gross cost of benefits at mid-
Table 3-11. Adjusted Cost of Benefits, Mid-1994

<table>
<thead>
<tr>
<th>Firm</th>
<th>Average monthly cost of benefits (rubles)</th>
<th>Average wage (rubles)</th>
<th>Average wage (% of TLC)</th>
<th>Cost of benefits (% of TLC)</th>
<th>Adjusted average wage (% of TLC)</th>
<th>Adjusted cost of benefits (% of TLC)</th>
<th>Observations (number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOE</td>
<td>16,593</td>
<td>185,906</td>
<td>92</td>
<td>8</td>
<td>74</td>
<td>26</td>
<td>24</td>
</tr>
<tr>
<td>PE</td>
<td>31,682</td>
<td>167,358</td>
<td>86</td>
<td>14</td>
<td>71</td>
<td>29</td>
<td>67</td>
</tr>
<tr>
<td>NPE</td>
<td>66,795</td>
<td>270,041</td>
<td>85</td>
<td>15</td>
<td>80</td>
<td>20</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: Average cost of benefits and wages are per employee. TLC is total labor costs and includes wages and cost of benefits. See table 3-10 note for definitions.

1994 may have exceeded 30 percent of the wage bill. In addition, using these values shifts the structure of compensation, an issue we return to below.

Cost Recovery

Given the size of shocks to Russian industrial firms—by mid-1994 firms in the survey were operating at an average of about 50 percent of capacity levels in 1990/91—and the associated deterioration in profitability, we can imagine that firms have been increasingly interested in cost savings. Indeed, we know that cost recovery levels have been historically very low, particularly for housing. What is striking, however, is that whether under firm or municipal control, the level of cost recovery for housing has remained very small. While explicit pricing caps constrain cost recovery on housing and utilities to no more than 20 percent of cost, survey evidence from the smaller survey of nine cities found a range of no more than 4–16 percent cost recovery at the municipal level in early 1995. For firms in the process of divesting their housing, average cost recovery on housing in 1993 and 1994, including maintenance and communal services, was below 20 percent, but the median was just under 10 percent. More globally, estimated rental and utility charges levied on tenants came to barely 18 percent of financial cost and 12 percent of economic cost at mid-1994. With further liberalization of energy prices, World Bank estimates suggest that the cost of operating the housing stock will
rise by approximately 50 percent. This would widen the gap without a greater charge-back to tenants.\textsuperscript{10}

As we have seen, the firm response to a deterioration in profitability and low cost recovery can take a number of forms. First, firms have closed down specific operations, either outright or by using previous facilities for commercial or other activities. Further, in 70–75 percent of cases where either childcare or healthcare facilities were cut, municipal governments appear to have taken over or substituted such benefits. Outright loss of access to services—as indicated in table 3-1—was a less likely outcome in the majority of cases. Second, firms can resort to greater charge-backs for use of facilities, both to incumbent workers and to outsiders using those facilities. The small World Bank survey suggests, however, that this has not been a favored option. Over half the firms surveyed indicated no desire to implement greater cost recovery. This unwillingness may partially be explained by explicit local government caps on pricing levels, and hence a weak incentive for cost recovery. It also plays back to the continuing low level of monetary compensation available to workers, and thus their ability to pay for services.

While the costs for firms providing benefits are nontrivial, such costs have also been offset by a combination of tax advantages and compensatory subsidies. In the former case, prior to the mandated divestiture from mid-1994 onward, firms had been receiving explicit tax relief. For example, in most settings firms have not only been permitted direct tax credits on housing expenditures of up to 1.5 percent of turnover, but additional, often nontrivial, tax breaks on their profit tax liabilities. As a consequence, divestiture of housing to municipalities may not have a large direct budgetary effect.

In addition to explicit offsetting support through tax relief, there is evidence that social benefits costs have also been offset by government transfers (as indicated in chapter 6 of this volume). We might expect the provision of selected benefits, such as housing/housing subsidy and kindergartens/childcare facilities, to be related to government financial transfers. We test this by running a regression relating total government transfers per worker to the provision of a subgroup of those benefits with merit characteristics and a likelihood of large cost implications—housing/housing subsidy and childcare. We include ownership and branch dummies and add the cost of social benefits as a percentage of the wage
Table 3-12. Financial Transfers, OLS Regression

| Financial Transfers | Coefficient | Standard Error | t-statistic | P > |t| [95% Confidence interval] |
|---------------------|-------------|----------------|-------------|-----|--------------------------|
| benefits            | 0.5431010   | 0.2765268      | 1.964       | 0.055| -0.0123194 1.098521     |
| PE                  | 0.0071642   | 0.2452120      | 0.029       | 0.977| -0.4853587 0.499687     |
| NPE                 | 0.0330417   | 0.6805420      | 0.049       | 0.961| -1.3388670 1.399957     |
| soc_wb              | -1.5238320  | 0.8390424      | -1.816      | 0.075| -3.2090990 0.161433     |
| branch2             | 2.2055760   | 1.0628610      | 2.075       | 0.043| 0.0707568 4.340396      |
| branch3             | -0.2092506  | 1.3063920      | -0.160      | 0.873| -2.8332160 2.414715     |
| branch4             | -0.0858868  | 1.1190440      | -0.077      | 0.939| -2.3335520 2.161778     |
| branch5             | 1.0904950   | 1.0830670      | 1.007       | 0.319| -1.0855110 3.266501     |
| branch6             | 0.3060733   | 0.9905473      | 0.309       | 0.759| -1.6834990 2.295646     |
| branch7             | 0.0410337   | 1.0402630      | 0.039       | 0.969| -2.0483410 2.130408     |
| branch8             | (dropped)   |                |            |      |                          |
| branch9             | 0.1984083   | 1.0474870      | 0.189       | 0.851| -1.905530 2.302347      |
| branch10            | 0.3538287   | 0.9593737      | 0.369       | 0.713| -1.570246 2.277903      |
| branch11            | 0.3699282   | 0.9667561      | 0.383       | 0.704| -1.571958 2.311615      |
| branch12            | -0.0598335  | 1.0626900      | -0.056      | 0.935| -2.194309 2.074642      |
| branch13            | 0.3123433   | 1.1309020      | 0.276       | 0.784| -1.959139 2.583826      |
| branch14            | 0.0739517   | 0.9977293      | 0.074       | 0.941| -1.934064 2.081967      |
| branch15            | 0.5222599   | 1.0231730      | 0.510       | 0.612| -1.532844 2.577364      |
| branch16            | 0.3232304   | 1.1332190      | 0.285       | 0.777| -1.952906 2.599367      |
| constant            | -0.0631379  | 0.9505497      | -0.066      | 0.947| -1.972373 1.846097      |

Note: n = 69; F(18,51) = 1.15; Prob. > F = 0.3343; R² = 0.2933; R² = 0.0389; root MSE = 0.90739; Ftran94 = financial transfers per worker, mid-1994; benefits = dummy variable =1 if enterprise provided kindergartens/childcare facilities and housing/housing subsidy in 1994, 0 otherwise; PE = dummy variable =1 if privatized enterprise, 0 otherwise; NPE = dummy variable =1 if de novo private enterprise, 0 otherwise; soc_wb = cost of social benefits as a percentage of the wage bill; branch* = branch dummy variables.

The results of the regression are given in table 3-12. We find that the provision of these benefits is positively related to the level of government transfers. The coefficients on the ownership variables are not all significant. With the exception of the fuel sector (branch2), which is positively and significantly related to the level of transfers, the coefficients on the branch dummies are all insignificant. The cost of benefits variable is negative and significant at the 10 percent level.

The compensation that results, however, appears to be both partial and concentrated among the larger firms, as categorized by employment (also see chapter 6 in this volume). Further, while around 27 percent of
firms in the sample reported receiving government transfers in 1994, over 47 percent reported running tax arrears in the same period. This suggests that transfers tend to arise more ex post than through explicit prior arrangement, including compensatory finance. In addition, the continuing concentration of the largest transfers relative to output in firms with large employment suggests that the decision on transfers may be primarily a function of the employment preference of the government, rather than a set of decisions conditioned on the supply of social benefits. It just so happens that large firms tend to be firms with the greatest exposure to benefits.

Structure of Compensation, Benefit Pricing, and Incentives

The survey is consistent with aggregate data in showing that since 1990 the monetary component of workers' compensation has generally declined in real terms. This is true for privatized as well as state firms. Making allowance for hours adjustment would only accentuate this decline. Is there evidence that benefits have been used as a counterweight to cash wages? This question is particularly relevant given the bias imparted by the tax regime, with only cash wages subject to the excess wage tax, as well as a rising share of payroll taxes in relation to wage costs. Figure 3-1 relates the change in the cost of benefits per worker to that for mean wages. Most observations fall below the 45-degree line, with a large asymmetry in respective changes to wages and benefits. This would suggest that benefits have not generally been explicitly used to offset real wage declines.

In general, results from this survey and from the smaller World Bank survey of twenty-two firms indicate that wages were generally set with reference to consumer prices, albeit with a lag, while benefits were, in effect, treated by firms as a quasi-fixed cost, and hence not subject to explicit bargaining with workers over the level or quality of services supplied. And the latter survey explicitly reveals that changes in the value of benefits received by workers were not reflected in cash wage settlements.

That firms have not used benefits as substitutes for wages is a bit misleading. Table 3-11 has already indicated that state and privatized firms very significantly underestimate the cost of benefits. Imputing the costs reported by de novo firms for roughly comparable benefits provision has a strong effect on the structure of total compensation. Using these values,
Figure 3-1. Change in Average Wages and Cost of Social Benefits, 1990-94

Note: Data for 1994 are mid-1994.

benefits comprise about one-third of total worker compensation, and this share would obviously rise if only cash wages were subject to downward adjustment through involuntary leave and short-time work, as is likely. Further, it seems probable that even these adjusted cost of benefits numbers may be underestimates.

Changing this structure of compensation is clearly important. This is true for several reasons. First, there is the incentive issue, which we deal with in more detail below. Second, there is the dynamic problem of raising cost recovery in a context where monetary wage levels remain low. It is evident that, in principle, provision of benefits by firms can be offset by adjustment to cash wages—benefits such as canteens, holiday homes, and the like, could be balanced by a lower cash wage—and this would be potentially true, even in cases where firms were providers of local public goods. In that context, a tax could be imposed on all users, potential or actual, to cover the costs of such services. But raising cost recovery encounters the constraint imposed by the level of cash wages. Cash wages were low at the start of the transition, and have generally gone lower. In contrast, the shadow or market value of benefits will generally have increased, particularly given the thinness of the markets for alternative pro-
vision, which will have tended to push prices above their likely steady-state values. Indeed, benefits, whether provided by the firm or municipality, have effectively anchored household incomes. This is partially confirmed by current monetary wage levels: about 20 percent of workers in our survey received wages at or below regionally adjusted poverty levels (Commander, Dhar, and Yemtsov 1995). These changes in the structure of compensation may imply that, properly priced, total real compensation has actually increased through the transition, but real disposable compensation appears to have fallen.

By liberalizing the wage regime—at least partially—cash wages could be expected to act as a conventional, worker-specific incentive. Further, workers’ wages would increasingly reflect returns to firm-specific skills. Evidence from our survey suggests, however, that wage differentials have not moved in this way. Region or sector remains a better explanatory factor, and relative wages have remained very inertial. Among other things, this suggests that any wage premium would come through sectoral or regional attachment. This is potentially important in several respects. First, attachment to firms could be predicted to be low, because firm-specific rents will be small. Second, given low mobility at a regional level, flows across sectors will depend very much on the degree of sectoral attachment in Russian industry. While far from conclusive, there is some evidence to suggest a fairly high degree of sectoral attachment, with flows across the same sector dominating among voluntary separations. Transitions will thus tend to be sector- and region-specific, with compensation variation within a sector serving as the main motivation for transitions. Third, such flows will tend to be motivated primarily by nonmonetary compensation or social benefits when that component of compensation is large. But in effectively reducing the share of monetary wages in total effective compensation, and hence the share of individual-specific compensation, the component that is likely to be more evenly distributed—benefits—will have risen. It is quite evident that this creates an adverse incentive problem and will negatively affect the efforts of individual workers in firms that follow such a compensation scheme. The implications for effort are dealt with more formally in the appendix to this chapter.

Finally, we should note that reducing cash wages to balance the cost of services would obviously be more difficult in the case of healthcare and childcare facilities, because potential costs will vary widely across
workers and may not be identifiable. To the extent that such risk was identifiable, downward adjustment to cash wages to balance firm provision would only be feasible when there was no other provider and where the worker would otherwise have to pay for access to similar services. Where risks are clearly identifiable through worker characteristics—for instance, provision of childcare to workers’ children—we could predict that firms, given greater freedom in decisionmaking, would likely cut back or eliminate such services. Kindergartens are probably the clearest case, and the initially higher incidence of involuntary separations among women may perhaps be linked to an unwillingness to retain or hire staff with a high risk of using costly firm-specific benefits. Curtailing such benefits would thus reflect shifts in the structure of firms’ labor demand and, in due course, in the labor supply decisions of women. Indeed, as we have seen above, childcare facilities have been among the main casualties of firm-provided benefits. This outcome is likely to have been accelerated by pricing caps.

Conclusions

We have demonstrated that Russian industrial firms have, for the most part, continued to supply social benefits to workers. There has been little asset disposal and, more significant, relatively little change in the volume and range of benefits provided. Firms appear to view provision of social benefits as a necessary function, and one consistent with their social-ethical obligations to workers and the community. Ownership change through privatization has yet to affect behavior.

We can think of the resulting compensation envelope and the outside alternatives as acting on two sets of decisions: those of firms and those of workers. These may in part overlap, given the apparently strong voice that insiders, including workers, appear to exert in firm decisions on employment and wages. Nevertheless, we can characterize compensation and fallback income as follows. Money wages remain low and have drifted slightly downward in real terms, while their share in total compensation has declined. The fall-back given by unemployment benefits remains yet lower, and drops significantly below the subsistence level.

From the viewpoint of firms, this outcome promotes what we have characterized as benevolence and its resulting inertia in the employment level. Firms remain reluctant to cast workers into unemployment when
benefits continue to be so low. At the same time, the threat of unemployment induces workers to accept greater wage flexibility, including hours adjustment and temporary layoffs. Low money-wages depress further the share of labor costs in total costs to firms. In 1993 and 1994 labor costs averaged 13.4 percent of total costs in industry, with payroll taxes and other contributions amounting to an additional 5 percent of costs. The low labor share, in turn, has sanctioned continued labor hoarding in industrial firms. But it has also impeded steps to greater cost recovery, because firms remain constrained by low-wage regimes and continuing price controls. Finally, from the viewpoint of the firm—and particularly large firms—the level of employment, as well as benefits, appears significant in explaining subsidy or transfer decisions by government. This may additionally explain the continuing reluctance to separate.

From the perspective of the worker, we can think of her decision primarily through the factors pulling her out of a firm, given the reluctance of firms to impose involuntary separations. Unemployment benefits have stayed low, and average private sector wages appear to offer relatively small markups over those paid in state and privatized firms (see Commander, Dhar, and Yemtsov 1995). Further, de novo private sector wages incorporate lower social benefits provision, depressing the value of total relative compensation. In sum, even with low money wages in state or privatized firms, workers will have a strong incentive to stay in firms with higher social benefits levels, and thus higher values of total compensation; there remain quasi-rents to be extracted within the firm. The corollary of this compensation envelope, however, will be that workers will make their effort decisions consistent with worker-specific, as opposed to average, returns to effort. That money wages remain low and declining as a share of total compensation will tend to result in workers allocating their time and effort in order to maximize individual-specific returns. Because firms may not be able to monitor effort adequately and may be prepared to accept low effort by workers when faced with large negative demand shocks and consequent low capacity utilization, low effort in primary employment can result, with workers diverting as much of their disposable time as possible to secondary employment. This decision structure relies on workers choosing to stay with their primary employer, mainly as a function of the nonmonetary, or social benefits, component of compensation. We formalize this argument in the appendix. It will thus require that the alternative wage roughly equate the value of total com-
pensation, including secondary income flows and social benefits, for workers to be pulled from their jobs. Equally, quits could be motivated by high relative benefits provision.

Several implications flow from our analysis. The first is that there are indeed sound reasons for detaching some benefits provision from firms. Most of the goods provided by firms do not qualify as public goods. Further, provision of such goods, given the problems in raising cost recovery, have clear implications for firm competitiveness. The evidence that they receive but partial compensating transfers from government also imposes a clear burden on some firms. Moreover, in the new environment firms are unlikely to make optimal decisions on the provision of goods that have merit characteristics, such as healthcare and childcare. In certain cases, we can imagine firms undersupplying services, such as childcare, with nonneutral effects on labor supply. Second, dissociating the supply of such goods from firms will assist in the adjustment of the wage structure and in the fuller monetization of total worker compensation. As matters currently stand, the low level of money wages and their diminished share in total compensation generates adverse incentive effects, raising the incentive for workers to stay in benefits-providing firms, while simultaneously delivering low effort in primary employment. Although this assists in maintaining low aggregate unemployment levels, it offers no viable long-run solution and may ultimately impede effective restructuring and the growth of an autonomous private sector.

Appendix

Social Benefits, Wages, and Effort

Motivating workers was a persistent problem for Soviet firms. Because shirking could not be punished by unemployment, thus diluting the effectiveness of any monitoring scheme, firms tried to introduce incentive payments, primarily through piece rates.\textsuperscript{13} Even this effort was compromised by the existence of fairly rigid wage structures, or scales that restricted wage differentials. Returns to human capital were often perverse. The monetary component of wages varied relatively little across individuals, controlling for skill, location, and other factors, while nonmonetary compensation tended to be available to all workers in a firm. Perhaps
not surprisingly, the history of labor productivity in the former Soviet Union was not a happy one.

The adverse incentive effects flowing out of this compensation structure have been amended in the transition in several respects. Unemployment has been tolerated but remains low, and wage setting has been partially liberalized. The structure of workers' compensation, however, has remained fairly stable. For reasons indicated in the chapter, there has been significant employment inertia in state and privatized firms, alongside a rapid growth in multiple jobholding. Recent survey evidence indicates that so-called secondary employment can account for a major share of monetary compensation (see de Melo and Ofer 1994; Commander, McHale, and Yemtsov 1995). The simple model we develop below tries to account for agents' behavior in a world with two basic choices in time and effort allocation. In this world, workers can combine jobs, rather than necessarily select discrete states (for example, state or private employment or unemployment). It can readily be shown that when the relative monetary wage in the state or privatized sector is small, workers will have a strong incentive to reduce effort, subject to a minimum effort requirement, and to allocate as much of their time as possible to secondary work.

A Model of Time Allocation across Two Sectors

Consider a world in which workers can supply positive hours \((h_0, h_1)\) of work in two sectors: state, \(h_0\), and private, \(h_1\). The utility function of a representative worker, neglecting substitution effects, can be written as:

\[
U(c, h_0, h_1) = u(c) + v(T - h_0 - h_1)
\]

where \(c\) is total compensation, comprising money and in-kind compensation or social benefits, and \(v(\cdot)\) is a concave function of leisure. The budget constraint is given by:

\[
c = s \cdot \delta(\ h_0 - h_{min}\ ) + w_0 \cdot (h_0 - h_{min}) + g(h_1)
\]

where \(h_{min}\) is the minimum time a worker needs to work in the state sector to get access to social benefits, given as \(s\).

\[
\delta(\ h_0 - h_{min}\ ) = \begin{cases} 
1, & h \geq h_{min} \\
0, & h < h_{min}
\end{cases}
\]
The term $g(h_1)$ is income in the private sector, and this is assumed to be a concave function of the hours, $h_1$, supplied to the private sector. Assuming decreasing returns to hours of work in the private sector, we have:

$$g(h_1) = g_0 - h_1^\theta, \quad 0 < \theta < 1.$$  

Maximizing the utility function (choosing $h_0,h_1$), subject to the budget constraint (3-2) and the inequalities, $h_0 \geq 0, h_1 \geq 0$, we have the following first-order conditions:

$$u' \cdot w_0 - v' = 0$$
$$u' \cdot g' - v' = 0$$

from which we find:

$$h_1 = \left( \frac{\theta \cdot g_0}{w_0} \right)^{\frac{1}{1-\theta}}$$

and

$$w_1 = \frac{g(h_1)}{h_1} = \frac{1}{\theta} \cdot w_0$$

is the average wage in the private sector.

To get $h_0$ we can assume for simplicity that

$$u(c) = \gamma \cdot c, \quad v(x) = v_0 \cdot x^\omega, \quad 0 < \omega < 1.$$  

We then have

$$\gamma \cdot w_0 - \omega \cdot v_0 \cdot (T - h_0 - h_1)^{\omega-1} = 0,$$

or

$$h_0 = T \left( \frac{\theta \cdot g_0}{w_0} \right)^{\frac{1}{1-\theta}} - \left( \frac{\omega \cdot v_0}{\gamma \cdot w_0} \right)^{\frac{1}{1-\omega}}.$$  

It is assumed that all parameters are such that the condition

$$h_0 \geq h_{\text{min}}$$

is satisfied.

It follows from the above that the lower total compensation in the state compared with the private sector, the fewer will be the hours sup-
plied to the former above the minimum requirement, $h_{\text{min}}$, that workers must satisfy in order to maintain access to social benefits.

References


Notes

1. These numbers are for the entire firm sector except where noted (source: Goskomstat). These figures are likely to underestimate spending on social benefits, because they exclude barter transactions, subsidies on goods and services, and investment in infrastructure by firms; see Freinkman 1994.

2. It is currently six times the minimum wage, except for enterprises within the military-industrial complex (eight times the minimum wage). Agricultural enterprises and those within the food processing branch are exempted. The current limits were adjusted as of 1994 from prior limits of four and six times the minimum wage, respectively.

3. Carried out as part of the preparatory work for the project on Social Asset Divestiture. Thanks to Mari Kuraishi and Dennis Whittle for access to this dataset. The earlier results are reported in Commander and Jackman 1993.

4. About 25 percent of firms did cite benefits as an unavoidable burden, possibly a grudging equivalent to the social obligation.

5. This is in stark contrast to the general assumption that benefits supply is likely to impede efficiency and deter outside investment—as expressed, for example, in Aghion, Blanchard, and Burgess 1994 and Boycko and Schleifer 1994.

6. In only three instances did the enterprise indicate that the disposal of the social asset was mandated by government regulation or decree. Government regulations require enterprises to divest social assets to municipalities, but this has yet to be implemented on a large scale.

7. Enterprises were classified as located in a dominant industrial town based on name and location of the enterprises. These enterprises and their location are generally commonly known as such.

8. These figures are based on a note by Irina Starodubrovskaya on the “Progress of Housing Reform,” World Bank Resident Mission, Moscow, February, 1995.


10. With such uncertainty, it is hardly surprising that housing privatization has remained restricted. The small World Bank survey in nine cities gave a range
of 13–50 percent for municipal housing and 16–40 percent, with a mean of 30 percent, for remaining firm housing.

11. These comprise pension, medical insurance, social insurance, and employment fund contributions. On average these encompassed just under 40 percent of the wage bill for Russian industry in 1993 and 1994.

12. This may, of course, be compounded by expectations with respect to wealth effects coming from privatization and changes in control structures. Counteracting this may be that access to housing benefits have now been made unequivocally independent of employment status.

13. An overview of compensation schemes and associated labor market policies can be found in Oxenstierna 1990.
Part II

Financial Aspects of Enterprise Restructuring
This chapter offers an analysis of payment arrears in the Russian enterprise sector, using both official (Goskomstat) aggregate data and data from the World Bank survey of 439 large and medium-size Russian industrial enterprises conducted in mid-1994. Enterprise arrears in Russia attracted considerable attention from both analysts and policymakers following the rapid growth of trade credit ("interenterprise debt") that ensued after the start of the Russian reform program and that initially culminated in the so-called "arrears crisis" of 1992. Since then, the levels of both total trade credit and trade credit in arrears have stabilized, and attention and concern is now directed at the other forms of "arrears" of Russian enterprises as well—not just arrears to other firms, but arrears to banks, to the government, and to workers. This chapter will focus primar-
ily on trade credit arrears, tax arrears, and wage arrears. Fan, Lee, and Schaffer discuss bad bank debts in detail in chapter 5.

We begin by distinguishing between two kinds of arrears, which differ by nature (rather than by creditor). The first kind of arrears is that associated with "late payment": firms pay a debt late, but they do eventually pay. In stocks and flows, the stock of arrears from late payment is roughly stable over time because over the medium-term, inflows of arrears (new debts that come due but are not paid) are roughly equal to outflows (the actual payments of debts in arrears). These kinds of arrears can act as a short-term "cushion" for firms that have liquidity problems or are suffering from some other kind of "financial stress," and that react to this stress by temporarily delaying payment. They may also result from other causes—for example, customers extracting, ex post, better payment terms from their suppliers.

The second kind of arrears is that associated with firms in serious financial difficulties. The arrears of firms in financial distress can be considered a kind of "bad debt"; most or all of these debts will not be repaid, at least in the short or medium term.

We also briefly discuss a third category of arrears, which can be called "strategic arrears," or in Perotti's (1994) terminology, "collusive arrears." Arrears may arise as the result of strategic behavior. For example, firms may expect a general government bailout of arrears; they anticipate this bailout by not paying each other—that is, by running arrears—and in the face of the resulting rapid growth in arrears the government gives in and bails out the firms by clearing the arrears with, for example, an injection of credit.

Using this framework we shall try to address a number of issues regarding "arrears" in Russia, including:

- Is there an "arrears crisis" in Russia? Are stocks of arrears continuously growing, and if so, which kinds of arrears (trade credit arrears, tax arrears, and so forth) are behaving in this manner?
- Are arrears really a source of soft budget constraints? If so, which kinds of arrears are in this group?
- What causes arrears, and which firms are the most likely to run them?
- Have enterprises learned how to deal with bad payers?
- What should be the role and contribution of policymakers?
Late Payment versus Bad Debts: From Financial Stress to Financial Distress

To address the question of what causes arrears, we can distinguish in principle between two kinds of overdue payments: "late payments" and "bad debts." Late payments are overdue payables of enterprises that will be paid in the short term. Bad debts are the arrears of enterprises that cannot pay, or the overdue payables that could not be covered by the enterprise's surplus in the short or medium term, even after drastic adjustments. Late payments are, by definition, paid back. They are one source of liquidity, among others, for the enterprise, and thus can be described as a "cushion" for the firm. The decision to run such arrears can been seen as resulting from intertemporal optimizing behavior. Enterprises decide to pay certain debts late because the cost associated with late payment is smaller than the cost required by alternative sources of finance.

Bad debts, in contrast, are held by firms in severe financial difficulties. These firms are unable to repay the debts in the short term, and are unlikely ever to repay them in full. In a market economy, these debts would be settled during the processes of reorganization or liquidation. In the former, the debts would be renegotiated as part of the overall settlement between the firm and its creditors; in the latter, debts would be settled as the firm is dissolved, its assets disposed of, and the proceeds used to repay debts.

In transition economies, problems with the process of bankruptcy (both reorganization and liquidation) mean that bad debts persist because bad debtors persist. While distressed firms may downsize substantially under pressure, they are not often pursued by their creditors through the legal system for payment of their late debts. There are a number of reasons for this, including the low liquidation value of the firm, which means creditors can expect a low return to court action (especially by unsecured creditors); the slowness of bankruptcy courts in transition economies; the lack of previous experience with bankruptcy procedures, which means that final outcomes will be difficult to predict; the lack of practical experience in working out bad debts; reluctance of creditors (especially banks) to pursue bad debtors openly because it signals that the creditors have dubious assets; and so forth (see Gray, Schlorke, and Szanyi 1995 for results of an empirical investigation of the bankruptcy and liquidation process in Hungary). Faced with these obstacles, cred-
tors apparently often decide simply not to pursue the bad debtors. Moreover, the very large shocks and recessions that have hit transition economies mean that distressed firms, and hence bad debts, are plentiful. Thus there exist large "stock problems," but the mechanisms for sorting out these stock problems are ineffective.

One way to see the difference between late payments and bad debts is to take the creditor's point of view. Late payments are credits implicitly accepted by the creditor. In the specific case of trade credit, for example, suppliers must see advantages in continuing to supply firms that pay late—otherwise they would stop deliveries. Of course, these advantages include (the expectation of) eventually being paid. When a firm initially gets into difficulties, it may delay paying its creditors; these creditors may continue to extend new credits (for example, supply on trade credit) if they believe this is a case of late payment and the firm will eventually pay. If the firm's difficulties are severe, however, and it continues to fail to pay, the arrears become bad debts. At this point creditors can stop the flow of new credits; for example, suppliers can simply stop shipping on credit. They cannot, however, easily reduce the stock of credit that has accumulated because of the difficulties in pursuing recalcitrant debtors cited above. While the bad debt stock problem persists, simple market mechanisms can deal with the flow problem.

Note that not all of the debts of a firm in financial distress may be "bad." Consider a firm that is in severe difficulties, but has a profitable core after downsizing—that is, it can produce something profitably. It may have debts to suppliers that it cannot and will not repay, and these suppliers will not extend new trade credit, but the firm may have alternate suppliers whom it needs—and pays—and these alternate suppliers may choose to grant the firm trade credit. Or, to cite another example: as we shall see below, a response of Russian firms to financial distress is to try to pay suppliers, and instead not pay taxes. Some of the payables to suppliers may be late payments, in that these distressed firms still pay the suppliers, but overdue taxes may be bad debts, because they are unlikely ever to be repaid.

Whereas bad debts on the balance sheet are a reflection of a firm's financial distress, some late payments can be seen as a short-run answer to financial stress. How do we distinguish between "stress" and "distress"? Financial distress is a permanent characteristic: enterprises in this state are chronic loss-makers. These losses may be ongoing operating losses;
that is, the firm’s revenue cannot cover even its basic operating costs (raw materials; labor costs; basic taxes; and, in the medium term, capital costs). Alternately, the firm may be covering its operating costs but failing to cover total costs, including servicing or repaying debts—for example, if the firm has experienced a major loss of markets, has completed downsizing to a “profitable core,” but is now highly indebted.

Financial stress, in contrast, is a short-term deterioration in profits or financial health, resulting from, for example, external shocks that will not last, or problems that can be overcome by marginal adjustment (stopping the least profitable part of production, perhaps temporarily; laying off some workers, again perhaps temporarily; and the like). It is seen as a temporary obstacle that does not threaten the enterprise’s existence, but requires additional short- or medium-term liquidity, because adjustment usually takes time.

We implement this framework empirically as follows:

- Bad debts are associated with chronic loss-making and should be concentrated in enterprises with the poorest performance.
- Late payments should be correlated with indicators of financial tightness. They should occur when credit is tightening, as a response to demand shocks, and should be directly related to liquidity indicators.

In the rest of this chapter we shall bring together empirical evidence that late payments—and not bad debts—constitute the bulk of trade credit arrears (interenterprise arrears) in Russia. We will also argue that the situation is reversed in the case of tax arrears: that is, tax arrears rather than trade credit arrears are concentrated in financially distressed firms. First, however, we consider definitional issues, and then we put the overall picture for Russia into perspective with the help of some international comparisons.

Definitions and Measurement

Table 4-1 presents a simplified balance sheet of a Russian enterprise. In its basic format it is no different from a balance sheet in any other country. On the liabilities side appear the various sorts of debts of the firms. We can group these liabilities according to four different kinds of creditors: (1) suppliers of goods and services received by the firm but not yet paid
Table 4-1. Simplified Balance Sheet of a Russian Enterprise

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Fixed capital and long-term assets</td>
<td>I. Own funds [equity]</td>
</tr>
<tr>
<td>Nonmaterial assets</td>
<td>Equity</td>
</tr>
<tr>
<td>Fixed capital</td>
<td>Reserve fund</td>
</tr>
<tr>
<td>Long-term financial investments</td>
<td>Profit</td>
</tr>
<tr>
<td>II. Inventories</td>
<td>II. Long-term liabilities</td>
</tr>
<tr>
<td>III. Short-term (liquid) assets</td>
<td>II. Long-term liabilities</td>
</tr>
<tr>
<td>Total debitors (&quot;Debitory&quot;)</td>
<td>Long-term bank credit</td>
</tr>
<tr>
<td>Receivables for goods and services</td>
<td>Long-term loans (&quot;Zaimy&quot;)</td>
</tr>
<tr>
<td>Receivables from the budget</td>
<td></td>
</tr>
<tr>
<td>Receivables from extrabudgetary funds</td>
<td></td>
</tr>
<tr>
<td>Loans to employees</td>
<td></td>
</tr>
<tr>
<td>Accounts with other debtors</td>
<td></td>
</tr>
<tr>
<td>Short-term financial investments</td>
<td></td>
</tr>
<tr>
<td>Monetary assets (&quot;Denezhnye sredstva&quot;)</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td></td>
</tr>
<tr>
<td>Ruble bank deposits</td>
<td></td>
</tr>
<tr>
<td>Hard currency bank deposits</td>
<td></td>
</tr>
<tr>
<td>Other monetary assets</td>
<td></td>
</tr>
<tr>
<td>Losses</td>
<td></td>
</tr>
<tr>
<td>Balance (I + II + III + Losses)</td>
<td>Balance (I + II + III)</td>
</tr>
</tbody>
</table>

for (that is, commercial payables or trade credit received); (2) banks and other lenders; (3) the government (tax payables), including extrabudgetary funds; and (4) workers.

On the asset side of the firm’s balance sheet appear the physical (fixed capital, inventories) and financial assets of the firm. The latter can also be categorized according to the kind of debtor to the firm. The most important for the purposes of this chapter are claims on customers for goods and services shipped by the firm but not yet paid for (that is, commercial receivables or trade credit extended).

Here we will refer to "arrears" as any overdue liabilities of firms. The qualification "overdue" is very important; simply owing somebody money doesn’t put the debt in arrears. We will focus on the following sorts of arrears:
"Arrears" in the Russian Enterprise Sector

- **Overdue** payables to suppliers (= commercial payables in arrears, = overdue trade credit received)
- **Overdue** receivables from customers (= commercial receivables in arrears, = overdue trade credit extended)
- **Overdue** liabilities to banks (overdue bank debt and/or interest arrears)
- **Overdue** payables to the budget and extrabudgetary funds (= tax arrears)
- **Overdue** wages (= wage arrears).

**Data Issues**

Goskomstat collects monthly data from enterprises on selected balance sheet items (nominal value of stocks at the start of the month) and distinguishes between the total stock and the overdue portion, that in arrears. These data are discussed in detail in the appendix to this chapter. Goskomstat has collected arrears data from medium-size and large industrial and construction enterprises since early 1992, and since late 1993 from firms in transport and agriculture as well. Because "overdue" is defined by the reporting firm, it is natural to expect that respondents will underreport their overdue payables, and the percentage of payables overdue is indeed usually smaller than the percentage of receivables overdue. The difference, however, is small (about 3-5 percentage points).

The 1994 World Bank survey of 439 state-owned, privatized, and de novo industrial firms asked enterprises to provide similar balance sheet data as of 1 April 1994. The survey balance sheet data are better specified than the Goskomstat data in a number of respects (for example, maturity structure of payables, treatment of interest and late penalties). In the important cases of tax arrears and arrears to banks, the coverage of the survey data is superior to that of the Goskomstat data. The survey data include arrears to the budget, as well as to extrabudgetary funds (such as Social Security), while the Goskomstat data collected at the time covered only arrears to the budget. Arrears to banks in the survey include interest arrears as well, while the Goskomstat data cover only overdue principal.

The treatment of penalty interest and unpaid interest is important in interpreting empirical estimates when inflation is high (see below) and is summarized in box 4-1 (for more details see the appendix).
Box 4-1. Penalty or Unpaid Interest Included?

<table>
<thead>
<tr>
<th></th>
<th>Goskomstat</th>
<th>World Bank survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total receivables</td>
<td>Included</td>
<td>Not applicable</td>
</tr>
<tr>
<td>From customers</td>
<td>Not included</td>
<td>Included</td>
</tr>
<tr>
<td>Total payables</td>
<td>Included</td>
<td>Not applicable</td>
</tr>
<tr>
<td>To suppliers</td>
<td>Not included</td>
<td>Included</td>
</tr>
<tr>
<td>Taxes</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Payables to banks</td>
<td>Not included</td>
<td>Included</td>
</tr>
</tbody>
</table>

Some caution is in order regarding the treatment of interest in overdue payables to suppliers. It is likely that debtor firms will not always acknowledge penalty interest charged by suppliers by recording it in their balance sheets, and indeed the charging of penalty interest on late payments by customers is not very widespread (see below). This will have the effect of understating the payables in arrears, even in the World Bank survey data.

The qualitative section of the survey questionnaire addresses quite specific issues related to arrears that help us understand the payment practices, behavior, and expectations of Russian managers facing overdue payments.

A comparison between the survey and Goskomstat data (table 4-2) suggests that the data collected by the survey are fairly representative of aggregate industry in the sense that they match Goskomstat data fairly closely. Most of the differences between the two can probably be explained by differences in coverage and definition.

**Measuring Arrears**

First, a common indicator used to measure the relative level of arrears is the “percentage overdue,” in which the nominal value of the overdue portion is given as a percentage of the total payable (or receivable) nominal stock. Because payables and receivables are recorded at the time the credit is extended, the high level of inflation in Russia causes the overdue percentage of any payable category to be understated, because it is usu-
Table 4-2. Structure of Liabilities and Receivables, and Portions in Arrears, Survey and Goskomstat Data (percent)

<table>
<thead>
<tr>
<th>Liabilities</th>
<th>Survey (unweighted average)</th>
<th>Goskomstat data (aggregate industry)</th>
<th>Arrears as percentage overdue</th>
<th>Arrears as percentage overdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payables to suppliers</td>
<td>55(^a)</td>
<td>58(^a)</td>
<td>52(^b)</td>
<td>45(^b)</td>
</tr>
<tr>
<td>Liabilities to banks</td>
<td>20(^a)</td>
<td>28(^a)</td>
<td>13(^b)</td>
<td>12(^b)</td>
</tr>
<tr>
<td>Tax payables</td>
<td>15(^c)</td>
<td>46(^c)</td>
<td>14(^d)</td>
<td>44(^d)</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>9</td>
<td>21</td>
<td>n.a.</td>
<td>41(^e)</td>
</tr>
<tr>
<td>Payables to employees</td>
<td>9</td>
<td>60(^e)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Receivables

| From customers               | 82                          | 75                                   | n.a.                         | 50                           |
| From domestic firms          |                             | 74                                   | n.a.                         | n.a.                         |
| From budgetary organizations |                             | 7                                    | 66                           | n.a.                         |
| In subsidies from government |                             | 3                                    | 67                           | n.a.                         |
| From former Soviet Union trade |                          | 3                                    | 67                           | n.a.                         |
| From non-former Soviet Union foreign trade | | 6 | 62 | n.a. |

n.a. Not available.

a. Including interest arrears.
b. Not including interest arrears.
c. All government.
d. Social Security not included.
e. In percentage of monthly wage bill.

Source: World Bank survey; Goskomstat.

ally older than the nonoverdue portion. For instance, the percentage of trade credit overdue will automatically rise when inflation falls because the downward bias decreases. This can be offset by the practice of charging interest on late payments. Even when interest is charged, Goskomstat's definitions sometimes exclude interest from the overdue portion
(see above), but as we have seen, this is less of a problem with the World Bank survey data because the survey's definitions of arrears can include interest.

A second convenient measure is a stock/flow ratio: that is, aggregate payables or receivables as a percentage of gross domestic product (GDP), or as a ratio of sales or production. The receivables/sales ratio is particularly useful because it gives an approximate average payment period. Similarly, the overdue receivables/sales ratio gives the average delay period. Again, because trade credit (like inventories) is measured in actual purchase/sales prices, the high level of inflation in Russia since 1992 means some care must be taken when constructing these stock/flow ratios. Since (as we shall see below) average payment periods are usually about two months, our trade credit/sales ratio for Russia is the ratio of end-period trade credit to a two-month moving average of production. The adjustment for the trade credit/GDP ratio is still simpler: we use the ratio of end-month trade credit to annualized monthly GDP (that is, monthly GDP*12).

It should be noted here that Russian managers have now had extensive experience with inflation, and we would expect the prices they charge customers to include an allowance for anticipated inflation; that is, a charge for the cost of trade credit extended (Koen and Phillips 1993). This practice, like the practice of charging interest on late payments, would mitigate the problem of inflation in measuring the volume of overdue trade credit. Nevertheless, the difficulties caused by inflation should be borne in mind when interpreting the empirical evidence.

Estimates of the real net flow of arrears—the difference between real inflows and real outflows—can be calculated from the change in real stocks. Again, some caveats are to be kept in mind. First, the volume of arrears may appear to decrease because some arrears are formally rescheduled (and hence cease to be overdue). This is particularly a problem with overdue bank credit, because rescheduling of arrears to banks is common in Russia (as evidenced by the firms in the World Bank survey; see chapter 5). Another difficulty arises when write-offs of arrears are granted: we cannot distinguish between outflows from repayment of arrears and outflows from write-offs. We expect this to be more of a problem with tax arrears. Finally, because the treatment of interest arrears and penalties affects estimates of the stocks of arrears, it will affect estimates
of the net flow as well. As already noted, this is a problem with some categories of Goskomstat data, but not so much with the survey data.

Arrears in Perspective: Aggregates and International Comparisons

In this section we look in some detail at the scale and recent trends in enterprise liabilities, and in the overdue portion, arrears. We use both aggregate Goskomstat monthly balance sheet data and data from the World Bank survey. We will also make some comparisons between Russia and leading transition and market economies.

We begin with a brief look at the balance sheet structure of Russian industrial enterprises on 1 April 1994 as reported by Goskomstat (table 4-2 and figure 4-1). At that date, payables to suppliers accounted for slightly more than half of total liabilities. Bank credit and payables to the budget each account for another 13–14 percent of total liabilities. Wage arrears make up 2 percent of total liabilities, and the remaining 20 percent are "other liabilities." Most important among these miscellaneous items are payables to extrabudgetary funds and interest arrears (unpaid interest) to banks. Penalty interest on late payables to suppliers are also included in "other liabilities." The survey data, and Goskomstat data from early 1995, suggest that payables to extrabudgetary funds amount to about 5 percent of total liabilities; that is, total payables to all of government would amount to perhaps 15–20 percent of total liabilities. The World Bank survey suggests total liabilities to banks, interest arrears included, would come to about 20 percent of total liabilities.  

Table 4-2 offers a breakdown of enterprises' receivables based on the World Bank survey (detailed Goskomstat data are not available). Receivables come mainly from domestic firms (more than 80 percent of total receivables). Foreign firms and all of government each contribute 10 percent in the structure of receivables. Trade credit extended to customers is greater than trade credit received from suppliers, meaning that industrial enterprises are net trade creditors to the rest of the economy (and abroad).

According to the Goskomstat data, as of 1 April 1994, 45 percent of payables to customers, 44 percent of payables to the budget, and 8 percent of bank credit were overdue, but there are definitional problems
with the first and third of these figures. Because interest arrears are potentially large in magnitude relative to the actual principal of the loan in a high-inflation, high nominal interest rate environment, the Goskomstat figure for overdue bank credit is particularly badly affected by the failure to include interest arrears. The World Bank survey and Central Bank of Russia (CBR) data suggest that a more accurate figure for the first half of 1994 would be that 20–30 percent of total liabilities to banks are overdue (see chapter 5 for further discussion).

The single largest category of arrears is overdue trade credit received (overdue payables to suppliers), which accounts for fully one-quarter of total liabilities in the second quarter of 1994. The World Bank survey sug-
suggests that this Goskomstat figure may be an understatement, perhaps again because of the treatment of interest/penalties, although this may also indicate that the firms in the World Bank survey have more arrears to suppliers than the average Russian industrial firm. Total arrears to all government, banks (correcting for the treatment of interest arrears), and workers (wage arrears) would each amount to about 5–7 percent of total liabilities on that date. We note, however, that while wage arrears in Russia are small in relation to total liabilities and trade credit arrears, they are substantial compared with the aggregate wage bill. According to Goskomstat, on 1 April 1994, wage arrears in industrial firms amounted to close to one-half of the monthly total wage bill in industry (that is, the equivalent of about two weeks of wages). In addition, wage arrears are fairly common; 30 percent of firms in the World Bank survey have them.

We will briefly review the main patterns in arrears in Commonwealth of Independent States (CIS) trade with Russia. We are very limited here by the data available on this issue, because Goskomstat statistics do not cover the trade and services sector, and a considerable portion of export transactions may go through intermediaries (such as trade firms) that are not covered by Goskomstat data. The total reported overdue trade credit with the CIS in the Goskomstat aggregate data accounts for around 1 percent of total trade credit in arrears. From the World Bank survey (see tables 4-2 and 4-3), which covers industry only (and very possibly undersamples fuel and energy firms with very large CIS receivables), we indeed learn that overdue receivables from CIS trade should instead account for perhaps 5 percent of total overdue receivables.

**Time Trends**

Goskomstat data show that since late 1993 the volume of overdue payables to the budget, overdue bank credit, and wage arrears have increased substantially, while trade credit in arrears (overdue payables to suppliers and overdue receivables from customers) fluctuated rather than increased (table 4-4 and figure 4-2).

Figure 4-2 presents monthly data on overdue trade credit of Russian industrial enterprises, measured in months (overdue receivables as a percentage of monthly sales). The pattern over time is the same as for total trade credit; indeed, the variation in total trade credit is driven mostly by the overdue portion. Overdue trade credit increased in early 1992 (the
Table 4-3a. Balance Sheet of Russian Industrial Sectors, 1 January 1995, General Items and Selected Assets

<table>
<thead>
<tr>
<th>General items</th>
<th>Delivered production (billion rubles)</th>
<th>Average Employment monthly wage (thousand rubles)</th>
<th>Average Overdue receivables (thousand rubles)</th>
<th>Total receivables</th>
<th>Overdue receivables from customers</th>
<th>Cash and bank deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 January 1995</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total industry</td>
<td>55,728</td>
<td>14,497</td>
<td>379</td>
<td>106,288</td>
<td>57,735</td>
<td>48,921</td>
</tr>
<tr>
<td>Electric power</td>
<td>8,775</td>
<td>584</td>
<td>694</td>
<td>19,495</td>
<td>12,837</td>
<td>6,663</td>
</tr>
<tr>
<td>Total fuel</td>
<td>10,895</td>
<td>966</td>
<td>876</td>
<td>27,231</td>
<td>17,481</td>
<td>9,750</td>
</tr>
<tr>
<td>Petroleum extraction</td>
<td>5,486</td>
<td>240</td>
<td>815</td>
<td>12,714</td>
<td>8,194</td>
<td>4,520</td>
</tr>
<tr>
<td>Petroleum refining</td>
<td>2,421</td>
<td>118</td>
<td>766</td>
<td>6,252</td>
<td>3,549</td>
<td>2,703</td>
</tr>
<tr>
<td>Gas</td>
<td>1,274</td>
<td>58</td>
<td>2,485</td>
<td>4,283</td>
<td>2,353</td>
<td>1,930</td>
</tr>
<tr>
<td>Coal</td>
<td>1,453</td>
<td>518</td>
<td>766</td>
<td>3,628</td>
<td>2,543</td>
<td>1,085</td>
</tr>
<tr>
<td>Ferrous metallurgy</td>
<td>4,812</td>
<td>772</td>
<td>376</td>
<td>10,748</td>
<td>5,796</td>
<td>4,952</td>
</tr>
<tr>
<td>Nonferrous metallurgy</td>
<td>3,763</td>
<td>543</td>
<td>688</td>
<td>5,189</td>
<td>2,546</td>
<td>2,643</td>
</tr>
<tr>
<td>Chemical and petrochemical</td>
<td>4,146</td>
<td>1,005</td>
<td>317</td>
<td>8,527</td>
<td>4,276</td>
<td>4,251</td>
</tr>
<tr>
<td>Machine-building</td>
<td>9,962</td>
<td>5,962</td>
<td>279</td>
<td>20,591</td>
<td>8,854</td>
<td>11,737</td>
</tr>
<tr>
<td>Forest, woodworking, and paper</td>
<td>2,199</td>
<td>1,198</td>
<td>312</td>
<td>2,884</td>
<td>1,268</td>
<td>1,616</td>
</tr>
<tr>
<td>Construction materials</td>
<td>1,588</td>
<td>678</td>
<td>337</td>
<td>2,223</td>
<td>1,149</td>
<td>1,074</td>
</tr>
<tr>
<td>Light industry</td>
<td>1,407</td>
<td>1,185</td>
<td>188</td>
<td>1,883</td>
<td>779</td>
<td>663</td>
</tr>
<tr>
<td>Food industry</td>
<td>5,984</td>
<td>1,173</td>
<td>419</td>
<td>4,695</td>
<td>1,713</td>
<td>3,582</td>
</tr>
<tr>
<td>Other industries</td>
<td>2,197</td>
<td>431</td>
<td></td>
<td>2,822</td>
<td>1,036</td>
<td>1,786</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3,716</td>
<td>6,659</td>
<td>196</td>
<td>4,059</td>
<td>1,767</td>
<td>2,292</td>
</tr>
<tr>
<td>Transport</td>
<td>13,417</td>
<td>3,607</td>
<td>527</td>
<td>23,465</td>
<td>12,150</td>
<td>11,315</td>
</tr>
<tr>
<td>Construction</td>
<td>7,909</td>
<td>5,549</td>
<td>483</td>
<td>16,646</td>
<td>8,744</td>
<td>7,898</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>80,770</strong></td>
<td><strong>30,312</strong></td>
<td><strong>354</strong></td>
<td><strong>150,458</strong></td>
<td><strong>80,396</strong></td>
<td><strong>69,281</strong></td>
</tr>
<tr>
<td>1 January 1995</td>
<td>Total payables</td>
<td>Overdue payables</td>
<td>Payable from suppliers</td>
<td>Overdue payables from suppliers</td>
<td>Payables to the budget (taxes due)</td>
<td>Overdue payables to the budget</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>-------------------------------</td>
<td>----------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Total industry</td>
<td>124,109</td>
<td>66,596</td>
<td>73,194</td>
<td>41,451</td>
<td>23,016</td>
<td>14,330</td>
</tr>
<tr>
<td>Electric power</td>
<td>18,259</td>
<td>10,365</td>
<td>14,236</td>
<td>8,341</td>
<td>1,681</td>
<td>923</td>
</tr>
<tr>
<td>Total fuel</td>
<td>34,073</td>
<td>21,984</td>
<td>17,402</td>
<td>11,361</td>
<td>10,292</td>
<td>7,657</td>
</tr>
<tr>
<td>Petroleum extraction</td>
<td>16,796</td>
<td>11,027</td>
<td>7,056</td>
<td>4,336</td>
<td>7,019</td>
<td>5,150</td>
</tr>
<tr>
<td>Petroleum refining</td>
<td>7,017</td>
<td>3,715</td>
<td>4,382</td>
<td>2,942</td>
<td>6,009</td>
<td>325</td>
</tr>
<tr>
<td>Gas</td>
<td>4,500</td>
<td>3,596</td>
<td>2,792</td>
<td>2,211</td>
<td>1,349</td>
<td>1,230</td>
</tr>
<tr>
<td>Coal</td>
<td>5,335</td>
<td>3,448</td>
<td>2,824</td>
<td>1,691</td>
<td>1,297</td>
<td>945</td>
</tr>
<tr>
<td>Ferrous metallurgy</td>
<td>11,183</td>
<td>6,267</td>
<td>7,073</td>
<td>3,863</td>
<td>957</td>
<td>494</td>
</tr>
<tr>
<td>Nonferrous metallurgy</td>
<td>7,604</td>
<td>3,445</td>
<td>4,147</td>
<td>1,983</td>
<td>1,165</td>
<td>641</td>
</tr>
<tr>
<td>Chemical and petrochemical</td>
<td>8,888</td>
<td>5,134</td>
<td>6,812</td>
<td>4,880</td>
<td>581</td>
<td>174</td>
</tr>
<tr>
<td>Machine-building</td>
<td>26,291</td>
<td>1,842</td>
<td>12,611</td>
<td>6,479</td>
<td>5,024</td>
<td>2,943</td>
</tr>
<tr>
<td>Forest, woodworking, and paper</td>
<td>4,146</td>
<td>2,261</td>
<td>2,206</td>
<td>1,267</td>
<td>917</td>
<td>573</td>
</tr>
<tr>
<td>Construction materials</td>
<td>2,917</td>
<td>1,347</td>
<td>1,945</td>
<td>984</td>
<td>427</td>
<td>201</td>
</tr>
<tr>
<td>Light industry</td>
<td>2,141</td>
<td>941</td>
<td>1,266</td>
<td>585</td>
<td>431</td>
<td>214</td>
</tr>
<tr>
<td>Food industry</td>
<td>5,305</td>
<td>1,865</td>
<td>2,941</td>
<td>1,234</td>
<td>1,292</td>
<td>435</td>
</tr>
<tr>
<td>Other industries</td>
<td>3,302</td>
<td>1,145</td>
<td>2,555</td>
<td>974</td>
<td>289</td>
<td>75</td>
</tr>
<tr>
<td>Agriculture</td>
<td>8,259</td>
<td>4,148</td>
<td>5,104</td>
<td>2,717</td>
<td>1,205</td>
<td>603</td>
</tr>
<tr>
<td>Transport</td>
<td>25,354</td>
<td>11,616</td>
<td>16,965</td>
<td>8,088</td>
<td>3,704</td>
<td>2,180</td>
</tr>
<tr>
<td>Construction</td>
<td>16,291</td>
<td>7,990</td>
<td>9,164</td>
<td>4,524</td>
<td>4,081</td>
<td>2,215</td>
</tr>
<tr>
<td>TOTAL</td>
<td>174,013</td>
<td>90,350</td>
<td>104,427</td>
<td>56,780</td>
<td>32,006</td>
<td>19,328</td>
</tr>
</tbody>
</table>

n.a. Not available.
Source: Goskomstat.
### Table 4-4. Arrears in Russian Industry since 1992

<table>
<thead>
<tr>
<th>Date</th>
<th>Total receivables</th>
<th>From customers</th>
<th>Total payables</th>
<th>To suppliers</th>
<th>To the budget</th>
<th>Bank debt</th>
<th>Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 October 1993</td>
<td>27</td>
<td>24</td>
<td>24</td>
<td>18</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1 January 1994</td>
<td>32</td>
<td>28</td>
<td>30</td>
<td>21</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1 April 1994</td>
<td>34</td>
<td>31</td>
<td>34</td>
<td>23</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1 July 1994</td>
<td>35</td>
<td>31</td>
<td>38</td>
<td>25</td>
<td>8</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1 October 1994</td>
<td>37</td>
<td>32</td>
<td>41</td>
<td>27</td>
<td>8</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1 January 1995</td>
<td>37</td>
<td>31</td>
<td>43</td>
<td>26</td>
<td>9</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1 April 1995</td>
<td>33</td>
<td>28</td>
<td>41</td>
<td>22</td>
<td>9</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1 July 1995</td>
<td>32</td>
<td>27</td>
<td>40</td>
<td>20</td>
<td>10</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Percentage of asset or liability overdue**

<table>
<thead>
<tr>
<th>Date</th>
<th>Percentage of asset or liability overdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 April 1992</td>
<td>37</td>
</tr>
<tr>
<td>1 July 1992</td>
<td>58</td>
</tr>
<tr>
<td>1 October 1992</td>
<td>62</td>
</tr>
<tr>
<td>1 January 1993</td>
<td>46</td>
</tr>
<tr>
<td>1 April 1993</td>
<td>40</td>
</tr>
<tr>
<td>1 July 1993</td>
<td>42</td>
</tr>
<tr>
<td>1 October 1993</td>
<td>38</td>
</tr>
<tr>
<td>1 January 1994</td>
<td>43</td>
</tr>
<tr>
<td>1 April 1994</td>
<td>46</td>
</tr>
<tr>
<td>1 July 1994</td>
<td>49</td>
</tr>
<tr>
<td>1 October 1994</td>
<td>53</td>
</tr>
<tr>
<td>1 January 1995</td>
<td>54</td>
</tr>
<tr>
<td>1 April 1995</td>
<td>50</td>
</tr>
<tr>
<td>1 July 1995</td>
<td>48</td>
</tr>
</tbody>
</table>

n.a. Not available.

*Note:* Liquid assets = total receivables + financial investments + cash. Current liabilities = total payables + bank debt + borrowings ("zaimy").

a. In percentage of average monthly wage.

Source: Goskomstat.

"arrears crisis"), fell in late 1992 (CBR mutual debt-clearing), was roughly flat from late 1992 to late 1993, increased again in early 1994, peaked at about 1.4 months in mid-1994, and fell again in late 1994 to about 1 month. The pattern of overdue trade credit measured in percentage overdue is similar.

The increase in the proportion of overdue payables was more rapid for tax payables (reaching 62 percent overdue for total industry on 1
January 1995) than for any other category of liabilities. The share of arrears to the budget in total liabilities of industrial enterprises increased from about 3 percent in September 1993 to about 9 percent at the end of 1994. Overdue bank credit also grew substantially: according to Goskomstat, the percentage of bank credit overdue grew from about 6 percent in late 1993 to about 12-13 percent in late 1994. CBR data on overdue bank credit show a similar trend at a higher level, resembling that found in the World Bank survey, probably because the CBR data include interest arrears. At the end of 1994, according to the CBR, overdue bank credit amounted to about one-third of the total credit stock (see chapter 5 for further discussion).

International Comparisons

Table 4-5 presents trade credit extended and trade credit received for the entire enterprise sector as a percentage of annualized GDP in selected Western countries, in three leading transition countries (Poland, Hungary, and the Czech Republic), and in Russia.\textsuperscript{5} It has been noted (Begg and Portes 1993 is an early example) that trade credit is a normal feature
Table 4-5. Trade Credit and Overdue Trade Credit in Western and Transition Economies

<table>
<thead>
<tr>
<th>Country</th>
<th>Total trade credit</th>
<th>Overdue trade credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Payment period</td>
<td>Percentage of annualized GDP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(months)</td>
<td>Receivables</td>
<td>Payables</td>
</tr>
<tr>
<td>Western countries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>2.1</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Canada</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>1.8</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>France</td>
<td>2.5</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>Germany</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>1.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>1.6</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2.6</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>United States</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transition countries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>2.5</td>
<td>50</td>
<td>37</td>
</tr>
<tr>
<td>Hungary</td>
<td>1.4 1.3 1.5 1.7</td>
<td>1.2 1.2 1.3 1.5</td>
<td>37 35 36 35</td>
</tr>
<tr>
<td>Year</td>
<td>Poland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Receivables</td>
<td>Payables</td>
<td>Real GDP</td>
</tr>
<tr>
<td>1988</td>
<td>1.4</td>
<td>1.3</td>
<td>30</td>
</tr>
<tr>
<td>1989</td>
<td>1.3</td>
<td>1.3</td>
<td>24</td>
</tr>
<tr>
<td>1990</td>
<td>1.2</td>
<td>1.2</td>
<td>20</td>
</tr>
<tr>
<td>1991</td>
<td>1.5</td>
<td>1.7</td>
<td>22</td>
</tr>
<tr>
<td>1992</td>
<td>1.3</td>
<td>1.6</td>
<td>19</td>
</tr>
<tr>
<td>1993</td>
<td>1.4</td>
<td>1.7</td>
<td>19</td>
</tr>
<tr>
<td>1990</td>
<td>0.6</td>
<td>0.5</td>
<td>10</td>
</tr>
<tr>
<td>1991</td>
<td>0.6</td>
<td>0.7</td>
<td>12</td>
</tr>
<tr>
<td>1992</td>
<td>2.5</td>
<td>22</td>
<td>46</td>
</tr>
<tr>
<td>1993</td>
<td>1.6</td>
<td>15</td>
<td>44</td>
</tr>
<tr>
<td>1994</td>
<td>1.4</td>
<td>2.1</td>
<td>17</td>
</tr>
</tbody>
</table>

*Note: Receivables: trade credit extended, = commercial receivables, = receivables from customers.
Payables: trade credit received, = commercial payables, = payables to suppliers. Payment period: directly measured in survey data; estimated from receivables/sales ratio (receivables), payables/purchases ratio (payables) for balance sheet data. Percent overdue: directly calculated for balance sheet data; calculated from ratio of overdue trade credit months/total trade credit months for survey data. In percentage of GDP: measured as a percentage of annualized end-period (last quarter or month) GDP for transition countries; annual GDP used for Western countries. Figures for overdue trade credit as percentage of GDP are estimated from total trade credit as a percentage of GDP and percentage of trade credit overdue, except for the Czech Republic, Hungary, and Russia, where the volume of overdue trade credit is directly observed. Western figures are for 1985-90. Austria: balance sheet estimates; industry only. Canada: balance sheet estimates. Denmark: survey estimates. Finland: total trade credit in percentage of GDP, balance sheet estimates; percent overdue, survey estimates. Germany: survey estimates. Ireland: survey estimates. Italy: survey estimates. Japan: balance sheet estimates. Netherlands: survey estimates. Norway: survey estimates. Sweden: total trade credit in percentage of GDP, balance sheet estimates; percent overdue, survey estimates. Switzerland: survey estimates. United Kingdom: total trade credit in percentage of GDP, balance sheet estimates; percent overdue, survey estimates. United States: balance sheet estimates. Poland: figures for percentage overdue from survey of 200 Polish manufacturing firms, Belka, Estin, Schaffer, and Singh (1995). Russia: percentage overdue end-92 is for industry and construction only; overdue in percentage of GDP derives from this figure, applied to estimate of total trade credit. Percent overdue end-93 and end-94 is for industry, agriculture, transport, and construction only. Overdue in percentage of GDP derives from this figure applied to estimate of total trade credit. End-94 figure for total trade credit received is an estimate calculated by scaling up the reported figure for industry, agriculture, transport, and construction.

*Source: Data derives either from balance sheet figures or survey questions. Intrum Justitia, in Chittenden and others (1993) (Western survey data); OECD; UK CSO; Fan and Schaffer (1994); Bonin and Schaffer (1995); Czech Statistical Office, "Economic Results of Nonfinancial Firms, 4th quarter, 1994"; and authors' estimates.*
of a market economy and could be expected to emerge in transition economies, and this is indeed what we find. The comparisons in table 4-5 show that pretransition levels of trade credit in Russia were very low by both transition-country and Western standards. More important, levels of trade credit in Russia, the Czech Republic, Hungary, and Poland in the transition period have been unexceptional by Western standards. Indeed, total trade credit in Russia since 1992, at the equivalent of about 15 percent of GDP, has been on the lower end of the scale seen in Western countries.

Measuring total trade credit by an average payment period leads to the same conclusions: table 4-5 shows that average payment periods in Russia prior to the transition were very short by Western European standards (less than one month, compared with 1.5–3 months), and during the transition have not been unusual by Western standards (on the order of 2–3 months).

That overdue trade credit is also a normal feature of a market economy is less well known. Table 4-5 presents figures for overdue trade credit—measured in months (average overdue period), as a percentage of total trade credit, and as a percentage of GDP—for a number of Western countries, Poland, Hungary, the Czech Republic, and Russia. These figures show that overdue trade credit is endemic in developed market economies as well as in transition countries. The percentage of trade credit overdue in the eleven Western countries for which we have data ranges between 30 percent and 60 percent—the same range observed in Russia. Measured in months, overdue trade credit in these countries ranges between 0.6 and 1.6 months; again, about what we observe in Russia. As a percentage of GDP, overdue trade credit in Russia has been relatively low compared with that found in Western countries: between 7 and 10 percent of GDP in Russia, compared with 10–18 percent in the Western countries. In short, the volumes of both total trade credit and trade credit in arrears in Russia, however measured, are roughly average by both Western and Eastern European standards.

While having a high level of arrears is quite common for enterprises in Western countries, one needs to take into account the relatively poor worth of Russian liabilities. One would expect a higher proportion of bad debts in Russia than in market economies; that is, firms in financial distress account for a larger fraction of trade credit arrears than in Western countries. We shall see below that using one measure of "financial dis-
tress" (the firm is a chronic loss-maker), perhaps 10–20 percent of total payables to suppliers, and of arrears to suppliers, is in firms that are financially distressed. This would suggest that if we were to exclude these items on the grounds that they are "bad debts" and unlikely to be collected, the volume of trade credit in Russia would be low-to-average by international standards.

In contrast to trade credit, tax arrears numbers are much higher for Russia than in Western economies, but they are still similar to levels observed in Central and Eastern European (CEE) economies. Using Goskomstat and other data, we estimate that at the end of 1993 total tax arrears of the enterprise sector to all government (budget plus extrabudgetary funds) amounted to about 2 percent of GDP. By the end of 1994, this figure had risen to about 4–5 percent of GDP. By comparison, it has been estimated that at the end of 1993 the stock of tax arrears (including late penalties and interest) in Hungary and Poland amounted to about 10 percent of GDP, and in the Czech Republic and Slovakia, about 5 percent of GDP (Schaffer 1995).

Using the reported Goskomstat figures, we estimate the real flow of tax arrears to all government to have been about 2 percent of GDP in 1994. Allowing for write-offs and rescheduling would increase this figure, but probably not much. Write-offs of tax arrears were unlikely to be very common. Reschedulings have the effect of reclassifying taxes from overdue to not overdue; that the volume of nonoverdue tax payables was, if anything, falling suggests that reschedulings were not taking place on a large scale. Reschedulings became a much bigger problem in 1995 when the government, in response to lobbying by firms with wage arrears, introduced a scheme that allowed firms to defer payment of taxes.

Our estimate of the flow of tax arrears in Russia in 1994—about 2 percent of GDP annually—is of about the same magnitude as the flow of tax arrears observed in the Czech Republic, Hungary, and Poland (see Schaffer 1995). The situation in Western countries is quite different. In the West, we expect stocks of overdue taxes to be roughly stable over time, as new overdue taxes are added (inflow) and existing overdue taxes are either paid or written off as uncollectible (outflow). We can use the volume of write-offs in Western countries to estimate the flow of uncollectible tax arrears. In New Zealand, for instance, the volume of write-offs of uncollected and uncollectible taxes in recent years amounted to less than one-half of one percent of GDP.
We have shown that the level of trade credit in arrears in Russia, which at first glance seems high, has stayed within the range observed in Western countries. Both tax arrears and wage arrears are much more worrisome for the economy, because both can be seen as ways for firms to capture subsidies from the government, as we shall argue below.

Macroeconomic Policy, Liquidity, and Financial Distress

Having considered first the aggregate evidence, we now take up our distinction between late payments and bad debts (and strategic arrears as well). We begin with three examples, each relying on three different data sources: macroeconomic policy in Russia since 1992, using aggregate time-series data; the correlation of liquidity and arrears, using sectoral time-series panel data; and the concentration of arrears in financially distressed firms, using the World Bank enterprise survey.

Macroeconomic Policy and Trade Credit Arrears

Figure 4-2 shows a very close inverse relationship between consumer price index (CPI) inflation, lagged one month, and the ratio of overdue commercial receivables in industry to monthly industrial sales (that is, receivables in arrears, measured in months of payment delay) between early 1992 and mid-1995. When inflation is high or rising in Russia, trade credit arrears are low or falling; the reverse is true when inflation is low or falling.

The developments in the first half of 1992—the so-called arrears crisis—can probably be interpreted in part as an example of strategic or collusive arrears (for a detailed theoretical analysis of collusive arrears, see Perotti 1994). The Gaidar government had launched its first stabilization program at the start of the year, and during the first half of 1992 it struggled to keep to a strict monetary and fiscal policy, despite the pressures brought by the industrial lobby (that is, enterprise managers), among other disruptions (see Gaidar 1995). In the first half of 1993, unpaid payments of enterprises grew dramatically. This growth of arrears may be attributed partly to "payments gridlock" (Ickes and Ryterman 1992)—a lack of liquidity combined with an inflexible payments system—but anecdotal evidence suggests that firms also deliberately withheld payments to suppliers in expectation of the failure of the stabilization program. These expectations were fulfilled in mid-1992, when the stock of unpaid
payments was frozen and then cleared (with the help of an injection of credit) by the CBR, the rules governing unpaid payments were changed, and monetary and fiscal policy was loosened.  

There has been no repetition of the arrears crisis, however. Moreover, the level of trade credit arrears has fluctuated within a fairly narrow range (in months of sales, between 0.5 and 1.5 months). Thus, over a period of 40+ months, most arrears are getting paid in the end. For the 1992–95 period, we offer the interpretation that falling inflation is associated with increasing arrears because both are being driven by tightening liquidity conditions; hence the very close inverse correlation between inflation and arrears in figure 4-2. A tightening of the money supply at the macroeconomic level (reduction in the volume of money emission, tightening of credit, rise in the refinancing interest rate, and the like) brings inflation under control. Macroeconomic studies on inflation in Russia show that a tightening of CBR credit leads to a corresponding decrease in the rate of inflation four months later as measured by the CPI (for example, see Koen and Marrese 1995). We would expect that when the cost of obtaining bank credit increases, borrowers (purchasers) will be motivated to obtain additional liquidity elsewhere, particularly by increasing their use of trade credit received by delaying payment to suppliers. Disinflation also depresses demand, and again we would expect firms to respond to decreases in demand and the consequent losses in liquidity by delaying payment to suppliers. As we shall see below, this is consistent with our correlation analysis of the World Bank survey: arrears are correlated with measures of declines in demand.

Arrears and Liquidity

We now examine the relationship between arrears and liquidity using Goskomstat sectoral panel data. We ask whether changes in levels of arrears over time are correlated with changes in sectoral liquidity over time. We use as our measure of liquidity the ratio of money holdings (cash + bank deposits) to total liabilities. We have available monthly data on arrears and liquidity for twenty-odd sectors for the period 1 October 1993 to 1 January 1995, except for the data on wage arrears, which start in April 1994.

We are interested in whether arrears of different sorts are correlated with liquidity. We investigate this by exploiting the panel nature of the
We calculate partial correlation coefficients between the variables of interest, controlling for industrial sectors (that is, including 1/0 industry dummy variables). The effect of this procedure is to allow the "benchmark" levels of arrears (the intercept in the regression) to be different for individual sectors (that is, we allow for sector-specific "fixed effects"), and therefore we capture correlation based on co-movements of the variables of interest (arrears and liquidity) over time. Controlling for sectoral variation across industries is particularly important here, because a sector may tend to be highly liquid for what are basically structural reasons—petroleum extraction is the main example (see table 4-3). By holding the industrial sector constant (that is, allowing for sector-specific intercepts to capture structural differences in liquidity across sectors), we look only at the relationship between the change in money holdings and the change in arrears. The partial correlation coefficients are normalized such that 1 indicates perfect correlation; -1, perfect negative correlation; and 0, no correlation.

We present two sets of correlations of arrears and liquidity: where arrears are measured as the percentage overdue and where arrears are a percentage of total liabilities. The results are presented in table 4-6, and are quite clear. Changes in money holdings are negatively correlated with changes in arrears; when arrears are increasing, money holdings are decreasing. The correlations are highly significant—in excess of the 1 percent level—in all cases. We interpret these findings in terms of "late payments": arrears can be seen as a "cushion" in periods of tight liquidity.

Concentration of Arrears in Financially Distressed Firms

We first need a satisfactory indicator of financial distress. We use the firm’s response to the question of whether the firm is "usually a profit-maker." Most of the firms in the survey (86 percent of the total sample) reported that they were usually profit-makers, about the same figure that Goskomstat recorded for the entire population of industrial enterprises in 1993. This does not indicate, however, that most firms are financially secure. It is difficult to make (nominal) losses in a high-inflation environment because of the upward bias caused by paper capital gains, the result of historical cost accounting. In periods of high inflation, historical cost accounting causes paper capital gains on inputs—costs are calculated at purchase prices, and between the time the inputs are purchased and the
Table 4-6. Partial Correlations of Assets and Liabilities in Arrears with Money Holdings

<table>
<thead>
<tr>
<th>Arrears measured as percentage overdue</th>
<th>Correlation with liquidity</th>
<th>Arrears measured as percentage of total liabilities</th>
<th>Correlation with liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total debtors (receivables)</td>
<td>-0.58 (0.00) [431]</td>
<td>Total debtors (receivables)</td>
<td>-0.42 (0.00) [431]</td>
</tr>
<tr>
<td>Commercial receivables</td>
<td>-0.58 (0.00) [431]</td>
<td>Commercial receivables</td>
<td>-0.37 (0.00) [431]</td>
</tr>
<tr>
<td>Total creditors (payables)</td>
<td>-0.56 (0.00) [431]</td>
<td>Total creditors (payables)</td>
<td>-0.57 (0.00) [431]</td>
</tr>
<tr>
<td>Commercial payables</td>
<td>-0.47 (0.00) [431]</td>
<td>Commercial payables</td>
<td>-0.45 (0.00) [431]</td>
</tr>
<tr>
<td>Tax arrears</td>
<td>-0.56 (0.00) [431]</td>
<td>Tax arrears</td>
<td>-0.58 (0.00) [431]</td>
</tr>
<tr>
<td>Bank credit</td>
<td>-0.24 (0.00) [424]</td>
<td>Bank credit</td>
<td>-0.17 (0.00) [424]</td>
</tr>
<tr>
<td>Nonbank loans</td>
<td>-0.09 (0.07) [409]</td>
<td>Nonbank loans</td>
<td>-0.12 (0.02) [409]</td>
</tr>
<tr>
<td>Overdue wages (as percentage of monthly wage bill)</td>
<td>-0.66 (0.00) [62]</td>
<td>Overdue wages</td>
<td>-0.30 (0.00) [241]</td>
</tr>
</tbody>
</table>

Note: Period included in the table extends from 1 October 1993 to 1 January 1995 (except wage arrears, which begins on 1 April 1994). Industrial sector held constant; approximately twenty sectors (regressions include twenty-odd industry dummies; see text). Results are partial correlation; P-values in parentheses (0.05 = significant at 5 percent level); number of observations in squared brackets. Liquidity = (cash + bank deposits)/total liabilities.

Source: Goskomstat monthly sectoral data.

...time the output utilizing these inputs is sold, the price level has increased. This can cause serious cash flow problems for firms because paper capital gains are part of the profit tax base, a quite common problem in economies experiencing inflation. When asked what have been the most important problems faced by the firm since January 1992, 58 percent of firms answered “poor financial situation of the firm”; this was ex-
ceed only by "increase in price of inputs" (83 percent of firms) and "high interest rates" (76 percent of firms). "Lack of domestic demand," for example, was marked as very important by fewer firms (53 percent).

To be "usually a loss-maker" in an inflationary environment such as Russia's suggests quite severe financial difficulties, and it is therefore a reasonable indicator of financial distress.

We would like to know how extensively arrears are concentrated in financially distressed firms. The practical problem we face is that the World Bank survey is very heterogeneous in size of firm, with reported employment, for example, ranging from 10 persons to 100,000 persons. Calculating the concentration of arrears in the relatively small number of financially distressed firms can be indicative, but it is of limited reliability because the results are not robust to outliers; including or excluding a single (large) firm can change the results significantly. We therefore adopt the following, more robust, but admittedly ad hoc, approach.

The idea is to address the size-heterogeneity problem by normalizing arrears through some size variable. Having done this for each firm, we then calculate the mean level of (normalized) arrears for the financially distressed sample and for the nondistressed sample. From these two means, and from the numbers of distressed and nondistressed firms in the sample, we can calculate the implied proportions of arrears that distressed and nondistressed firms would represent were they all of uniform size. A statistical test of the difference of the two means is our test of whether the concentration is statistically significant. For example, we could use sales to normalize overdue commercial payables. If we find that overdue commercial payables for each unit of sales are twice as high in distressed firms as in nondistressed firms, and 10 percent of firms are financially distressed, then the predicted concentration of arrears in distressed firms would be \( \frac{2 \times 10}{2 \times 10 + 90} \) = 18 percent.

Some further remarks are needed on how this is implemented. For robustness we use two different size variables, sales and employment, and do everything twice. We consider only firms with nonzero arrears (in contrast to the analysis in the next section). The distributions of the arrears/sales and arrears/employment ratios are very skewed, with many small values and a smaller number of very large values. Inspection showed that the distribution of \( \log(\text{arrears/sales}) \) and \( \log(\text{arrears/employment}) \) were roughly normally distributed, and so means were calculated using the log values. We calculated medians as well as means, and
repeated the estimates of concentration using medians in place of means as a robustness check. For each category of arrears we therefore have four sets of results: normalize by sales and use means; normalize by sales and use medians; normalize by employment and use means; and normalize by employment and use medians. The differences between the means in the distressed and nondistressed groups are tested statistically using a $t$-test; the medians are tested using the Wilcoxon rank-sum test. The implied concentrations of arrears we calculate are essentially what we would expect to observe in a population with the observed statistical features of the two subsamples (means, standard deviations, and the population divided into distressed and nondistressed in the same proportions as we observe in the survey data).

The results are presented in table 4-7. We report not the tested log means, but the calculated ratios these imply.\textsuperscript{14} We begin with the finding that total commercial payables are not significantly concentrated in financially distressed firms. Testing among firms with nonzero commercial payables shows that the mean commercial payables/sales ratio is not significantly higher in financially distressed firms, regardless of whether means or medians are tested. That is, the implied concentration of commercial payables in distressed firms (14-19 percent) is not significantly different from the proportion of distressed firms in the sample (12 percent). The same holds true if we normalize by employment instead of sales; indeed, if anything, this set of results suggests distressed firms hold fewer commercial payables than average.

The results for overdue commercial payables provide some evidence of weak concentration in distressed firms. Of the four sets of results, one shows the level of overdue commercial payables to be significantly higher in distressed firms, at the 1 percent level, with an implied concentration of 21 percent of overdue commercial payables in distressed firms (compared with the 10 percent distressed firms in the sample). The remaining three results suggest no statistically significant concentration of arrears to suppliers in distressed firms.

These findings for commercial payables and overdue commercial payables should be interpreted with some care because of problems with inflation effects. As noted earlier, debtor firms may not be calculating the penalty interest they owe to suppliers, even when suppliers are charging such interest. Existing stock problems would therefore be steadily reduced by inflation. Note, however, that these low figures also suggest no
<table>
<thead>
<tr>
<th>Liability</th>
<th>n</th>
<th>Percentage of sample</th>
<th>Mean</th>
<th>Median</th>
<th>Percentage of sample</th>
<th>Mean</th>
<th>Median</th>
<th>Significance of difference between nondistressed/distressed firms</th>
<th>Predicted concentration in distressed firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total commercial payables</td>
<td>217</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP/sales (percent)</td>
<td></td>
<td></td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td>11.9</td>
<td></td>
<td></td>
<td>12.2</td>
<td></td>
<td></td>
<td>14.1</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td></td>
<td>13.4</td>
<td></td>
<td></td>
<td>23.0</td>
<td></td>
<td></td>
<td>19.3</td>
</tr>
<tr>
<td>CP/L (million rubles)</td>
<td>270</td>
<td></td>
<td>88.1</td>
<td></td>
<td></td>
<td>11.9</td>
<td></td>
<td></td>
<td>6.9</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td>0.643</td>
<td></td>
<td></td>
<td>0.357</td>
<td></td>
<td></td>
<td>8.1</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td></td>
<td>0.716</td>
<td></td>
<td></td>
<td>0.467</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overdue commercial payables</td>
<td>178</td>
<td></td>
<td>89.9</td>
<td></td>
<td></td>
<td>10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODCP/sales (percent)</td>
<td></td>
<td></td>
<td>9.0</td>
<td></td>
<td></td>
<td>16.7</td>
<td></td>
<td></td>
<td>17.3</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td>9.4</td>
<td></td>
<td></td>
<td>25.0</td>
<td></td>
<td></td>
<td>21.2</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td></td>
<td>10.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODCP/L (million rubles)</td>
<td>176</td>
<td></td>
<td>90.3</td>
<td></td>
<td></td>
<td>9.7</td>
<td></td>
<td></td>
<td>12.3</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td>0.442</td>
<td></td>
<td></td>
<td>0.581</td>
<td></td>
<td></td>
<td>12.7</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td></td>
<td>0.550</td>
<td></td>
<td></td>
<td>0.748</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Arrears to banks

<table>
<thead>
<tr>
<th></th>
<th>Mean (percent)</th>
<th>Median (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODBC/sales in percent</td>
<td>4.42 (55)</td>
<td>3.96 (54)</td>
</tr>
<tr>
<td></td>
<td>5.28 (25)</td>
<td>7.64 (35)</td>
</tr>
<tr>
<td>ODBC/L (million rubles)</td>
<td>0.169 (54)</td>
<td>0.249 (54)</td>
</tr>
<tr>
<td></td>
<td>0.214 (26)</td>
<td>0.116 (25)</td>
</tr>
</tbody>
</table>

### Tax arrears

<table>
<thead>
<tr>
<th></th>
<th>Mean (percent)</th>
<th>Median (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODTX/sales in percent</td>
<td>3.11 (111)</td>
<td>2.95 (109)</td>
</tr>
<tr>
<td></td>
<td>15.32 (43)</td>
<td>13.59 (41)</td>
</tr>
<tr>
<td>ODTX/L (million rubles)</td>
<td>0.134 (109)</td>
<td>0.172 (91)</td>
</tr>
<tr>
<td></td>
<td>0.661 (42)</td>
<td>0.582 (33)</td>
</tr>
</tbody>
</table>

### Wage arrears

<table>
<thead>
<tr>
<th></th>
<th>Mean (percent)</th>
<th>Median (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODWG/sales in percent</td>
<td>3.30 (93)</td>
<td>3.53 (91)</td>
</tr>
<tr>
<td></td>
<td>3.72 (15)</td>
<td>3.75 (14)</td>
</tr>
<tr>
<td>ODWG/L (million rubles)</td>
<td>0.107 (91)</td>
<td>0.118 (91)</td>
</tr>
<tr>
<td></td>
<td>0.137 (16)</td>
<td>0.141 (15)</td>
</tr>
</tbody>
</table>

**Note:** Significance levels: * = 5 percent level; ** = 1 percent level; *** = 0.1 percent level; no star = not significant at 5 percent level.

**Source:** World Bank survey.
particular ongoing flow problem (since large recent and current flows would create large current stocks).

Neither wage arrears nor arrears to banks are significantly concentrated in financially distressed firms. The results of the statistical tests are not significant, and the implied concentrations differ little from the actual proportions of distressed firms in the samples. The results for arrears to banks should be treated with some caution, however, because of the small numbers involved. Although the predicted concentration of arrears to banks is fairly high, the sample differences that served as the basis for these calculations are not statistically significant.

The only kind of arrears that are clearly concentrated in financially distressed firms are tax arrears. The statistical tests are uniformly highly significant: all are in excess of the 0.1 percent significance level. The implied degrees of concentration are also striking. Distressed firms make up 13 percent of the sample, but we estimate they would account for between one-third and close to one-half of all tax arrears. We note, however, that the degree of concentration of tax arrears in distressed firms is not as high in Hungary and Poland, where it has been estimated that two-thirds to three-quarters of tax arrears are found in these firms (see Schaffer 1995). This would suggest that problems with late payment of taxes and poor tax discipline are more widespread in Russia than in these two leading transition countries.

We will return to these findings later in the chapter. Here we summarize only insofar as to note that the evidence suggests only small portions of total commercial payables, overdue commercial payables, wage arrears, and arrears to banks would appear to be concentrated in financially distressed firms. The bulk of these arrears would seem to be late payments rather than bad debts. The case of tax arrears is different, and we will return to this later.

**Microevidence on Arrears**

We turn now to an examination of the correlates of arrears at the firm level, based on the World Bank survey. We will interpret these correlations in terms of arrears as late payments and arrears as bad debts. The methodology we employ is to calculate both simple correlations between pairs of variables and correlations controlling for firm characteristics: the firm's size (measured by log employment), the kind of location (na-
We measure arrears in two ways. First, we normalize by sales; this gives us a measure of the volume of arrears relative to the size of the firm's turnover. Second, we calculate a 1/0 variable based on whether the firm has a "significant" amount of a category of arrears or not; "significant" means in excess of 2 percent of annualized sales.

Each pair comparison therefore generates four correlations:

1. A simple correlation between the volume of a kind of arrears (normalized by sales) and another variable
2. A simple correlation between the presence (1/0) of a significant volume (> 2 percent of sales) of a kind of arrears and another variable
3. A correlation between the volume of a kind of arrears (normalized by sales) and another variable, holding constant a set of firm characteristics (size, location, industry)
4. A correlation between the presence (1/0) of a significant volume (> 2 percent of sales) of a kind of arrears and another variable, holding constant a set of firm characteristics (size, location, industry).

The correlations are presented in tabular form in tables 4-8-4-11. A ++ indicates a positive correlation that is significant at the 1 percent level; a + means significant at the 5 percent level; 0 means not significant; - means a negative correlation at the 5 percent level; and -- means significant at the 1 percent level. A fuller explanation of abbreviations and methodology accompanies the tables.

Our first finding is that arrears are, not surprisingly, highly correlated with arrears. Table 4-8 presents correlations between arrears, again both simple and partial correlations, and again both for the volume of arrears and the presence of arrears. Nearly all arrears are correlated with nearly all other kinds of arrears, however measured. This finding suggests that different kinds of arrears are (often) codetermined by underlying factors. In what follows we try to track down some of these factors.

We begin with some negative results. First, ownership shows relatively little correlation with any sort of arrears, whether or not we control for other firm characteristics (table 4-9). The main exception is that de novo (newly established) firms tend to hold fewer payables in arrears in the simple correlations. De novo firms are also small, however, and thus when
Table 4-8. Correlations of Arrears with Arrears

<table>
<thead>
<tr>
<th></th>
<th>ODCP</th>
<th>ODBC</th>
<th>ODTX</th>
<th>ODWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODBC</td>
<td>0</td>
<td>++</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td>ODTX</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>ODWG</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>ODRC</td>
<td>++</td>
<td>0</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>0</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

n.a. Not available (that is, estimation failed).

Note: ODCP: overdue commercial payables. ODBC: overdue bank credit. ODTX: overdue tax, Social Security, and so forth, payables. ODWG: overdue wages. ODRC: overdue receivables. ++ = positively correlated, significant at 1 percent level. + = positively correlated, significant at 5 percent level. 0 = not correlated at 5 percent level. − = Negatively correlated, significant at 5 percent level. −− = Negatively correlated, significant at 1 percent level. For each pair of variables, four correlations are reported:

Line 1: Simple correlation with volume of arrears.
Correlation coefficient (both volume measures) or t-test (if comparison variable a 1/0 variable).
Arrears variable: arrears normalized by sales.
Line 2: Simple correlation with presence of significant arrears.
t-test by presence of arrears (if volume measure), chi² (if 1/0 variable).
Arrears variable: presence of significant arrears (2 percent of sales), 1/0 variable.
Line 3: Correlation with volume of arrears, controlling for a set of firm characteristics.
Partial correlation coefficient of comparison variable when also controlling for size (log employment), location (four city dummies), and industry (fifteen dummies).
Arrears variable: arrears normalized by sales.
Line 4: Correlation with presence of significant arrears, controlling for a set of firm characteristics.
Significance of comparison variable in a logit regression also including size (log employment), location (four city dummies), and industry (fifteen dummies).
Arrears variable: presence of significant arrears (2 percent of sales), 1/0 variable.
Table 4-9. Simple and Partial Correlations between Arrears and Firm Characteristics

<table>
<thead>
<tr>
<th></th>
<th>ODCP</th>
<th>ODBC</th>
<th>ODTX</th>
<th>ODWG</th>
<th>ODRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size-log employment</strong></td>
<td>++</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>0</td>
<td>++</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td><strong>Military-industrial complex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>firm (1/0)</td>
<td>++</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Monopolist (1/0)</strong></td>
<td>++</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>State-owned (1/0)</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Privatized (1/0)</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>0</td>
<td>++</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>De novo, newly established</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>private firm (1/0)</td>
<td>--</td>
<td>0</td>
<td>--</td>
<td>--</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Major city (1/0)</strong></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0</td>
</tr>
<tr>
<td>(Moscow, St. Petersburg)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Oblast capital (1/0)</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(Major cities excluded)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>City, not oblast capital (1/0)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td><strong>Rural (1/0)</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note: See note to table 4-8.*

### Table 4-10. Arrears, Demand, and Response to Change in Demand

<table>
<thead>
<tr>
<th>ODCP</th>
<th>ODBC</th>
<th>ODTX</th>
<th>ODWG</th>
<th>ODRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log change in output,(^a) 1993–94</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Log change in output,(^a) 1993–94 (alternate measure)</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Log capacity utilization, 1994</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Log change in capacity utilization, 1991–94</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Share of sales going to FSU market in 1990</td>
<td>+</td>
<td>0</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Log change in employment, 1993–94</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Log change in employment, 1991–94</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Log change in wage, 1993–94</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Log change in wage, 1990–94</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: See note to table 4-8.

\(^a\) Change in real output reported directly by firms. Alternate measure of change in real output derives from deflation of reported nominal output figures.

Table 4-11. Arrears and Financial Indicators

<table>
<thead>
<tr>
<th></th>
<th>ODCP</th>
<th>ODBC</th>
<th>ODTX</th>
<th>ODWG</th>
<th>ODRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Financial distress&quot; (1/0) (Usually a loss-maker)</td>
<td>+</td>
<td>0</td>
<td>++</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>+</td>
<td>++</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>++</td>
<td>+</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&quot;Bank credit easy to obtain&quot; (1/0)</td>
<td>0</td>
<td>0</td>
<td>--</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Log wage</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>--</td>
<td>0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Note: See note to table 4-8.

we control for size in the partial correlations, this negative correlation disappears. Second, partial correlations between arrears and industry (not reported) show, rather surprisingly, very little systematic correlation between arrears of any sort and the industrial sector in which the firm operates. Third, membership in the military-industrial complex is clearly associated only with overdue receivables, even after controlling for size, industry, and location. This probably reflects payment delays by the government in its military procurement. Fourth, and somewhat surprisingly, "being monopolist" (as described by the firm itself) is not clearly correlated with any sort of arrears. One might have suspected that monopolists, in a strong position with their customers, would have fewer overdue receivables, or that they would have larger overdue taxes, perhaps being in a strong position in relation to the government, but this does emerge from the data. Fifth, size (as measured by employment) is clearly correlated with arrears, especially overdue trade credit (both arrears to suppliers and arrears from customers).

To check our hypothesis on financial stress, in table 4-10 we present correlations between arrears and a variety of variables meant to capture both the degree to which firms were hit by the loss of demand (or by their inability to meet demand)—change in output, capacity utilization, share of sales going to the markets of the former Soviet Union in 1990—and the
extent of their response to this loss through shedding labor and restraining wages. The correlations are fairly strong evidence that overdue payables are associated with a fall in demand and (sometimes weakly) with the firm's response in its adjustment of employment and wages. What is somewhat surprising is that the correlation between overdue receivables and the demand and demand-response variables is much weaker than the correlations for overdue payables, even though overdue receivables are closely correlated with overdue payables, as we have seen. This is consistent with the view that overdue receivables generate overdue payables, and declines in demand generate payments difficulties and hence overdue payables, but that losses in demand are not systematically associated with increases in overdue receivables because suppliers experiencing losses in demand do not keep shipping to customers that do not pay (more about this below).

Additional evidence in favor of the "financial stress" interpretation is the very strong correlation observed with location (table 4-9). Firms in Moscow and St. Petersburg have fewer and less frequent arrears to all categories of creditors, oblast capitals (excluding Moscow and St. Petersburg) are average, and cities that are not oblast capitals tend to have firms with significant arrears to all kinds of creditors. It is likely that there is a connection here with local demand and economic prosperity.

Another piece of evidence that the bulk of overdue trade credit should be categorized as late payments rather than bad debts comes from the term structure of overdue trade credit. The World Bank survey data on the term structure of overdue payables are presented in table 4-12: the bulk of overdue liabilities are short term, although a significant portion of payables are overdue by more than three months. Aggregate Goskomstat data for overdue payables to suppliers show that in the year preceding the survey, the percentage overdue had been relatively stable (40-50 percent), while the total volume of overdue payables had increased. This suggests that the large amount of short-term overdue payables to suppliers in the surveyed firms is not primarily the result of the early-1994 increase in the total volume of overdue payables; the main reason is probably that firms consistently pay each other late. The low figure for very old (over one year) overdue payables to suppliers would indicate that most of these payables are eventually paid, although a lack of inflation indexing (firms failing to charge, or to record, late penalties), as noted, also contributes to this low figure. Interrepublican arrears (of Rus-
Table 4-12. Term Structure of Arrears (percent)

<table>
<thead>
<tr>
<th>Item</th>
<th>Not overdue</th>
<th>Overdue less than 3 months</th>
<th>Overdue 3 months–1 year</th>
<th>Overdue more than 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payables to suppliers</td>
<td>42</td>
<td>30</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Liabilities to banks</td>
<td>72</td>
<td>17</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Payables to all government</td>
<td>54</td>
<td>31</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Payables to employees</td>
<td>52</td>
<td>42</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Receivables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From domestic firms</td>
<td>26</td>
<td>27</td>
<td>32</td>
<td>5</td>
</tr>
<tr>
<td>From budgetary organizations</td>
<td>34</td>
<td>27</td>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td>In state subsidies</td>
<td>33</td>
<td>22</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>From former Soviet Union trade</td>
<td>13</td>
<td>16</td>
<td>29</td>
<td>31</td>
</tr>
<tr>
<td>From non-former Soviet Union trade</td>
<td>38</td>
<td>13</td>
<td>30</td>
<td>3</td>
</tr>
</tbody>
</table>


Russian enterprises with the other former Soviet republics), as shown by the survey, are not large and are rather old. For the "typical" industrial firm, arrears from the CIS are more a stock than a flow problem, because most of the older receivables in arrears are probably uncollectible. Goskomstat aggregate data show, by contrast, a steady increase in the percentage of bank credit, and especially tax payables, overdue; it is here that we observe flow problems.

The picture is similar if we look at the proportion of firms in the sample that have some overdue payables of a given age (table 4-13). This approach has the advantage of being unaffected by the presence or absence of inflation indexing. Although most firms have some overdue payables to suppliers, only 14 percent have payables to suppliers that are overdue by a year or more. The number of firms more than three months in arrears to banks is fairly small. Tax arrears are fairly common: over one-third of the sample is behind in taxes, and 14 percent of the sample have taxes overdue by more than three months. We note, however, that the
small number of firms with long-term arrears to banks and the tax authorities may in part reflect recent growth in these items (rather than the likelihood of eventual repayment), as will be suggested below. Finally, wage arrears are fairly common—30 percent of firms have them—but they are very short term in nature. Only 5 percent of the sample had wage arrears overdue by more than three months, and none had wage arrears over a year old. This is to be expected, because the relevant time horizon will be different for workers than for other creditors: beyond several months of delay in receiving wages, employees would probably protest or leave their jobs.

We return now to our analysis of correlation. Table 4-11 presents correlations between arrears and some indicators of the financial status of the firm (including our financial distress dummy variable). We include, somewhat unconventionally, the wage level. If we think of these firms as insider-controlled, then labor will capture some (or all) of the firm’s profit, and the wage will be a function of profit. It is more reasonable to argue that this will be captured with the correlations that control for firm characteristics—these include industry dummies, and hence control somewhat for wage variation by industry. As expected, difficulties in ob-

Table 4-13. Frequency of Occurrence of Arrears
(percentage of sample)

<table>
<thead>
<tr>
<th>Category</th>
<th>With arrears</th>
<th>With arrears at least 3 months overdue</th>
<th>With arrears at least 1 year overdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To suppliers</td>
<td>58</td>
<td>41</td>
<td>15</td>
</tr>
<tr>
<td>To banks</td>
<td>18</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>To all government (taxes)</td>
<td>36</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>To employees (wage arrears)</td>
<td>30</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Receivables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From domestic firms</td>
<td>73</td>
<td>53</td>
<td>25</td>
</tr>
<tr>
<td>From budgetary organizations</td>
<td>16</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>In government subsidies</td>
<td>8</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>From former Soviet Union trade</td>
<td>23</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>From non-former Soviet Union foreign trade</td>
<td>15</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>

taining bank credit and low wages are associated with arrears. Our financial distress dummy is somewhat correlated with overdue commercial payables, more so with overdue bank credit, and highly correlated with overdue taxes. Financial distress thus measured is not correlated at all with wage arrears. Nevertheless, we note from the table that wage arrears are strongly negatively correlated with the wage level. Low-wage firms are also wage-arrears firms, even when we control for variation by industry.

Large-scale wage arrears distinguish Russia from the leading transition countries of Central and Eastern Europe. In our view, the real issue here is not so much whether they are correlated with financial distress or not, but rather in the use made by firm managers of weak workers to lobby the authorities and extract subsidies. Wage arrears are in some sense an accounting fiction; in principle, managers always have the choice between paying a low wage (promptly) or essentially promising to pay higher wages with money the firm doesn’t have (or the managers won’t admit to having)—that is, to accumulate wage arrears. We suspect managers promise wages in excess of the cash they have available so as to turn workers’ protests toward the government authorities in order to obtain financial assistance.

The case of the so-called “30:70 rule” provides a good illustration of this. In early 1994, following an increase in wage arrears (see table 4-4) and lobbying by firms, the government introduced a scheme aimed at providing relief to firms with wage arrears: firms with wage and tax arrears could legally defer payment of part of their taxes and use the money to pay wages instead. The taxes deferred were exempt from interest and late penalties, which meant (given Russian inflation rates) a substantial real subsidy. The scheme at first was temporary and applied only to firms in selected industrial branches, but by the end of 1994 it had been made indefinite and extended to all firms. In 1995, “30:70 rule” tax deferrals were utilized by a large number of firms and accounted for most of the growth of tax arrears in that year. Use of the scheme apparently was not limited to firms in serious financial distress, and the incentives provided by the scheme were perverse. It seems that firms could obtain a tax deferral simply by generating wage arrears; that is, by choosing a wage that was sufficiently high to preclude payment in full to employees. It is also worth noting that the initial list of industrial branches approved for use of the scheme included several that were, if anything, relatively healthy, such as the oil extraction and gas branches.
We now resume the line of investigation we began with our results on concentration of arrears—whether enterprises in financial distress behave differently regarding arrears. Managers were asked to identify the most important causes of their overdue payables; the answers are summarized in table 4-14 for the sample as a whole, and separately for financially distressed (chronic loss-making) firms. When the answers of the financially distressed group differ in a statistically significant manner from the rest of the sample, this is marked in the table.

The most commonly noted reasons for overdue payables—cited as important by all but about one-third of the sample—are the need to pay taxes first, the financial difficulties of the firm, and overdue receivables. The differences between the nondistressed and distressed groups are interesting. The chronic loss-makers are no more likely than others to cite overdue receivables as a reason to delay payment to their suppliers. Not surprisingly, they are considerably more likely to blame the financial difficulties of the firm, trouble obtaining bank credit, and pressure to pay wages as the reasons for not paying their suppliers instead. Note that

Table 4-14. Cited Causes of Overdue Payables

(Percent)

<table>
<thead>
<tr>
<th>Cause</th>
<th>Firms citing cause</th>
<th>Financially distressed firms citing cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overdue receivables</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>Slow payment clearing</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Bank credit expensive or hard to get</td>
<td>18</td>
<td>27 (+)</td>
</tr>
<tr>
<td>Result of business strategy</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Financial difficulties of the firm</td>
<td>33</td>
<td>53 (++)</td>
</tr>
<tr>
<td>Must pay wages first</td>
<td>20</td>
<td>30 (+)</td>
</tr>
<tr>
<td>Must pay banks first</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Must pay taxes first</td>
<td>36</td>
<td>34</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Not applicable (no overdue payables)</td>
<td>24</td>
<td>15 (-)</td>
</tr>
<tr>
<td>Hard to say</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: Response to question: "What are the most important causes of your overdue payables?"

Statistical test is \(\chi^2\). Significance results: ++, statistically greater than rest of sample at the 1 percent significance level; +, statistically greater than rest of sample at the 5 percent significance level; -, statistically smaller than rest of sample at the 5 percent significance level; --, statistically smaller than rest of sample at the 1 percent significance level.

Table 4-15. Payment Priorities and Financial Distress:
Ranking of Payment Obligations in Order of Urgency

<table>
<thead>
<tr>
<th>Creditor</th>
<th>Average rank (total sample)</th>
<th>Financially distressed firms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppliers</td>
<td>3.1</td>
<td>2.8</td>
</tr>
<tr>
<td>Banks</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Government (taxes)</td>
<td>1.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Employees</td>
<td>2.7</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Note: Ranking: 1 = highest; 2 = next highest, and so forth. Ordered logit results: ordered logit of payment rank on financial distress (1/0), size (log employment), city type and industry dummy variables. Significance of coefficient on financial distress is reported in table: ++, statistically higher ranking than rest of sample at the 1 percent significance level; +, statistically higher ranking than rest of sample at the 5 percent significance level; 0, no difference at 5 percent significance level; −, statistically lower ranking than rest of sample at the 5 percent significance level; − −, statistically lower ranking than rest of sample at the 1 percent significance level.


these financially distressed firms are not more likely to blame the pressure to pay taxes; we will return to this shortly.

The responses of managers, and our findings on correlations and concentration above, suggest payment priorities by firms as a line of inquiry. How do managers rank their payment obligations in order of urgency? They were asked this question explicitly. The answers are summarized in table 4-15. Again, the financially distressed group is considered separately. Paying suppliers is ranked the least important, which is consistent with the aggregate and survey data on the frequency with which firms pay each other late. Paying taxes gets the highest ranking. In the middle are the payment obligations of firms to their employees and to the banks, with about equal ranking.

The effects of financial distress on the firm’s perceived urgency of payments is to lower the priority given to paying taxes, and to raise the priority of paying suppliers. The statistical significance of these findings, reported in table 4-15, is quite robust: we report the significance of the 1/0 financial distress dummy variable in an ordered logit where payment priority is the endogenous variable, but ordered logit equations of payment priorities on the financial distress variable, a size variable, and city and industry dummies yielded virtually identical qualitative results. Our
payment priority results are consistent with our findings that financial distress is highly correlated with tax arrears (table 4-11), and with our finding that tax arrears are much more highly concentrated in financially distressed firms than are other kinds of arrears (table 4-6).

The explanation of this finding is probably that firms in financial distress have little choice. If they don’t pay their suppliers, they will cease to be able to operate because the suppliers will refuse to supply (as shown in the following section). If they don’t pay their taxes, they may get into trouble, but the tax authorities may be unwilling to take drastic measures to collect the tax arrears, and in the meantime the firm will continue to operate. We note that Belka and others (1995) found a similar effect of financial distress on the rankings by Polish firms of their payment priorities, with the difference that Polish firms in financial distress also raise the priority of paying their workers. (The average rankings given by the Polish firms also differed from the Russian survey. The average Polish firm gave considerably higher priority to paying workers than the average Russian firm.) The finding that financial distress does not raise the priority of paying workers is consistent with our earlier finding that financial distress is not correlated with the presence or the volume of wage arrears. That said, we note that financially distressed firms did cite the importance of paying workers significantly more frequently than did nondistressed firms as a reason for overdue payables. We would have expected to find that financial distress would raise the priority of paying workers—firms cannot survive indefinitely without paying their workers.

The Responses of Enterprises and Policy Implications

In this last section we turn to the supply side of the trade credit market. We have argued so far that most arrears can be considered late payments, with the major exception of tax arrears. Late payments exist because as a liquidity cushion, they are cheaper than, for example, bank finance, but they are possible only because creditors accept late payments. In a situation with no monitoring, or loose monitoring, late payments would turn into bad debts: arrears would not eventually be paid back. But we have already seen some evidence that this is not the case. Cushions are cushions and not bad debts because creditors monitor their debtors. Reinforcing this last point is the main goal of this section. We will also discuss the motives for allowing late payment under effective monitoring: that is,
why creditors have an interest in allowing late payments. The section, and the chapter, concludes with a discussion of policy recommendations.

As we saw earlier in the chapter, the total volume of trade credit in Russia in the transition period has remained generally within the levels commonly observed in Western economies. One of the reasons for this is that Russian firms have learned to apply fairly basic credit control methods to collect on their debts and to keep their overdue receivables under control. Some case study evidence (for example, Fan and Schaffer 1994; Singh and Gelb 1994) suggests this lesson was learned fairly quickly by firms, within the first year of transition. The evidence from the World Bank survey demonstrates that by mid-1994, the importance of credit controls was widely appreciated, and basic credit control methods were in general use.

When managers were asked to identify the most important features of their management strategy in the area of financial management, the single most common action listed, by a wide margin, was “reducing outstanding receivables.” Close to two-thirds of the sample said this was “very important”; all other measures were listed as “very important” by less than half the firms. The importance of obtaining trade credit was also widely appreciated; 43 percent of firms said lengthening the period for payables was “very important.”

The methods firms use to control their overdue receivables (table 4-16) are fairly commonsense measures, and are similar to those found in surveys of Polish and Hungarian firms (Belka and others 1995; Bonin and Schaffer 1995). Few firms (10 percent) said they had no problems with overdue receivables; virtually all of the remainder used at least one method, and on average they used between two and three. The most common method, used by a majority of firms, was to require payment in advance or cash on delivery from new customers. The second most common action was to apply the same requirement to established customers; Russian firms are apparently wary of extending trade credit, even to long-term customers. In both cases, partial or full payment in advance was the main requirement; only about 10 percent of firms asked for cash on delivery. The other main strategies used were to refuse to supply a customer behind in its payments until repayment had been arranged, and “informal methods,” both used by about 40 percent of firms. Relatively few firms (15 percent) charged interest on their overdue receivables. This is somewhat surprising given that a majority of firms in
Table 4-16. Methods Used to Control Overdue Receivables (percent)

<table>
<thead>
<tr>
<th>Method</th>
<th>Firms where method is used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial or full payment in advance or cash on delivery,</td>
<td>55</td>
</tr>
<tr>
<td>from new customers</td>
<td>44</td>
</tr>
<tr>
<td>Partial or full payment in advance or cash on delivery,</td>
<td>15</td>
</tr>
<tr>
<td>from established customers</td>
<td></td>
</tr>
<tr>
<td>Charge interest on overdue receivables</td>
<td></td>
</tr>
<tr>
<td>Refuse to supply if customer is behind on payments</td>
<td></td>
</tr>
<tr>
<td>until old debt is paid in part or in full</td>
<td>41</td>
</tr>
<tr>
<td>Informal methods (phone, letter, ...)</td>
<td>38</td>
</tr>
<tr>
<td>Legal action (lawyer, court system)</td>
<td>27</td>
</tr>
<tr>
<td>Sell overdue receivables on the debt market</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Other methods</td>
<td>3</td>
</tr>
<tr>
<td>No special methods used</td>
<td>2</td>
</tr>
<tr>
<td>Not applicable—no problems with overdue receivable</td>
<td>10</td>
</tr>
<tr>
<td>Hard to say</td>
<td>3</td>
</tr>
<tr>
<td>Average number of methods used (excluding not applicable)</td>
<td>2.6</td>
</tr>
<tr>
<td>Response rate</td>
<td>439/439 (100%)</td>
</tr>
</tbody>
</table>

Note: Response to question: “What methods do you use to control the level of your receivables? (Tick most important).”


The Polish and Hungarian surveys utilized this practice. Finally, about one-quarter reported resorting to the court system to collect on overdue receivables.

These findings suggest Russian firms have learned the importance of credit control and are imposing hard budget constraints on each other, mostly through very basic methods. In this way, financial discipline is being imposed on firms by the market.

The number of firms that acknowledge resorting to the law to collect on overdue debts is surprisingly high, given the perceived problems with the court system. The managers in the survey were asked what they saw as the main obstacles to filing for the insolvency of a debtor who had not paid them. The answers are reported in table 4-17, and suggest that in Russia, managers are aware of how to use the bankruptcy framework and appear to be able to make economic decisions about whether or not it pays to use it (for a discussion of bankruptcy frameworks in transition
Table 4-17. Obstacles to Pursuing Debtors
(percent)

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>Firms citing the obstacle</th>
</tr>
</thead>
<tbody>
<tr>
<td>The probability of repayment is low because the firm is highly indebted</td>
<td>47</td>
</tr>
<tr>
<td>to other creditors or because other creditors have priority.</td>
<td></td>
</tr>
<tr>
<td>The situation in the economy is complicated and we have to support our</td>
<td>38</td>
</tr>
<tr>
<td>partners.</td>
<td></td>
</tr>
<tr>
<td>Russian courts are weak and incompetent and court procedures won’t</td>
<td>26</td>
</tr>
<tr>
<td>produce the desired outcome.</td>
<td></td>
</tr>
<tr>
<td>The bargaining power of the firm vs. the debtor means recovery of the</td>
<td>15</td>
</tr>
<tr>
<td>debt is more likely outside the court system, by informal means.</td>
<td></td>
</tr>
<tr>
<td>The firm has no other customers, so bankrupting the debtor would be</td>
<td>15</td>
</tr>
<tr>
<td>costly.</td>
<td></td>
</tr>
<tr>
<td>No major obstacles to filing.</td>
<td>10</td>
</tr>
<tr>
<td>Hard to say.</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: Response to the question: “What are the main obstacles to filing for the insolvency of a debtor who hasn’t paid you?”

economies, see Baer and Gray 1995). Only 10 percent of managers said they saw no major obstacles to filing for the insolvency of a debtor. The most common obstacle, cited by 47 percent of firms, was that the probability of repayment was too low, either because the debtor was highly indebted to other creditors or because other creditors had priority in repayment. A quarter of the sample said that the weaknesses of the Russian court system were an important deterrent. The ability of the firm to use its bargaining power outside the court system to collect from the debtor, and the fear that bankrupting the debtor would cost the firm a major customer, were both cited by 15 percent of firms. Curiously, the second most commonly cited “obstacle” was the statement that in the current economic environment, firms needed to support their customers and not bankrupt them. It is unclear how we should interpret this response—it may be a softer variant of the statement that bankrupting a debtor can mean losing a customer, or evidence that Russian managers are prepared to act altruistically. We also note that bankruptcy law reform is seen as important, but not especially so, by the managers surveyed. When asked
what legal areas needed reform, bankruptcy law was in eighth place (the clear leaders were taxation and banking regulations).

We have presented clear evidence that Russian firms have implemented basic credit control mechanisms themselves, that trade credit flow problems are not great, and that trade credit arrears in Russia are not large by either Western or transition country standards. This suggests that basic market-oriented behavior by Russian firms has been effective in containing the volume of trade credit arrears, and to speak of an “inter-enterprise arrears crisis” exaggerates the problem.

The most useful policy measures regarding trade credit arrears would be those that introduced or improved existing market mechanisms. One avenue would be to facilitate or provide incentives for the tradability of trade credit, as argued by Rostowski (1994a, b). For example, in Poland a firm may freely offset a payable of another firm against the cost of goods purchased from that firm. A customer that has taken delivery of coal from a coal mine, for example, may purchase a payable of the coal mine (at a discount, from someone who is having trouble collecting the debt from the coal mine), and use that payable to pay for the coal. There is consequently an active, albeit small, market for trade credit in Poland. Another avenue would be to introduce legal and institutional reforms that improve the incentives for creditors to pursue debtors who do not pay.

In contrast, forcing firms to “do something” about their arrears without changing their incentives is liable to be ineffective. Setting up a centralized scheme for clearing or managing trade credit arrears, such as a government agency that is to identify firms for special treatment, is unlikely to be as effective as decentralized, market-oriented reforms. Such schemes can also backfire if “special treatment” is at all generous; firms will lobby for special treatment and will stop paying their suppliers if the prospect of special treatment is attractive enough. The same problem applies to generalized bailout schemes (such as the mutual arrears-clearing operation in 1992). Such schemes send precisely the wrong message to firms—that “it doesn’t matter if you can’t pay your supplier, because if you can’t, the government will do it for you.” Moreover, it may encourage the formation of “collusive arrears” by providing firms with a coordination mechanism.

Wage arrears, we have seen, are commonly found in low-wage firms and in firms hit by losses of demand, but are not systematically found in firms in financial distress. Our view of wage arrears is that to some extent
they represent the promise by managers to pay workers with money the firm doesn’t have. Why managers make these promises is an interesting question. One reason may be that the existence of wage arrears in a firm makes it easier for the managers to lobby the government for subsidies, cheap credits, or other financial assistance. Another reason may be the relative power of managers in relation to workers, which the standard view suggests is greater in Russia than in Central and Eastern Europe. We have seen, for example, that the relative priority managers place on paying workers is lower in Russia than in Poland, and wage arrears are rarely observed in CEE countries. In any case, we do not see a need for policies to deal with wage arrears in firms. Rewarding unrealistic promises by managers to their workers only damages incentives. The so-called 30:70 rule is an example of how a policy that attempted to “solve” the wage arrears problem ended up creating new problems, in this case a large increase in tax arrears.

In our view, tax arrears and arrears to banks are much more pressing problems for policymakers. (Policy regarding the banking sector is discussed in the chapter 5.) With respect to tax arrears, much of the problem appears to be limited to financially distressed firms that do not have the money to pay. It is tempting to allow such firms to continue to operate. If such a firm is receiving no other subsidies, it must be covering the costs of its inputs, and hence is generating positive value added. Reallocation of the labor and assets of the firm following its liquidation would likely be slow. There is a danger, however, that poor tax discipline will spread from these firms to financially healthy firms that can but will not pay, and it is important for nonpayment of taxes to be an unattractive option for healthy firms. The most useful effect of liquidating firms with large tax arrears would be to send the right signals to firms that are considering nonpayment or late payment of taxes. To the extent these are distressed firms, the liquidation value of the firm, and hence the recovery rate on the tax arrears, is likely to be low. If the survival of these enterprises is seen by the government as vital for either political or economic reasons, then subsidies should be made explicit and written in the budget expenditures plan, as argued by Alfandari, Fan, and Freinkman in chapter 6. Schemes that allow firms to defer tax payments, such as the 30:70 rule, should be avoided. They encourage poor tax payment discipline by firms in general and are difficult to limit to firms whose survival the government sees as crucial.
Appendix: Definitions and Coverage of Goskomstat Data

We refer the reader to table 4-1, which presents a simplified Russian balance sheet.

Between October 1993 and February 1995, the Goskomstat monthly balance sheet data are as follows. (All stock items are for the 1st of the month.)

**Assets**

- **Total debtors** ("debitorskaia zadolzhennost"), both total and overdue. This consists of the "total debtors" portion of the balance sheet, plus advance payments. Interest and late penalties charged by enterprises to their customers appear in the "accounts with other debtors" line in section III of the assets side of the balance sheet, and are therefore included in this "total debtors" figure. Also included are recalculation of tax payables, which may be positive or negative depending, for example, on whether actual taxes paid (as based on the tax payment schedule set out by the tax collection authority) are greater or less than the actual tax liability subsequently incurred.

- **Receivables from customers for goods and services** ("zadolzhennost' pokupatelei za tovary, raboty, uslugi"), both total and overdue. This is a subset of "total debtors"—it accounts for about 80 percent of the latter—and corresponds to the "receivables for goods and services" line of the balance sheet. Receivables for goods and services are recorded in transactions prices ("v tsenach realizatsii") rather than wholesale or producer prices, and in the great majority of enterprises are recorded at the time of shipment. Interest and penalties charged by firms to their customers for late payment are not included in this item, but rather in the figure for "total debtors" (see above).

- **Monetary assets** ("denezhnye sredstva"). This consists of the monetary assets portion of the balance sheet. It includes hard currency holdings.

- **Financial investments** ("finansovye vlozheniia"). This is composed of short-term financial investments (from section III of the asset side balance sheet) and long-term financial assets (from section I of asset side the balance sheet).

**Liabilities**

- **Total creditors** ("kreditorskaia zadolzhennost"), both total and overdue. This consists of the "total creditors" portion of the balance sheet, plus advance
payments. (Note that both bank credit and loans are excluded.) Most interest and late penalties charged by creditors to the firm appear in the “accounts with other creditors” line in section III of the liabilities side of the balance sheet, and are therefore included in this “total creditors” figure. In particular, late penalties charged by suppliers and unpaid interest payments to banks are included in this figure for “total creditors.”

**Payables to suppliers for goods and services** ("zadolzhennost' postavshchikam za tovary, raboty, uslugi"); both total and overdue. This is a subset of “total creditors”—it accounts in aggregate for about 60 percent of the latter—and corresponds to the “payables for goods and services” line of the balance sheet. Penalties for late payment charged by suppliers are not included, but do appear in the figure for “total creditors” (see above).

**Payables to the budget** ("zadolzhennost' v biudzhet"), both total and overdue. This is also a subset of “total creditors”; at the end of 1993, it made up about 15 percent of total creditors. It is the same as the corresponding line on the balance sheet, and so does not include payments to extrabudgetary funds. The figure for payables to the budget includes interest and penalties for late payment of taxes.

**Bank credit** ("zadolzhennost' po kreditam bankov"); both total and overdue. This is composed of short-term bank credit (from section III of the liability side of the balance sheet) plus long-term bank credit (from section II of the liability side of the balance sheet). It does not include “bank credit for employees” (see section III of the liabilities side) nor interest arrears.

**“Loans”** ("zadolzhennost' po poluchennym zaimam"), both total and overdue. This is composed of short-term loans (from section III of the liability side of the balance sheet) plus long-term loans (from section II of the liability side of the balance sheet).

**Miscellaneous**

**Total delivered production, works and services** ("ob'em otgruzhennoi produktsii, vypolnennykh rabot, okazannykh uslug") to the start of the month. At the same time firms report balance sheet data for the 1st of the month, they report the preceding month’s delivered production. “Delivered production” is measured in transaction prices ("v tsenach realizatsii"); that is, the prices at which goods are actually sold. This means that value added tax (VAT), excise taxes, etc. are included, and product subsidies are not included. By contrast, the figures Goskomstat usually reports for industrial production are in producer prices, meaning that they are net of VAT and excise taxes and gross of subsidies. This difference is moderately important in aggre-
gate—on average, delivered production in industry is about 15–20 percent greater than the usual industrial production figures—and very important for sectors that pay high excise taxes (for example, petroleum extraction, where delivered production is roughly double production at producer prices).

References


Notes

1. For example, the Russian receivables-sales ratio in industry in 1992 would be biased seriously upward if we used 1992 nominal industrial production and end-year trade credit because trade credit would be largely in late-1992 prices.

2. This is also supported by CBR data on overdue bank credit. Unlike the Goskomstat data, the CBR data include interest arrears. In the CBR data, overdue bank credit as a percentage of total bank credit is considerably higher than in the Goskomstat data, and closer to the percentage overdue in the World Bank survey data. See chapter 5 in this volume for more details.

3. Thus the survey shows that only 24 percent of firms do not have any overdue payables: the same category of firms totalled 47 percent on the same date, according to Goskomstat data. This difference could also be caused by under-representation of small firms in the survey (see the appendix to this volume); as we shall see below, firm size is positively correlated with arrears.

4. This is perhaps not surprising, since nonoverdue trade credit will be defined primarily by standard payment terms (for example, "payment due in 30 days").

5. The data for Russia derive from Goskomstat. For more details on data sources and estimates, see the notes to the table.

6. The estimate is derived starting with Goskomstat data on tax arrears for firms in industry, construction, agriculture, and transport only, and then scaling up, using Goskomstat data on total receivables/liabilities of the entire enterprise sector.

7. We are grateful to Robin Adair of the OECD for information on tax arrears in New Zealand.

8. These arrears were those in the so-called "kartoteka 2." They were technically unpaid payment demands that had arrived at the bank accounts of firms to be paid, but because firms did not have sufficient funds in their bank accounts, the payment demands were queued in the special "second file" until sufficient funds arrived.
9. The queuing in “kartoteka 2” (see previous note) was first-in-first-out, meaning firms, in principle, did not have a choice in deciding which unpaid payment demands to pay first.

10. That is, the “kartoteka 2” files were frozen, and the rules were changed so that in most circumstances when a firm did not have sufficient funds to pay a payment order when it arrived at the firms' bank, the payment order would not be queued, but would instead be returned to the originator.

11. The effect is the same as regressing percentage overdue of arrear Y on percentage overdue of arrear X plus a full set of industry dummy variables.

12. The firms in the survey clearly understood this problem. Most of the firms identified problems with their accounting systems, and when asked which were the most serious, the most common response was understatement of costs and overstatement of profits resulting from historical cost accounting (67 percent of firms identifying accounting problems). “Unclear or inconsistent accounting rules” (56 percent) and “depreciation charges insufficient to replace fixed capital” (29 percent) were less frequently mentioned.

13. The high level of importance attached to input prices may reflect a general concern with inflation, as well as particular concern with the relative prices of inputs.

14. That is, we test log(arrears/sales). The mean $m$ is $m = \text{mean}(\log(\text{arrears/sales}))$. We report $e^\beta$, the estimated arrears/sales ratio. The Wilcoxon rank-sum test for medians is scale-independent, and thus testing the ratio or the log ratio yields the same results.

15. Note that the samples on which the correlations are based include firms with no arrears, unlike the analysis of concentration of arrears earlier, in which firms with zero arrears were excluded.

16. Initially, a firm with tax arrears could use 50 percent of the funds available in its bank account to pay wages instead of taxes; this was later reduced to 30 percent (hence the term “30:70 rule”). For more on the 30:70 rule, see Sunley and others 1995.

17. Reducing, rescheduling, or obtaining new loans; lengthening the period for payables; changing bank connections; seeking foreign investors or partners; or “other.”

18. This does not, of course, necessarily mean that Russian firms are ignoring inflation. As noted earlier, Russian managers have a lot of experience with inflation, and we would expect the price charged to customers to include a component for anticipated inflation. Nevertheless, the infrequency with which interest is charged does suggest that we need to be careful about inflation effects when interpreting the data on commercial payables.

19. This option was not included in the original draft survey, and was possibly inserted by the local survey team or volunteered by the firms.
Firms, Banks, and Credit in Russia

Qimiao Fan, Une J. Lee, and Mark E. Schaffer

The relations between enterprises and banks have been at the center of both enterprise reforms and financial sector reforms in many transition economies. On the one hand, financial sector reforms have been hampered by bad loans and the lack of adjustment of the enterprise sector. On the other hand, the lack of enterprise restructuring has been accommodated by the softness of the financial sector. It has become increasingly clear that for enterprise reform and financial sector reform to succeed, they have to be dealt with simultaneously and jointly.

Financial sector reforms were introduced in Russia in the late 1980s with the restructuring of the monobank into a two-tiered system, with a Central Bank responsible for monetary and credit policy and regulatory functions and a second tier of five specialized banks that took over lending and deposit-taking functions. The commercial banking sector has evolved rapidly since then, more so in Russia than in most Central and Eastern European (CEE) economies, with the fragmentation of the spe-

We are very grateful to Anders Åslund, Barry Bosworth, Simon Commander, Richard Jackman, and the participants at the June 1995 St. Petersburg conference and the March 1995 Washington, D.C., workshop for helpful suggestions and comments.
cialized banks and the emergence of increasing numbers of independent, but primarily small and poorly capitalized, commercial banks.¹

As of mid-1995, there were approximately 2,500 commercial banks registered in Russia. Many of these banks originated as spin-offs of the former specialized state banks. This group includes some of Russia’s largest banks, with a broad shareholder base that includes the state, which has retained partial ownership through the Central Bank of Russia (CBR), GKI (the state property committee), or other agencies. The majority of commercial banks in Russia, however, are new, or so-called “zero” banks, created from scratch by their shareholders. In most cases the shareholders were public or semi-public institutions and enterprises that wanted a financial arm to facilitate their credit needs, as well as to perform a number of their treasury functions, and thus the banks they founded are sometimes also known as agent banks. Ownership of these new banks tends to be concentrated, often with only a few shareholders. With privatization of the enterprise sector, bank privatization for all categories of banks has ensued, although the state does retain shares in some cases; for example, the state owns substantial shares of Sberbank and Vneshtorgbank through the CBR (current law forbids CBR ownership of commercial banks).

Early on in the reform process, government-directed credits dominated lending. A large share of the available financial resources went to targeted enterprises and regions through CBR and federal and local government credit programs at subsidized rates below Central Bank discount rates, which were themselves negative in real terms until late 1993. The commercial banks, particularly the former state banks, were used to channel the bulk of government-directed credits. In this process they played a passive role; the credits were not only directed but also funded by government or CBR sources rather than commercial banks’ own resources. Total directed credits have been reduced significantly since 1992 but remain substantial: from about 48 percent of total bank credit in 1992 to about 29 percent in 1993 and 23 percent in 1994 (Koen and Marrese 1995, p. 58). Many of the remaining programs are dominated by directed credit for agriculture and the northern territories.

The ownership structure of the majority of new commercial banks also promoted the practice of connected, or insider, lending. Such lending practices acted to segment the market, leaving many new enterprises with extremely limited access to financial resources. Lending rates have also been known to vary depending on a number of factors, including the bank-enterprise relationship.
A repercussion of commercial banks' lending practices—highly concentrated loan portfolios as well as connected lending—is their greater exposure to risk. This is complicated by the rising portion of commercial bank funds composed of time and savings deposits of individuals compared with the funds raised from deposits of enterprises and organizations. Moreover, commercial banks, in theory, bear the credit risk on government-directed credits to enterprises. This is an added source of risk given that such loans are largely based on the recipients' bargaining or political power rather than on financial or economic considerations. More generally, there has been a dramatic increase in overdue bank credit since 1992. As of mid-1995, overdue bank credit amounted to the equivalent of over one-third of total bank credit, or about 3 percent of annualized GDP (more about this below). The freezing of the interbank credit market in Russia in mid-1995 also demonstrated the fragility of the commercial banking sector.

Among this large universe of commercial banks in Russia, however, there is a growing population—about 50–100—of emerging “good” or “real” commercial banking institutions. This group is made up of both new banks and spin-offs of the former specialized state banks, and it includes some of the largest private independent banks in Russia. These banks are making efforts to strengthen their balance sheets and banking skills, including reducing their connected-party lending and single-borrower exposure. These banks tend to lend to new private entities and are, in general, involved in profitable and sophisticated banking activities.

The emerging characteristics of the Russian banking system highlight the intertwined relations between enterprises and banks. We now turn to what the survey tells us about this relationship.

General Features

At the time of the survey (mid-1994), the majority of firms held some bank credit, but a large number of firms did not: 53 percent of the total sample had some debt to banks. The large number of firms without bank debt reflects the continuing presence of nonbank sources of credit. There is relatively little variation by ownership category; 41 percent of the de novo firms had some bank debt, even though they are new and small and might be expected to hold significantly less bank debt than established, larger firms.
A separate question, with a higher (nearly 100 percent) response rate, asks if firms have received bank loans in the past two years. Here the number of bank loan recipients is rather high, at 81 percent. The difference is probably attributable to firms that once held bank debt but at the time of the survey did not; some may be "between loans." In any case, the pattern by ownership type is similar: 62 percent of de novo firms had received bank loans in the past two years, which is lower than the figure for the total sample, but not by very much.

Firms that do have loans, not just from banks but from other sources as well, also provided some information about their two largest loans. Commercial banks are listed as the sources for about two-thirds of all loans; the second most common source is the CBR, providing about 13 percent of loans. Other firms, oblast governments, and the Ministry of Finance (MoF) each account for no more than 5 percent of loans, with the remaining sources given as "other" or not available. There is no apparent correlation between the source of the loan and the firm's ownership type (state-owned, privatized, de novo).

Aggregate data from both the CBR and Goskomstat show that most bank loans in Russia are short-term, and this is the pattern we see in our data as well. One-third of loans were for three months or less, 60 percent were for six months or less, and over 80 percent were for one year or less. We note here that the high rates of inflation seen in Russia have the effect of making bank loans even more short-term in practice. Inflation has the effect of front-loading the repayment schedule of a bank loan, because the real value of the principal will depreciate over the term of the loan.

The length of the loan period is, of course, related to the use of the loan. When firms were asked about the use of their largest loans, half of the sample said the loan was for operating (or "working") capital. About 15 percent of loans were for productive fixed investment, and 7–8 percent were conversion loans (nearly all of these were held by military-industrial complex, or MIC, firms). Very few loans were for nonproductive investment (that is, in social assets). The remainder were for miscellaneous, or "other," uses. The most interesting feature of the use of loans with respect to ownership is the much larger share of loans to de novo firms (over 40 percent) that are funding productive fixed investment.

Virtually all loans, regardless of source, were collateralized. Between 40 and 50 percent of loans were collateralized by inventories, another quarter used machinery and equipment as collateral, and receivables and
Table 5-1. Ownership Cross-holdings in Banks and Firms
(percentage of cases)

<table>
<thead>
<tr>
<th>Category</th>
<th>Major shareholder</th>
<th>Minor shareholder</th>
<th>Not a shareholder</th>
<th>Not applicable</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm a shareholder in the lending bank?</td>
<td>11</td>
<td>29</td>
<td>47</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Loan 1 (209 cases)</td>
<td>10</td>
<td>27</td>
<td>46</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Loan 2 (105 cases)</td>
<td>&lt;1</td>
<td>3</td>
<td>85</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Bank a shareholder in the borrowing firm?</td>
<td>2</td>
<td>4</td>
<td>78</td>
<td>12</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Figures may not sum to 100 percent because of rounding.

buildings and land were each used in another 5–10 percent of cases. The value of collateral as a percentage of the loan was about 120 percent on average, but the variation by loan and firm was substantial. This may reflect large variations in the relationship between book and market value of assets more than anything else. We should not place too much emphasis on the use of collateral, however, because of the practical (legal) difficulties facing a creditor that wants to take possession of collateralized assets.

Finally, firms provided information on cross-holdings between themselves and the banks that made the loans, summarized in table 5-1. It is common, but not standard, for firms to hold shares in the bank making the loan, but not to be dominant shareholders. Firms were minor shareholders in close to 30 percent of cases, but major shareholders in only about 10 percent. In close to half of the cases reported, firms were not shareholders at all in the lending bank, and in about 10–15 percent of cases the question was not applicable or no answer was available. "Agent banks," banks set up (and owned) by firms to handle their lending and little else, do not seem to play a very sizable role in the credit allocation process. *De novo* firms were rather less likely to own shares in their banks; such ownership was found in only a few cases.

We note that in a majority of the loans that listed the CBR, the oblast government, or the MoF as the source—that is, for a majority of cases of directed state credits (DSCs)—firms noted that the shareholding question
applied, and in most cases the answer was "not a shareholder." Firms probably answered this question because the DSCs were channeled through or administered by a commercial bank. Nevertheless, it is somewhat surprising that firms were rarely shareholders in the commercial bank acting as the channel in these cases (and only a few reported that they were majority shareholders). This would suggest that agent banks are not, or are no longer, a very important channel for DSCs.

So far the picture is one of relatively few (subsidized) state credits. This is consistent with a separate question in the survey, albeit one with a relatively low response rate: on average, firms estimate that 85 percent of their loans from commercial banks (and, from what we have seen, firms probably included DSCs channeled through commercial banks as well) are on commercial terms, meaning at or above the CBR's discount rate.

Although firms are often shareholders in their banks, banks are rarely shareholders in the client firms; firms reported lending banks as shareholders in only about 5 percent of cases. It is rare for firms to be partially owned by any banks, let alone by banks that lend to them. Elsewhere in the questionnaire, when firms were asked about their ownership structure, only 7 percent of firms reported that banks owned any of their shares. The average shareholding of banks in these cases was 13 percent. Shareholding by nonbank domestic financial institutions (for example, investment funds), some of which may be controlled or owned by banks, is somewhat more common—25 percent of firms reported such institutions holding some of their shares. The average shareholding of the institutions in these cases was 15 percent.3

The Distribution of Bank Debt and the “Bad Debt” Problem

It is common for the banking system in transition countries to become saddled with "bad debts"—loans to firms that are partially collectible at best, and should at some point be qualified, written down, worked out, and so forth. In this section we first use official aggregate data and then data from the enterprise survey to try to make a first estimate of the size of the Russian bad debt problem.

Table 5-2 presents the available official data on overdue bank debt. The data come from two sources, the CBR and Goskomstat. The CBR's data on overdue bank debt derive from the lenders—the banks—and cover the entire credit stock. Two CBR data series are presented in ta-
Table 5-2. Bank Credit and Overdue Bank Credit in Russia, 1990-95

<table>
<thead>
<tr>
<th>Date</th>
<th>CBR data</th>
<th>Goskomstat data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overdue bank credit (R bn)</td>
<td>Total bank credit (R bn)</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
<td>-----------------</td>
</tr>
<tr>
<td>01.01.90</td>
<td>0.9 211</td>
<td>0.4 573</td>
</tr>
<tr>
<td>01.01.91</td>
<td>4.5 178</td>
<td>2.5 612</td>
</tr>
<tr>
<td>01.07.92</td>
<td>47 1,393</td>
<td>3.3 14,784</td>
</tr>
<tr>
<td>01.01.93</td>
<td>140 5,102</td>
<td>2.7</td>
</tr>
<tr>
<td>01.04.93</td>
<td>248 8,370</td>
<td>3.0</td>
</tr>
<tr>
<td>01.07.93</td>
<td>337 15,773</td>
<td>2.1</td>
</tr>
<tr>
<td>01.01.94</td>
<td>654 23,417</td>
<td>2.8</td>
</tr>
<tr>
<td>01.04.94</td>
<td>1,609 30,019</td>
<td>5.4</td>
</tr>
<tr>
<td>01.07.94</td>
<td>6,507 38,888</td>
<td>16.7</td>
</tr>
<tr>
<td>01.07.94</td>
<td>11,590 52,940</td>
<td>21.9</td>
</tr>
<tr>
<td>01.01.95</td>
<td>17,382 69,865</td>
<td>24.9</td>
</tr>
<tr>
<td>01.01.95</td>
<td>26,007 83,361</td>
<td>31.1</td>
</tr>
<tr>
<td>01.04.95</td>
<td>41,943 105,951</td>
<td>38.7</td>
</tr>
<tr>
<td>01.07.95</td>
<td>39,218 112,877</td>
<td>34.7</td>
</tr>
<tr>
<td>01.10.95</td>
<td>42,348 126,518</td>
<td>33.5</td>
</tr>
</tbody>
</table>

n.a. Not available.

Note: CBR "old series" is prior to revision in January 1994; CBR "new series" is following revision in January 1994 (see text). CBR overdue bank credit, new series, reportedly includes arrears on interest payments. Goskomstat overdue bank credit does not include arrears on interest payments. Annualized GDP is 12*GDP in preceding month, except for 01.01.90, which is 1989 annual GDP.


b. Coverage: industry, agriculture, transport, construction; reporting enterprises only.

Source: CBR, Goskomstat.
ble 5-2. The “old series” refers to data published prior to January 1994 in the CBR's *Bulletin of Bank Statistics*; in that month the CBR revised upward the figures for overdue bank credit very substantially. We have no information on the reasons for the revisions, which extended retrospectively to mid-1993; early 1993 figures were not revised, but it is unclear if these figures are actually compatible with the revised numbers. The CBR reportedly defines “overdue bank credit” in its “new series” to include interest arrears on overdue credit; we have no information on the treatment of interest arrears in the “old series.”

Goskomstat's data on overdue bank credit derive from the borrowers—enterprises—and cover reporting firms in industry, agriculture, transportation, and construction only. Based on figures for total bank credit, Goskomstat’s coverage amounts to one-third to one-half that of the CBR’s data. Overdue bank credit in the Goskomstat data is defined as overdue by the reporting firm, and it does not include (uncapitalized/unrescheduled) interest arrears.

Comparing the CBR and Goskomstat data on overdue bank credit, we find that the percentage of total bank credit represented by this category is consistently higher in the CBR’s (new) data. At the time our survey was conducted (mid-1994), for example, overdue bank credit amounted to over 20 percent of total bank credit according to the CBR, but only 12 percent according to Goskomstat. The difference is probably largely explained by the treatment of interest arrears. In a period of high inflation, a large portion of the total liability associated with an unserviced and overdue bank loan will be in the form of interest arrears. The Goskomstat data on overdue bank credit are biased downward, probably badly, because interest arrears are not included. The CBR and Goskomstat data are, however, in rough agreement concerning recent trends—both show a significant increase in the volume of overdue bank credit. In the case of the CBR data, the increase is particularly dramatic: overdue bank credit rises from 9 percent of total credit in late 1993 to a remarkable 37 percent in mid-1995. Because the total credit stock in Russia is relatively small (most of it was wiped out in early 1992 by inflation and it has stayed low since), however, the volume of overdue bank credit is not huge; it amounted to about 3 percent of annualized GDP in mid-1995.

How do these figures compare with those from other transition countries? In Hungary, at the end of 1992 (after about two-thirds of the bad debt problem had emerged), overdue bank credit, including interest arrears, amounted to about 25-30 percent of total bank credit, or about 7
percent of GDP (see Bonin and Schaffer 1995). Goskomstat's data on overdue bank credit are comparable to those collected by the Polish Central Statistical Office; both derive from enterprise balance sheets, and neither includes interest arrears. At the end of 1992, after most of the Polish bad debt problem had emerged, 9 percent of credits and loans to firms in industry, transport, and construction were overdue (Poland 1993, p. 162). This last figure badly underestimates the volume of bad bank debt in Poland, probably for reasons similar to those producing lower Goskomstat figures (notably the failure to include interest arrears). Estimates of the total Polish bad debt problem at this time range from 20-40 percent of total bank credit, or perhaps 3-6 percent of GDP. Based on these figures, the current Russian bad debt problem would appear to be roughly comparable in scale to that in Hungary or Poland.

These estimates and comparisons are of limited reliability, however, because of a fundamental problem with the definition of "bad" or "overdue" bank credit. It is common in transition countries for banks to roll over bad debts by rescheduling principal payments and capitalizing interest arrears. Once this is done, a debt is no longer formally "overdue," even if it is still genuinely "bad." Reported figures on overdue bank credit will depend in part on how frequent this practice is: the more common it is for firms in financial difficulties to get their arrears to banks rescheduled and rolled over, the more these numbers will underestimate the true scale of the bad debt problem. At the same time, a healthy firm with a loan from a "soft" bank may not put a high priority on prompt payment and may regularly pay late—but still pay. For this reason, figures on overdue bank credit can (in principle) also overstate the volume of genuinely bad debt. Even if both factors are operating, however, a significant volume of overdue bank credit indicates softness in the banking system. Similar problems of interpretation arise when examining trends in overdue bank credit.

Our survey indicates that the practice of rolling over overdue bank credit is very common indeed in Russia (see table 5-3). Close to half of the firms in the survey report they have had trouble repaying or servicing a bank loan in the previous two years. In nearly all cases, the outcome was either capitalization of interest or rescheduling of principal. We note that seizure of collateral, or indeed any legal action, did not occur in a single case. Collateralization may be very common, but it is apparently very ineffective.
Table 5-3. Bad Debt and the Rollover Problem: “Have You, in the Past Two Years, Failed to Repay or Service a Bank Debt on Time?”

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of firms (total = 439)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>203</td>
</tr>
<tr>
<td>What happened</td>
<td></td>
</tr>
<tr>
<td>Capitalization of interest</td>
<td>101</td>
</tr>
<tr>
<td>Rescheduling of principal</td>
<td>85</td>
</tr>
<tr>
<td>Write-off of part of principal or interest due</td>
<td>3</td>
</tr>
<tr>
<td>Legal action</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Charged fines or penalty interest</td>
<td>10</td>
</tr>
<tr>
<td>Not available</td>
<td>3</td>
</tr>
<tr>
<td>No, always repaid or serviced on time</td>
<td>153</td>
</tr>
<tr>
<td>No, not applicable, never received a bank loan</td>
<td>80</td>
</tr>
<tr>
<td>Not available</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: One firm is double-counted and reported both capitalization and rescheduling.

Nevertheless, data on overdue bank credit can be informative, and we now consider the information supplied by the firms in the survey on their overdue liabilities to banks (table 5-4). About one-third of the firms in our sample have some overdue liabilities to banks. According to Goskomstat, an average of between 10 percent and 15 percent of bank debt held by industrial firms was overdue in 1994. In our sample the figure is considerably higher, at 28 percent, and is much closer to the CBR figure for overdue credit in mid-1994 (22 percent). Again, the most likely reason for the difference is that Goskomstat’s data do not include interest arrears, whereas the firms in our sample do.

The term structure of overdue bank liabilities shows that most overdue bank debt is short-term; the bulk of arrears to banks are overdue less than three months, and little is overdue more than one year (table 5-4). This reflects the rolling-over practice noted above, practiced either because of financial distress (a firm gets into financial difficulties and is unable to service its bank debt; after a time the debt is rescheduled and ceases to be overdue) or lax payment practices with respect to banks (a firm may regularly pay its bank late, but pays eventually). In either case, this is further evidence of softness in the Russian banking system. It is of interest here to compare these figures to those from a World Bank survey.
Table 5-4. Term Structure of Overdue Liabilities to Banks
(unweighted means, in percentage)

<table>
<thead>
<tr>
<th>Status</th>
<th>Russia survey (mid-1994)</th>
<th>Poland survey (late 1993)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not overdue</td>
<td>72</td>
<td>85</td>
</tr>
<tr>
<td>Overdue</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>Overdue less than 3 months</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Overdue 3-12 months</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Overdue more than 1 year</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Figures may not sum to 100 percent because of rounding. Firms with zero bank debt are excluded.

of 208 Polish manufacturing firms conducted in late 1993 (Belka and others 1995), also presented in table 5-4. In the Polish survey we observe a somewhat lower proportion of overdue bank debt, only 15 percent, compared with 28 percent for our Russian firms. More important and more striking is the difference in term structure. Most arrears to banks in the Polish survey were overdue more than one year, and very few were overdue less than three months. In Poland, the bad debt problem is a "stock problem"; the flow of new overdue bank debt is small. In Russia, we observe both a stock problem and an ongoing flow problem.

A different approach to the bad debt issue that sidesteps these issues of classification of "overdue" or "bad" bank debt looks at the concentration of total bank debt in "bad" firms. The idea is that if a firm is in severe financial difficulties and is unlikely to ever repay its bank debt, then we may reasonably regard the firm's bank debt as bad, regardless of how much of it is overdue, how much has been rescheduled, and so forth. We use as our set of "bad" those reporting "usually being loss-making." These financially distressed firms amount to about 10-15 percent of the total survey. (Because of the upward bias to profits caused by inflation and historical cost accounting, it was something of an achievement to "usually make losses" in Russia in 1994.)

We want to calculate the fraction of total bank debt held by these firms and see if they account for much more of total bank debt than their numbers warrant. As explained in chapter 4, however, this comparison is complicated by the great size heterogeneity of the firms in the sample,
Table 5-5. Concentration of Bank Debt in Financially Distressed Firms

<table>
<thead>
<tr>
<th>Bank credit (normalized)</th>
<th>Nondistressed firms</th>
<th>Distressed firms</th>
<th>Significance of difference in concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td>Mean</td>
<td>Percentage</td>
</tr>
<tr>
<td></td>
<td>of sample</td>
<td>Median</td>
<td>of sample</td>
</tr>
<tr>
<td>BC/sales (percent)</td>
<td>182</td>
<td>83.5</td>
<td>16.5</td>
</tr>
<tr>
<td>Mean</td>
<td>6.27</td>
<td>15.1</td>
<td>**</td>
</tr>
<tr>
<td>Median</td>
<td>6.03</td>
<td>22.0</td>
<td>**</td>
</tr>
<tr>
<td>BC/L (million rubles)</td>
<td>177</td>
<td>83.6</td>
<td>16.4</td>
</tr>
<tr>
<td>Mean</td>
<td>0.297</td>
<td>0.391</td>
<td>20.5</td>
</tr>
<tr>
<td>Median</td>
<td>0.347</td>
<td>0.500</td>
<td>22.0</td>
</tr>
</tbody>
</table>

Note: Significance levels: * = 5 percent level; ** = 1 percent level; *** = 0.1 percent level. No star = not significant at 5 percent level. Means: t-tests of log values. Medians: Wilcoxon rank-sum tests of log values.

and so we adopt the procedure used in that chapter. We normalize bank credit by a size variable (for example, sales), and then calculate the concentration of normalized bank credit in financially distressed firms. As a check for the robustness of our results, we calculate four sets of results: first using the mean of normalized bank credit, and then again using the median; we do this first normalizing by sales and then normalizing by employment. The statistical tests of whether bank debt is concentrated in financially distressed firms are tests of the significance of the difference between the mean (median) levels of normalized bank credit in the distressed and nondistressed samples. The analysis above (including the statistical tests) is limited to firms with some bank debt; firms with zero bank debt are excluded (for more details, see chapter 4). The results are presented in table 5-5.

We find some evidence that bank debt is concentrated in financially distressed firms. These firms make up 16 percent of all firms with bank credit. When we normalize bank credit by sales, we find that these firms would account for 32-42 percent of total bank credit: that is, double their
The large holdings of bank credit in these firms in relation to their sales is statistically significant at the 1 percent level, both for means and medians. When we normalize by employment rather than sales, however, we do not find any concentration of bank debt in distressed firms, and the bank credit/employment ratio in these firms does not differ in a statistically significant manner from nondistressed firms. We note here that AlFandari and Schaffer report (see chapter 4) that what is significantly concentrated in these distressed firms is tax arrears. We note also that they present results showing that financial distress in the surveyed firms demonstrates a statistically significant correlation with both the presence and the volume of overdue bank debt. This last finding suggests that data on overdue bank debt may indeed be a useful indicator of the scale and trends in the bad debt problem in Russia, despite the rollover problem.

We note that studies for other transition countries (Bonin and Schaffer 1995 for Hungary; Gomulka 1994 for Poland; World Bank 1993a for Romania) have found high degrees of concentration of bank debt in “bad” firms. Our results on concentration are not as strong, and this leads us to ask whether one reason for this may be that perhaps a large bad debt problem is still to emerge fully in Russia, and that the frequency of rollovers and the like noted above reflects both a general problem of a soft banking system and truly bad debt held by distressed firms. One reason that the bad debt problem may not yet have fully emerged is that subsidized credit with highly negative real interest rates in the past may cause the volume of total bank debt in financially distressed firms to grow less quickly, or even to fall in real terms. This would suggest that the full bad debt problem may emerge only after subsidized credits have been phased out for some time and real interest rates have risen.

Because overdue bank debt may be a useful indicator of genuinely bad debt, it is of interest to look at the characteristics of firms that hold this debt. We do this by estimating a series of logit regressions in which the dependent variable is a 1/0 variable, = 1 if the firm has a “significant” volume of overdue bank debt (defined as greater than 2 percent of annualized sales), = 0 if not; about 12 percent of the sample has a significant volume of overdue bank debt thus defined. We run two logits for each characteristic we investigate: in the first the only independent variable is the characteristic of interest; in the second we re-run the regression, add-
Table 5-6. Characteristics of Firms with Significant Amounts of Overdue Bank Credit

<table>
<thead>
<tr>
<th>Item</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (log employment)</td>
<td>+</td>
</tr>
<tr>
<td>Financial distress (yes/no) (&quot;Usually a loss-maker&quot;)</td>
<td>++</td>
</tr>
<tr>
<td>Overdue payables to suppliers as percentage of sales</td>
<td>++</td>
</tr>
<tr>
<td>Overdue tax payables as percentage of sales</td>
<td>++</td>
</tr>
<tr>
<td>Arrears to workers (wage arrears) as percentage of sales</td>
<td>++</td>
</tr>
<tr>
<td>Change in real sales 1993-94.H1 (deflated nominal sales)</td>
<td>- -</td>
</tr>
<tr>
<td>Shareholder in bank (yes/no)</td>
<td>0</td>
</tr>
<tr>
<td>Major shareholder in bank (yes/no)</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Significant amounts of overdue bank credit: in excess of 2 percent of annuclized sales. Factor is associated firm holding (+) / not holding (-) overdue bank credit. Results come in pairs. The first result is the significance level of the independent variable in a simple logit procedure with the presence of bank credit as the dependent variable. The second result is the significance level of the independent variable after adding industry dummies and a size variable (log employment). ++ = Significant at 1 percent level, positive coefficient. + = Significant at 5 percent level, positive coefficient. 0 = Statistically insignificant at 5 percent level. - = Significant at 5 percent level, negative coefficient. -- = Significant at 1 percent level, negative coefficient. A small number of outliers with very high overdue payables of different categories were excluded from the tests involving these variables.

The picture that emerges is one of large, financially troubled finns. Firms with significant amounts of overdue bank credit tend to be large, to usually be loss-makers, to have arrears toward other creditors (suppliers, the tax collector, and their own workers), and to have experienced recent output falls that were larger than average. Shareholding in the lending bank does not appear to be correlated with holding overdue bank debt. Variation across branches (results not reported here) also shows no correlation; these firms are roughly evenly scattered across industrial sectors.
Bank Credit Supply and Demand

Firms in the survey were asked about the ease of obtaining short-term and long-term bank credit (see Table 5-7). Two-thirds of the sample said they found it very easy or fairly easy to obtain short-term credit. The situation with long-term bank credit was quite different: about three-quarters said they found it difficult or impossible to obtain long-term loans. Again, there was relatively little variation by ownership; de novo firms found it as easy, and as difficult, to obtain bank loans as the rest.

By far the most common problem in obtaining bank loans, according to firms, was the cost of the loan (see Table 5-8). Other common problems were banks' unwillingness to lend in a period of high inflation (long-term loans only), the financial situation of the firm, and inadequate collateral. Surprisingly, de novo firms were not faced with this last problem much more often than other firms—19 percent said inadequate collateral was a problem in obtaining short-term loans, compared with 14 percent for the total sample, and there was virtually no difference at all in long-term loans.

The response of firms to these perceived obstacles is twofold. First, they say they are relying primarily on retained earnings to fund any fixed investment (just as Western firms usually do, by the way); and second, they continue to hope for (subsidized) state credits for their investment needs. Thus, of the firms intending to engage in fixed investment, 71 percent said they would use retained earnings to finance it in whole or in part, compared with 41 percent who said they would use DSCs, and only 30 percent who would use commercial bank credit. Similarly, firms' most

<table>
<thead>
<tr>
<th>Response</th>
<th>Short-term bank credit on commercial terms</th>
<th>Long-term bank credit on commercial terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very easy</td>
<td>34</td>
<td>12</td>
</tr>
<tr>
<td>Fairly easy</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>Fairly difficult</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Very difficult</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>Impossible</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 5-8. Main Problems in Obtaining Bank Loans
(percentage of firms citing factor)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Short-term loans</th>
<th>Long-term loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks don't have enough money</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Size of loans too small</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Poor financial situation of firm</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>High interest rates, loans too expensive</td>
<td>73</td>
<td>60</td>
</tr>
<tr>
<td>Lenders prefer clients with large deposits</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Banks prefer better-known, established clients</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Banks unwilling to lend because of high inflation</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Inadequate collateral</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Bank rejects investment projects</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Lack of personal contacts with bank managers</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Regulations and paperwork</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Hard to say</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>No problems in obtaining bank loans</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

commonly cited obstacle to fixed investment (after high interest rates; that is, the cost of credit) was their inability to obtain DSCs. The most commonly requested form of government assistance (after tax breaks) was credit on preferential terms.

We turn now to an analysis of the factors affecting the supply of credit. It is possible to identify the supply curve for credit through the survey data because we have firms’ estimates of the ease of obtaining credit. We follow Pinto and Van Wijnbergen (1994) by using an ordered logit procedure, with firms’ estimates of the ease of obtaining credit as the dependent variable. We estimate the equation with a variety of independent variables, each tried separately. In each case, we estimate the equation first with the single independent variable on its own, and then again, adding industry dummies and a size variable (log employment) to control for size effects (bargaining power, for example). The results are summarized in table 5-9.

We find some evidence that creditworthiness of the borrower is a factor determining the supply of credit; the banking system has some hardness in it. Firms in financial distress (chronic loss-makers) do find it significantly more difficult to obtain short-term bank credit, even when
controlling for size and industry, but they find it no tougher to obtain long-term bank credit than other firms. (We use this "financial distress" indicator rather than the profitability figures reported by firms because of severe data problems with the latter.) The volume of overdue bank credit (overdue credit as a percentage of sales) shows no connection to the supply of credit. It appears that this is because what does matter is the presence of overdue bank credit (the actual volume seems not to matter). Firms with significant (greater than 2 percent of sales) overdue bank credit do find it more difficult to obtain short-term bank credit. The most important financial variable affecting the ease of obtaining both short-term and long-term bank credit is past history of payments difficulties—firms that failed to service or repay bank debt in the past find it significantly more difficult to obtain either short-term or long-term bank credit now.

We noted earlier that firms were commonly part-owners of their lending banks. Somewhat surprisingly, this apparently does not translate into greater ease in obtaining bank credit. Being a shareholder—even a major shareholder—does not significantly correlate with a greater ease in obtaining either kind of bank credit (in one case the relationship is perverse: when we control for industry and firm size, we find that shareholding firms find it more difficult to obtain long-term bank credit, not easier). This lack of effective influence is also reflected in the actual volumes of borrowings and in the interest rates paid. Shareholders do not have larger bank loans (in relation to sales, total liabilities, or employment) compared with nonshareholders, nor are they granted more favorable repayment terms. Similarly, a bank holding shares in the firm is not associated with easier access to credit (again, cross-holding is, if anything, associated with more difficult access). There is some weak evidence that firms in which nonbank domestic financial institutions hold shares have easier access to short-term credit. The causality is unclear, however—the evidence is consistent with investment funds placing holdings in creditworthy firms as well as with possible (indirectly) connected lending.

Larger firms do not have an advantage in garnering loans; log employment is not correlated with easier bank credit. Past access to bank credit is also not correlated with current access. With respect to ownership groups, there is some indication that state-owned firms find it easier to obtain long-term bank credit when we control for size and industry. One possibility is that this may reflect banks' assessment of the long-term
riskiness of investing in private or privatized firms, where the results of expected restructuring are difficult to predict; another is that state-owned firms have better access to (implicit or explicit) government guarantees on their lending. De novo firms, by contrast, find it no more (or less) difficult than privatized firms to obtain bank credit, an encouraging finding.

Identification of the demand for credit is more problematic. We limit ourselves here to looking for signs that adverse selection is operating, and bad firms rather than good firms are taking up bank credit. We use a simple approach and ask which factors are associated with firms holding any bank credit at all. The analysis is similar to the earlier strategy: we run two sets of logit regressions of whether the firm has any bank credit (1 = yes, 0 = no) on characteristics of interest, first without, and then with, industry dummies and a size variable. The results are reported in table 5-10.

The findings suggest that firms that do hold bank credit are more troubled than the average. They tend to be larger; more often loss-making; with larger overdue payables to suppliers, government (tax arrears), and their own workers; and with larger-than-average recent declines in output. There is no correlation with ownership—in particular, de novo firms are no more unlikely (or likely) to have a bank loan, confirming our earlier observations. These results are robust to inclusion of industry and size variables in the regressions. The last finding about new private firms aside, the results are worrisome and suggest that adverse selection may be operating in the Russian bank credit market—too many “bad” firms are borrowers.

Banks’ Influence on Enterprise Decisions

In this section we examine briefly, from the perspective of the enterprise managers, whether banks influence enterprise decisions—and if they do, in which areas—either as creditors or as shareholders. When managers were asked to rate the influence of different actors, including banks, on various categories of enterprise-level decisions (operational, employment-related, and financial), relatively few enterprises indicated that banks had any major influence. Management (according to managers) overwhelmingly dominates enterprises across all kinds of decisions.

Nevertheless, a significant 23 percent of enterprises responding indicated that banks had a moderate or great influence in decisions concern-
Table 5-9. Factors Affecting the Supply of Bank Credit, Ordered Logit Results

<table>
<thead>
<tr>
<th>Factor</th>
<th>Short-term bank credit</th>
<th>Long-term bank credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial distress (yes/no) (&quot;Usually a loss-maker&quot;)</td>
<td>--</td>
<td>0</td>
</tr>
<tr>
<td>Overdue bank credit as a percentage of sales</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Overdue bank credit greater than 2 percent of annual sales (yes/no)</td>
<td>--</td>
<td>0</td>
</tr>
<tr>
<td>Failed to service or repay bank loan on time in last two years (yes/no)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Shareholder in bank (yes/no)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Major shareholder in bank (yes/no)</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>A bank holds shares in the firm (yes/no)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A nonbank domestic financial institution holds shares in the firm (yes/no)</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>Bank exerts influence on enterprise decisions</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Obtained a bank loan in the last two years (yes/no)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Size (log employment)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ownership group (relative to “privatized,” 64 percent of sample)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>State-owned (26 percent of sample)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>De novo (newly established private firm, 11 percent of sample)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Factor is associated with bank credit being easier (+) / harder (-) to obtain. Results come in pairs. The first result is the significance level of the independent variable in a simple ordered logit procedure with the ease of obtaining bank credit as the dependent variable. The second result is the significance level of the independent variable after adding industry dummies and a size variable (log employment). ++ = Significant at 1 percent level, positive coefficient. + = Significant at 5 percent level, positive coefficient. 0 = Statistically insignificant at 5 percent level. - = Significant at 5 percent level, negative coefficient. -- = Significant at 1 percent level, negative coefficient. A small number of outliers with very high overdue bank credit/sales ratios were excluded from the tests involving this variable.

a. See section entitled "Banks’ Influence on Enterprise Decisions."
Table 5-10. Which Firms Hold Bank Credit?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (log employment)</td>
<td>++</td>
</tr>
<tr>
<td>Financial distress (yes/no) (“Usually a loss-maker”)</td>
<td>++</td>
</tr>
<tr>
<td>Overdue payables to suppliers as a percentage of sales</td>
<td>++</td>
</tr>
<tr>
<td>Overdue tax payables as a percentage of sales</td>
<td>++</td>
</tr>
<tr>
<td>Arrears to workers (wage arrears) as a percentage of sales</td>
<td>++</td>
</tr>
<tr>
<td>Log change in real output 1993–94.H1</td>
<td>– –</td>
</tr>
</tbody>
</table>

Ownership group (relative to “privatized,” 64 percent of sample)

<table>
<thead>
<tr>
<th>Ownership group</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-owned (26 percent of sample)</td>
<td>0</td>
</tr>
<tr>
<td>De novo (newly established private firm, 11 percent of sample)</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Factor is associated with bank credit being held (+) / not being held (–).

Results come in pairs. The first result is the significance level of the independent variable in a simple logit procedure with the presence of bank credit as the dependent variable. The second result is the significance level of the independent variable after adding industry dummies and a size variable (log employment). ++ Significant at 1 percent level, positive coefficient. + Significant at 5 percent level, positive coefficient. 0 Statistically insignificant at 5 percent level. – Significant at 5 percent level, negative coefficient. – – Significant at 1 percent level, negative coefficient. A small number of outliers with very high overdue payables of different categories were excluded from the tests involving these variables.

ing sales or production, and about 17 percent noted that banks had some influence in financial decisions generally. Fewer than 10 percent of the enterprises indicated influence of banks in employment-related decisions, with little difference between kinds of employment (management or workers). The relatively high frequency of bank influence on enterprise decisions regarding sales and production is interesting. The importance banks attach to the sales and production decisions of enterprises may be a reflection of the short-term nature of the majority of bank loans.

There are no significant differences in bank influence among ownership groups, with the exception of de novo enterprises (see table 5-11). A
Table 5-11. Bank Influence on Decisions of Enterprises (percent)

<table>
<thead>
<tr>
<th>Factor</th>
<th>No influence</th>
<th>Some influence</th>
<th>No influence</th>
<th>Some influence</th>
<th>No influence</th>
<th>Some influence</th>
<th>No influence</th>
<th>Some influence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sales, production, marketing, operations</td>
<td>Worker employment and benefits</td>
<td>Management employment</td>
<td>Profits, investments, financial issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State-owned</td>
<td>84</td>
<td>16</td>
<td>94</td>
<td>6</td>
<td>94</td>
<td>6</td>
<td>83</td>
<td>17</td>
</tr>
<tr>
<td>Privatized</td>
<td>75</td>
<td>25</td>
<td>92</td>
<td>8</td>
<td>93</td>
<td>7</td>
<td>84</td>
<td>16</td>
</tr>
<tr>
<td>De novo private</td>
<td>73</td>
<td>27</td>
<td>86</td>
<td>14</td>
<td>86</td>
<td>14</td>
<td>78</td>
<td>22</td>
</tr>
<tr>
<td>$L \leq 200$</td>
<td>77</td>
<td>23</td>
<td>91</td>
<td>9</td>
<td>91</td>
<td>9</td>
<td>81</td>
<td>19</td>
</tr>
<tr>
<td>$200 &lt; L \leq 1,000$</td>
<td>74</td>
<td>26</td>
<td>90</td>
<td>10</td>
<td>92</td>
<td>8</td>
<td>87</td>
<td>13</td>
</tr>
<tr>
<td>$1,000 &lt; L \leq 5,000$</td>
<td>79</td>
<td>21</td>
<td>94</td>
<td>6</td>
<td>94</td>
<td>6</td>
<td>82</td>
<td>18</td>
</tr>
<tr>
<td>$5,000 &lt; L$</td>
<td>95</td>
<td>5</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>86</td>
<td>14</td>
</tr>
<tr>
<td>Bank is not shareholder</td>
<td>79</td>
<td>21</td>
<td>93</td>
<td>7</td>
<td>93</td>
<td>7</td>
<td>84</td>
<td>16</td>
</tr>
<tr>
<td>Bank is shareholder</td>
<td>44</td>
<td>56</td>
<td>100</td>
<td>0</td>
<td>88</td>
<td>13</td>
<td>59</td>
<td>41</td>
</tr>
<tr>
<td>No bank loan(s)</td>
<td>80</td>
<td>20</td>
<td>94</td>
<td>6</td>
<td>93</td>
<td>7</td>
<td>88</td>
<td>12</td>
</tr>
<tr>
<td>Bank loan(s)</td>
<td>77</td>
<td>23</td>
<td>93</td>
<td>7</td>
<td>93</td>
<td>8</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>No overdue bank debt</td>
<td>82</td>
<td>18</td>
<td>97</td>
<td>3</td>
<td>97</td>
<td>3</td>
<td>89</td>
<td>11</td>
</tr>
<tr>
<td>Some overdue bank debt</td>
<td>72</td>
<td>28</td>
<td>88</td>
<td>12</td>
<td>89</td>
<td>11</td>
<td>77</td>
<td>23</td>
</tr>
<tr>
<td>Enterprise not shareholder in bank</td>
<td>76</td>
<td>24</td>
<td>91</td>
<td>9</td>
<td>92</td>
<td>8</td>
<td>83</td>
<td>17</td>
</tr>
<tr>
<td>Enterprise is shareholder in bank</td>
<td>78</td>
<td>22</td>
<td>95</td>
<td>5</td>
<td>93</td>
<td>7</td>
<td>77</td>
<td>23</td>
</tr>
</tbody>
</table>

Note: $L$ represents employment.
significantly higher share of de novo enterprises indicated that banks have some influence on decisions, including employment decisions. These results are interesting, given that de novo enterprises do not have higher shares of commercial bank loans and have very little in the way of cross-shareholdings with banks. Differences among the size groupings are minor except for the largest of enterprises, where banks seem to have almost no influence, with the exception of financial decisions. The slightly higher degree of influence by banks on the smaller and de novo enterprises may reflect the lack of access of most of these enterprises to directed credits, which will lead them to rely more, everything else being equal, on commercial banks for their financing. As we saw earlier, de novo enterprises also tend to use bank loans for investment more than other enterprises, and thus tend to have a higher share of longer-term loans from banks. Both of these factors would, ceteris paribus, increase the influence of banks over short-term operational decisions and investment decisions.

While bank shareholding in enterprises is rare, as indicated above, it seems to be a better indicator of banks' influence on enterprises than bank loans. A significantly higher share of enterprises with some bank shareholders indicated that banks influence their decisions than did enterprises without any shareholding by banks. Their influence is focused on operational or financial decisions. Virtually no influence on decisions related to worker employment is reported, and only a small percentage of enterprises indicated moderate influence in management employment decisions. Enterprises with loans from commercial banks, in contrast, were no different from enterprises without commercial bank loans in terms of influence. Comparing composite influence by banks (an average over the different categories) to share of total bank liabilities relative to sales, employment, and total liabilities, we find no statistically significant relationship between bank influence and the volume of lending, however normalized. Similarly, we find no relationship between bank influence and ease of obtaining either short-term or long-term credit.

It is interesting to note that enterprises with a history of repayment difficulties report a significantly higher degree of influence by banks in their decisions. For this group of enterprises, banks again exert more influence on their decisions regarding sales, production, the allocation (use) of profits, and other financial matters. This seems natural, because banks with loans to such enterprises should be first and foremost concerned with the repayment of their (mostly short-term) loans.
Concluding Remarks and Some Policy Implications

In this section, we provide a brief summary of our main findings and sketch out some of the policy implications of these findings. Our main findings are as follows.

- Most bank loans are short-term and collateralized. Nevertheless, the value of collateral is questionable in practice: despite the high frequency with which enterprises fall into arrears with their banks, no firm reported that their bank attempted to take possession of the collateral.

- The current bad debt problem does not seem to be as strongly concentrated in the bad or financially distressed firms as it is in other transition economies in Eastern and Central Europe.

- A large portion (about one-quarter) of firms' total liabilities to banks is overdue. Most of this has been overdue for three months or less, indicating an ongoing flow of overdue bank credit.

- It is very common for firms to fall into arrears with their banks, and the nearly universal outcome in such cases is the capitalization of overdue interest and the rescheduling of principal. Most enterprises report they can obtain (short-term) bank credit on commercial terms with relative ease.

- The ease of obtaining bank credit is positively related to the creditworthiness of the borrower, a sign that the banking system is not completely soft, and that at least some banks are sometimes evaluating the creditworthiness of their customers when making lending decisions.

- There are signs of adverse selection operating; firms that do hold bank debt tend to be financially less healthy than the average across a wide range of measures.

- While the number of enterprises that hold shares in banks is significant (about half of the firms in the survey), most enterprises are only minority shareholders and they do not seem to have much impact on credit allocation.

- From the point of view of enterprise managers, banks as creditors generally do not have much influence on major enterprise decisions. Nevertheless, banks do seem to exert some influence on ma-
jor enterprise decisions when they are shareholders, although banks do not usually hold shares in enterprises.

These findings taken together indicate that despite the recent rapid development in the banking system in Russia, the banks are still soft in their dealings with enterprises, and banks as creditors do not exert much influence on enterprise decisions.

The continued softness of the banks with enterprises has serious implications for both enterprise restructuring and the soundness of the banking system. The relative ease with which enterprises can obtain loans from the banks and the frequent rollovers of interest and principal payments soften the financial discipline of enterprises and slow their restructuring. As direct government financial assistance to enterprises is reduced, enterprises will increasingly turn to the commercial banks for their financing needs. While this is a healthy development in terms of getting the government out of the business of financing enterprises, it also increases the risks to the banking system.

The combination of the softness of banks as creditors and the influence they exert on enterprises as shareholders has serious implications for both the enterprise sector and the banking system. While the current bad debt problem does not seem to be very concentrated in "bad" firms, it is likely to become more severe as the economy stabilizes. As inflation comes down and real interest rates rise, capitalization of interest payments and the rescheduling of principal are likely to increase significantly, as was the case in most Central and Eastern European economies. The increases are likely to be more substantial the "softer" the banks. The emergence of active banks in our survey has been prompted by equity-holding in firms. Given the underdevelopment of the Russian banking system and its relatively small capital base, this is a double-edged sword and raises serious issues about prudential regulation and the soundness of the banking system. As banks become shareholders of more enterprises, they will be subject to increasingly higher risks, both as creditors and as shareholders. As more enterprises become financially distressed and insolvent, banks will not only lose through bad loans, but may also lose their capital as shareholders in the enterprises. This will have serious implications for the soundness of the banking system and calls for enhanced prudential regulations and an improved capital base for banks.
References


Notes

1. More detailed analyses of the Russian banking system can be found in World Bank 1993b, Belyanova and Rozinsky 1995, and Rautava 1996.

2. See World Bank 1993b. In practice, the situation is unclear, and often bank management as well as the recipient enterprises consider the bank merely as a government agency disbursing government funds.

3. If we consider average shareholdings in the overall sample (that is, we include firms that reported zero bank and institutional shareholdings), banks held, on average, 1 percent of shares, and domestic financial institutions held 4 percent.

4. These reschedulings refer only to those following a missed interest or principal payment or payments. Reschedulings contracted between the bank and a firm that has successfully serviced its debt so far—for example, in order to adjust the repayment schedule to reflect high or changing inflation rates, or because the firm is in financial difficulties and is about to miss a payment—are not included.

5. Some firms in the sample with overdue bank debt state that the figures do not include interest arrears, but it is not clear if this is because interest hasn’t been charged. When we considered only firms that said they included interest arrears in the figures they reported, we obtained a similar figure for the percentage of total bank liabilities overdue.

6. This is analogous to Russian (and indeed international) payment practices with respect to suppliers (trade credit); customers usually pay their suppliers, but late. See chapter 4 in this volume.

7. The bias results from the definition of profit as revenues from sales of goods minus the costs of the inputs embodied in the goods; the increase in the general price level between the time of purchase of the inputs and the time the final output was sold generates “paper profits.”
Government Financial Transfers to Industrial Enterprises and Restructuring
Gilles Alfandari, Qimiao Fan, and Lev Freinkman

Most Eastern European countries have launched market reforms with a relatively high volume of government financial transfers to the enterprise sector (Balcerowicz and Gelb 1994). Reducing these transfers was one of the major challenges for the governments of the region in their efforts to stabilize their economies. In Russia, the scale of this problem at the beginning of the market transformations in 1992 was much more severe than anywhere in Eastern Europe. Total federal government financial transfers to the enterprise sector amounted to more than 30 percent of GDP in 1992 (World Bank 1993). Despite a significant reduction in 1993, total federal government financial transfers to the enterprise sector were still at about 6-7 percent of GDP in 1994 (World Bank 1995), which is much higher than the level achieved in other transition economies at the end of the first year of their transition. In addition, the system of government financial transfers remains complex, extremely opaque, and badly targeted in Russia (Freinkman 1994; World Bank 1995). The continued flow of gov-

We thank Simon Commander, Mark E. Schaffer, and other participants of the conference for their useful comments. We are particularly grateful to Stijn Claessens, Alan Gelb, and Martha De Melo for stimulating discussions on earlier versions.
Government financial transfers to the enterprise sector has been a major source of fiscal deficit in the Russian economy. While it is often argued that government financial transfers have been an important factor affecting the behavior of enterprises in Russia (see, for example, Alfandari 1995; Fan and Schaffer 1994; World Bank 1993, 1995), there has been little empirical work on the issue at the microeconomic level.

Based on the World Bank survey of 439 Russian industrial enterprises, we will try to answer two related questions in this chapter. First, who are the recipients of government financial transfers in the Russian industrial enterprise sector, and what helps them obtain financial transfers (what, if any, was the government’s objective function)? Second, what is the relationship between financial transfers and enterprise performance?

Overview

The World Bank survey of 439 Russian industrial enterprises shows that a substantial portion of these enterprises still receive at least one form of government financial transfers. According to the respondents, some financial transfers were received by 24 percent of the sample in 1992, 34 percent in 1993, and 24 percent in 1994. These are extremely high percentages compared with those in the most reformed Eastern European countries, where the enterprise sector was largely subsidy-free by the end of the third year of transition (Schaffer 1995). These ratios are, however, of comparable size to those in more slowly reforming countries such as Romania and Bulgaria (Claessens and Peters 1996). As we shall see below, even these high percentages may underestimate the extent of government financial transfers to the enterprise sector in Russia.

The allocation of transfers across enterprises within the sample has been very stable since 1992. Being a recipient one year strongly increases one’s chances of being a recipient during the following period—169 enterprises (41 percent of those answering the corresponding questions) acknowledged that they had received transfers at least once during 1992–94. Among those, 61 enterprises (38 percent of the recipients) were recipients every year, and 57 enterprises, or 33 percent, received financial assistance twice during these three years. The stability is even stronger in the largest recipient-sectors: two-thirds or more of all recipients in the defense, energy, and heavy machinery sectors received subsidies every year (that is, on a regular basis).
The large number of recipients in the sample thus provides a reason-
ably good basis for an empirical analysis of the issues concerning govern-
ment financial transfers. There are, however, a number of reasons to
suspect that the survey underestimates the actual number of recipients, as
well as the actual volume of financial transfers. Only 75–85 percent of the
enterprises that reported receiving some form of government financial
transfers provided figures on the current amount. In what follows, we
discuss some of the reasons for, and the extent of, underreporting of gov-
ernment financial transfers in our sample.

In most countries, the issue of government financial transfers is a very
sensitive one for enterprise managers. This is particularly true in Russia,
where the system of subsidies remains extremely opaque. It is therefore
very plausible that managers of enterprises that have received large gov-
ernment financial transfers would have a higher propensity to refuse to
participate in the survey. Enterprises were originally selected randomly
for the survey, but some managers refused to participate. Although the
replacement enterprises were selected through a similar random process,
the final sample may be biased toward enterprises that have not received
government financial transfers, or at least have not received any substan-
tial amount. For similar reasons, managers may have a tendency to skip
questions about financial transfers and to underestimate the actual
amounts received. Because the system is not transparent, open acknow-
ledgment of receiving some transfers might decrease the chances of re-
ceiving similar transfers in the future, or of receiving transfers through
other channels. In addition, the multitude of channels through which a
large number of programs operate, often in an implicit form, makes it dif-
ficult for the enterprises to make an accurate account of the total amount
of financial transfers received. Thus, answers might not be accurate even
when managers do not intend to underreport figures. Furthermore, given
the large number of intermediaries involved in the distribution process
and the substantial delays in the allocations reaching the enterprises,
there would be a significant difference between the aggregate figures at
the macroeconomic level and the survey aggregates, even without under-
reporting.

Another, related, problem is the impact of inflation on the real value
of financial transfers. We do not usually have information on exactly
when during the year enterprises received their financial transfers. Be-
cause of the high level of inflation, the real value of the same nominal
amount of financial transfers will differ considerably over time. This will not only make the time comparisons more difficult, but will also weaken comparisons across enterprises in a given year (unless one assumes that most of the enterprises receive their transfers at approximately the same time). Because of this problem, we will use qualitative variables in addition to quantitative ones.

Our results suggest that the survey indeed underestimates the level of financial transfers to the industrial enterprise sector. This is especially so for the largest enterprises (measured by the size of employment). We can compare the information given in our sample by some of the largest enterprises with the results of previous work on directed credits and individual benefits granted to enterprises (Freinkman 1994). The information for the earlier study was collected from the government agencies in charge of allocation of directed credits and from governmental and presidential decrees that had granted benefits to large enterprises on a case-by-case basis. The study identified 150 of the largest recipient-enterprises of directed credits and individual benefits in industry, transportation, distribution, and construction in 1992 and 1993. Based on the share of enterprises in the World Bank survey in total industrial output (9.1 percent in 1992 and 5.9 percent in 1993), one would expect approximately eight to ten enterprises identified as large recipients in the earlier study to be in the sample. It was found, however, that only six enterprises in the survey were among the largest recipients from the previous study. This suggests that some of the largest recipient-enterprises of government financial transfers may indeed have refused to participate in the World Bank survey and that the sample is downward biased toward enterprises that have not received substantial transfers.

Furthermore, even in the cases of the six largest recipients that participated in our survey, it is likely that the actual size of government financial transfers is underestimated. Based on official information, these six, among the most well-known and influential Russian industrial enterprises, together received about 0.3 percent of GDP in various forms of financial transfers in 1992 (including tax exemptions) and 0.05 percent of GDP in 1993. Based on information from the survey, however, two of these six enterprises stated that they did not receive any transfers, two others confirmed that they were recipients only in 1994, and one said that it had received some transfers but did not provide a quantitative answer—only one enterprise provided data that were similar to those col-
Table 6-1. Average Size of Enterprises by Groups, 1994

<table>
<thead>
<tr>
<th>Measure</th>
<th>Overall sample</th>
<th>Recipients listing current amount of transfers</th>
<th>Recipients not listing current amount of transfers</th>
<th>Nonrecipients</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment (thousands)</td>
<td>1.9</td>
<td>2.9</td>
<td>5.3</td>
<td>1.4</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>[386]</td>
<td>[90]</td>
<td>[13]</td>
<td>[269]</td>
<td>[14]</td>
</tr>
<tr>
<td>Output (billion rubles)</td>
<td>22.8</td>
<td>12.9</td>
<td>38.1</td>
<td>25.7</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>[343]</td>
<td>[83]</td>
<td>[10]</td>
<td>[239]</td>
<td>[11]</td>
</tr>
</tbody>
</table>

Note: Numbers in brackets represent number of observations.

lected from the government. Table 6-1 shows that the enterprises that reported they had received government financial transfers—but did not provide a quantitative answer—have much higher average employment and output levels than any other group of enterprises in the sample.

In sum, it appears that the largest enterprises are very likely to under-report their actual level of government financial transfers. Nevertheless, this downward bias in the sample should not undermine our main conclusions. Indeed, as we shall see later, there is a strong positive correlation between employment and the volume of government financial transfers. Consequently, if anything, both the underrepresentation of the largest recipients and the underreporting by some of the largest enterprises in the sample would further strengthen our main conclusions. Underreporting also implies that the actual concentration of government financial transfers among the largest enterprises may be even higher than our sample estimates would suggest.

Even given the significant underestimation within the sample, government financial transfers, on average, are estimated from the survey at 1.2 percent of output in 1992, 2.1 percent in 1993, and 0.8 percent in 1994. For the group of the largest recipients, this ratio was about 4 percent in 1992 and more than 6 percent in 1993 and 1994. On average, transfers received per employee in the sample amounted to 31.8 thousand rubles in 1992, the equivalent of more than 4.5 times the monthly average wage in industry. In 1993 the average government financial transfers per employee
dropped substantially, to 81.6 thousand rubles in current prices, or 1.3 times the average monthly wage.

The Nature of Government Financial Transfers

Table 6-2 and figure 6-1 present the structure of government financial transfers by type, based on the survey data. It is interesting to note (table 6-2) that the traditional, most explicit kind of transfers—budget subsidies and investment grants—accounted for only a small share of total government financial transfers. Together they represented only 15-25 percent of the total during the three periods. Directed credits were by far the largest and most important of all financial transfers to enterprises, accounting for more than one-third of total transfers in all three periods. Another important category of government financial assistance to enterprises was tax benefits, which accounted for between 16 and 34 percent of the total during the three periods. Transfers from sectoral extrabudgetary funds (EBFs) constituted another significant source of government financial assistance to enterprises, with a share ranging from 6 percent of total transfers in the first half of 1994 to a very high 21 percent in 1993. Sectoral EBFs were a legacy of the former socialist system and had been utilized by sectoral ministries to centralize and redistribute a significant portion of investment funds (Delyagin and Freinkman 1993). Transfers classified as “other” include mainly transfers from local government budgets, and they exceeded 10 percent of total transfers in both 1993 and 1994. Local budget transfers to industrial enterprises (that is, excluding housing, public transportation, and agricultural enterprises) are among the most poorly recorded kinds of government assistance and have been increasing. They are estimated from the survey at about 0.5 percent of GDP in both 1993 and 1994, or 11-13 percent of the total government transfers to the industrial enterprises.

These results differ significantly from the structure of financial transfers at the macroeconomic level, as indicated, for example, by aggregate data for 1993. On the one hand, the survey seems to overestimate the relative share of direct subsidies from the budget (10 percent of total flows compared with 3 percent at the macroeconomic level), of directed credits for investment and conversion (12 percent and 8 percent, respectively, compared with 3 percent for both categories according to aggregate data), of transfers from extrabudgetary funds (22 percent compared with 10
<table>
<thead>
<tr>
<th>Type of transfer</th>
<th>Transfers per enterprise (nominal, million rubles)</th>
<th>Transfers per employee (thousand rubles)</th>
<th>Transfers per ruble produced (rubles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal budget subsidies</td>
<td>102</td>
<td>59</td>
<td>41</td>
</tr>
<tr>
<td>Federal investment grants</td>
<td>6</td>
<td>18</td>
<td>46</td>
</tr>
<tr>
<td>Tax benefits</td>
<td>24</td>
<td>185</td>
<td>306</td>
</tr>
<tr>
<td>Directed credits, conversion</td>
<td>5</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>Directed credits, investment</td>
<td>5</td>
<td>196</td>
<td>84</td>
</tr>
<tr>
<td>Directed credits, other</td>
<td>125</td>
<td>124</td>
<td>107</td>
</tr>
<tr>
<td>EBFs</td>
<td>82</td>
<td>1,838</td>
<td>621</td>
</tr>
<tr>
<td>Trade duty benefits</td>
<td>0</td>
<td>412</td>
<td>1,640</td>
</tr>
<tr>
<td>Other</td>
<td>157</td>
<td>438</td>
<td>508</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size (number of employees)</th>
<th>Transfers per enterprise (nominal, million rubles)</th>
<th>Transfers per employee (thousand rubles)</th>
<th>Transfers per ruble produced (rubles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101-350</td>
<td>44</td>
<td>54</td>
<td>115</td>
</tr>
<tr>
<td>351-800</td>
<td>8</td>
<td>153</td>
<td>218</td>
</tr>
<tr>
<td>801-1,500</td>
<td>152</td>
<td>575</td>
<td>775</td>
</tr>
<tr>
<td>1,501-5,000</td>
<td>134</td>
<td>1,227</td>
<td>1,601</td>
</tr>
<tr>
<td>5,001-20,000</td>
<td>525</td>
<td>2,215</td>
<td>2,152</td>
</tr>
<tr>
<td>20,001-100,000</td>
<td>847</td>
<td>8,012</td>
<td>6,227</td>
</tr>
<tr>
<td>Total</td>
<td>508</td>
<td>3,317</td>
<td>3,372</td>
</tr>
<tr>
<td>Sector</td>
<td>4,000</td>
<td>7,040</td>
<td>4,189</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Electricity</td>
<td>760</td>
<td>7,600</td>
<td>6,124</td>
</tr>
<tr>
<td>Fuels</td>
<td>1,803</td>
<td>375</td>
<td>605</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>359</td>
<td>1,724</td>
<td>1,936</td>
</tr>
<tr>
<td>Chemicals</td>
<td>176</td>
<td>676</td>
<td>1,184</td>
</tr>
<tr>
<td>Heavy machinery</td>
<td>15</td>
<td>37</td>
<td>135</td>
</tr>
<tr>
<td>Machine-tool engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractors and agromachinery</td>
<td>259</td>
<td>4,036</td>
<td>2,559</td>
</tr>
<tr>
<td>Military-industrial complex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other machine-building</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood and paper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light industry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food processing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other industry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry association</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member</td>
<td>458</td>
<td>1,776</td>
<td>1,868</td>
</tr>
<tr>
<td>Nonmember</td>
<td>648</td>
<td>7,746</td>
<td>5,166</td>
</tr>
<tr>
<td>Investment plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has one</td>
<td>533</td>
<td>3,353</td>
<td>3,370</td>
</tr>
<tr>
<td>Does not have any</td>
<td>43</td>
<td>295</td>
<td>178</td>
</tr>
</tbody>
</table>

Note: Data in this table refer only to the population of recipient enterprises, and averages in shaded areas are weighted by the output of the corresponding year.
Figure 6-1. Structure of Financial Flows by Type of Transfer

**1992**
- Local budgets: 0.2%
- Federal budget subsidies: 19%
- Directed credits, others: 13%
- Federal investment grants: 5%
- Tax benefits: 34%

**1993**
- Local budgets: 13%
- Federal budget subsidies: 10%
- For trade duty benefits: 3%
- Federal investment grants: 4%
- Tax benefits: 20%
- Directed credits, others: 8%
- Directed credits, investment: 8%

**1994**
- Local budgets: 11%
- Federal budget subsidies: 9%
- For trade duty benefits: 21%
- Federal investment grants: 7%
- Tax benefits: 16%
- Directed credits, others: 8%
- Directed credits, investment: 14%
percent), and of subsidies from local budgets (13 percent in contrast to almost nothing, although aggregate local transfers increased considerably in 1994). On the other hand, the survey seems to underestimate the relative weight of tax exemptions (20 percent of total flows compared with 56 percent at the macroeconomic level).

Figure 6-1 also shows that some significant changes have taken place in the relative importance of the various kinds of government financial transfers over time. The share of federal budget subsidies declined from almost 18 percent of total transfers in 1992 to under 10 percent in the first half of 1994. By contrast, the share of directed credits increased from less than 25 percent in 1992 to more than 34 percent in the first half of 1994. With the reduction in overall federal government financial assistance, transfers from local government budgets have increased from almost zero in 1992 to more than 12–13 percent of the total in 1993 and 1994. One source of government financial assistance to enterprises that has maintained a stable relative share is tax exemptions (officially granted by the tax authorities, as opposed to tax arrears).

The coexistence of so many parallel channels of transfers, administered by different government agencies, makes effective monitoring of financial transfers difficult. With a large number of small transfers to many enterprises, it is difficult and expensive for the authorities to monitor the disbursement and final usage of the allocated funds in an effective way. At the same time, the existence of a large number of channels presents enterprises with ample opportunities for lobbying and for misuse of transfers. Our analysis shows that the number of individual transfer transactions in 1993 was 1.5 times that in 1992. It implies that the decline in the real value of the average transfer transaction is much faster than the fall in the real value of total transfers. As a result, the average size of transfers in Russia is too small to finance restructuring projects, and transfers are mainly used to cover enterprises' current losses.

The other implicit form of government financial transfers to enterprises is tax arrears. The survey provides information on the stock of tax arrears on 1 April 1994 only. Although the survey does not provide enough information for us to examine the flow of tax arrears, which constitute an implicit subsidy from the tax administration, Alfandari and Schaffer in chapter 4 of this volume, using Goskomstat data in connection with the information provided by the survey, estimate the flow of tax arrears in Russia at about 2 percent of GDP in 1994. This compares with the World Bank (1995) estimate of 6–7 percent of GDP for explicit finan-
cial transfers to the enterprise sector in 1994. In the context of the budget, tax arrears are very similar to heavily subsidized directed credits. One major difference between tax arrears and subsidized directed credits is that the choice of whether or not to run up arrears is essentially a decision of the enterprises; the government can only be a passive party in the process. Indeed, interest payments are charged, but in an uneven fashion, and penalties are far from being indexed to inflation.

Because we only have tax arrears data measured as a stock in the balance sheet in the survey, it is difficult to assess whether tax arrears have been a substitute for other, more explicit, forms of government financial transfers to enterprises. What is clear from our analysis of the survey is that more enterprises reported having tax arrears (36 percent of those who answered the corresponding question) than receiving government transfers (27 percent) in 1994. At the same time, the tax arrears/output ratio for the recipients of transfers averaged 9.0 percent, as opposed to 2.5 percent for nonrecipients, and 13.8 percent for the largest recipients.

There is no strong statistical evidence of a substitution effect between tax arrears and subsidies. This may be a product of the impact of the largest recipients, which are likely to be in deep financial distress, capable of using tax arrears as one more source of government financial assistance, in addition to other kinds of transfers they received. In other words, for this group of enterprises we might very well have complementarity between transfers and tax arrears. Unfortunately, the lack of flow data on tax arrears at the enterprise level does not allow us to test this.

From the 176 enterprises that answered the questions about receiving transfers and accumulating tax arrears in 1994, only 35 (19.9 percent) provided negative answers to both. In other words, only a minority of Russian enterprises are subsidy-free. The bulk of those who did not receive traditional transfers received implicit transfers in the form of tax arrears.

Concentration of Financial Transfers

This section examines whether there is any concentration of government financial transfers in a particular group of enterprises. We first turn to the sectoral distribution of subsidies, and refer in what follows to table 6-2 and figure 6-2. The fuel sector was the largest recipient of transfers, with a share amounting to about one-quarter of the total in 1993-94. Four sectors—fuel, electricity, defense-related, and chemical—received about 60 percent of the total in both years. Two sectors received the largest trans-
Figure 6-2. Sectoral Distribution of Financial Flows

1992

1993

1994
fers relative to their output: agricultural machinery and defense-related industry. Transfer/output ratios were 4 percent in agricultural machinery and 5.5 percent in the defense-related sector, while the average for the overall sample was less than 0.9 percent, and the average in fuel was of the same magnitude. Enterprises involved in the production of instruments and other subsectors of civilian machine-building are the sectors with the lowest level of subsidization.

Compared with macroeconomic data, these numbers show that the survey underestimates the relative share of fuel (50 percent of the total flow of transfers in 1993 at the macroeconomic level, compared with 23 percent in the survey for the same period). The survey, however, does not include the heavily subsidized coal sector. It also underemphasizes the relative weight of the food processing industry (12 percent of total transfers for the macroeconomic data, as opposed to 6 percent in the survey for the same period). By contrast, the share of total transfers observed in the survey is higher than at the aggregate level for the defense-related sector (14 percent compared with 9 percent), civilian machinery (13 percent and 7 percent), and electricity (9 percent and 7 percent).

The change in the real volume of transfers was also very uneven in 1993 compared with 1992. Some sectors with relatively high levels of subsidization (fuel, agricultural machinery, chemicals, and construction materials) received more transfers in 1993 than the year before. Light and food industries, characterized by subsidization levels close to the average, also increased their volume of transfers. Other sectors, including electricity, metallurgy, timber, and defense-related branches, received less by 2–7 times.

Figure 6-3 and table 6-2 provide some additional information on the sectoral pattern of financial transfers. It is clear that the distribution of transfers is uneven across sectors, and transfers tend to go to export industries (fuels), the defense-related industries, some equipment goods producers (agromachinery and heavy machinery), and, to a lesser extent, food processing. The probability of being a recipient is the lowest in automobiles, electricity, wood and paper, construction materials, metallurgy, light industry, and chemicals. The fuel sector was the largest recipient of transfers, and its share amounted to about a quarter of the total in 1993–94.

Different kinds of transfers have distinct allocation patterns across sectors as well. Budget subsidies have been allocated primarily among enter-
Figure 6-3. Sectoral Concentration of Recipients

- Electricity
- Fuels
- Metallurgy
- Chemicals
- Heavy machinery
- Machine tool engineering
- Automobiles
- Other machine-building
- Military-industrial complex
- Tractors and agrimachinery
- Wood and paper
- Construction materials
- Light industry
- Food processing
- Other industry

We now turn to the cumulative distribution of financial transfers to enterprises (figure 6-4). The following estimates were based only on the answers of enterprises that provided the data on output, employment,
Financial transfers and transfers. As expected, we can see that government financial transfers are very heavily concentrated in a few of the largest recipients. In the first half of 1994, more than 50 percent of the total transfers were received by five firms (out of a sample of eighty-one recipients reporting), which accounted for only 7 percent of output and 15 percent of employment. The ten largest recipients (ranked in total transfers) together received more than 70 percent of all financial transfers in the sample. The sectoral affiliation and employment groups of the ten largest recipients for 1993 and the first half of 1994 are presented in table 6-3. At the opposite tail of the distribution, two-thirds of the population of recipients received less than 5 percent of total transfers. This is very similar to the level of concentration observed in Poland and the Czech Republic (Schaffer 1995). The upper tail of the distribution is probably biased by the absence of the large recipients that have not reported their current amount of government financial transfers, but the lower tail, made of a large population of
Table 6-3. The Largest Recipients

<table>
<thead>
<tr>
<th>The ten most-subsidized enterprises</th>
<th>1993</th>
<th>Number of employees</th>
<th>1994.H1</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch</td>
<td>Number</td>
<td>Branch</td>
<td>Number</td>
<td></td>
</tr>
<tr>
<td>1st Fuels</td>
<td>61,958</td>
<td>Chemicals</td>
<td>4,264</td>
<td></td>
</tr>
<tr>
<td>2nd Energy-processing</td>
<td>12,849</td>
<td>Fuels</td>
<td>1,102</td>
<td></td>
</tr>
<tr>
<td>3rd Chemicals</td>
<td>4,446</td>
<td>Fuels</td>
<td>59,030</td>
<td></td>
</tr>
<tr>
<td>4th Agromachinery</td>
<td>16,976</td>
<td>Energy-processing</td>
<td>13,282</td>
<td></td>
</tr>
<tr>
<td>5th Fuels</td>
<td>2,088</td>
<td>Heavy machinery</td>
<td>2,538</td>
<td></td>
</tr>
<tr>
<td>6th Food processing</td>
<td>8,375</td>
<td>Agromachinery</td>
<td>14,689</td>
<td></td>
</tr>
<tr>
<td>7th Heavy machinery</td>
<td>2,843</td>
<td>Food-processing</td>
<td>8,215</td>
<td></td>
</tr>
<tr>
<td>8th Chemicals</td>
<td>5,802</td>
<td>Other machine-building</td>
<td>6,493</td>
<td></td>
</tr>
<tr>
<td>9th Other machine-building</td>
<td>7,245</td>
<td>Chemicals</td>
<td>2,598</td>
<td></td>
</tr>
<tr>
<td>10th Military-industrial complex</td>
<td>6,130</td>
<td>Metallurgy</td>
<td>4,610</td>
<td></td>
</tr>
</tbody>
</table>

Note: The total population of recipient enterprises amounts to 101 in 1993 and 81 in 1994.H1, as shown in figure 6-4.

much smaller recipients, should not be greatly affected. As a result, the total volume of transfers is largely determined by amounts allocated to the large enterprises.

Table 6-4 gives the Gini coefficients for the concentration of employment, output, and financial transfers for the three periods covered by the survey (1992-94.H1). A Gini value of 1 would reflect a perfectly unequal distribution in which one enterprise would receive 100 percent of all financial transfers. By contrast, a Gini value of 0 would represent a population in which every enterprise, regardless of its size, received the same amount of financial assistance.

For the sample as a whole, transfers are more concentrated than output and employment. This is clearly shown by the higher values of the Gini coefficient for transfers for all three periods. Looking at the population of recipients only, however, we obtain a higher Gini index for output for the first half of 1994. This could have been a result of our underestimation of transfers (the result of the possible poor response rate of the largest recipients), but the same subsample in 1993, for which the data is probably more reliable, gives a Gini coefficient for financial transfers equivalent to that for output in the population of recipient enterprises.

From table 6-4, we also note that the concentration level of financial transfers has decreased since 1992: the Gini coefficient for output has con-
Table 6-4. Gini Indexes on Employment, Output, and Financial Transfers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>[249]</td>
<td>[301]</td>
<td>[313]</td>
</tr>
<tr>
<td>Output</td>
<td>0.88</td>
<td>0.91</td>
<td>0.92</td>
</tr>
<tr>
<td>Employment</td>
<td>0.73</td>
<td>0.76</td>
<td>0.78</td>
</tr>
<tr>
<td>Total transfers</td>
<td>0.96</td>
<td>0.94</td>
<td>0.94</td>
</tr>
<tr>
<td>Recipients only</td>
<td>[56]</td>
<td>[101]</td>
<td>[81]</td>
</tr>
<tr>
<td>Output</td>
<td>0.82</td>
<td>0.81</td>
<td>0.81</td>
</tr>
<tr>
<td>Employment</td>
<td>0.65</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>Total transfers</td>
<td>0.87</td>
<td>0.81</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Note: The numbers of observations are given in brackets.

stantly increased since 1992, while the coefficient for financial transfers has decreased at a similar rate. As a result, the differential between the Gini coefficients for output and transfers dropped from 0.08 in 1992, to 0.03 in 1993, and 0.02 in 1994.

The fall in the concentration of transfers together with the drop in the real average size of each transfer transaction suggests that the system has become increasingly oriented toward the general support of enterprise survival rather than restructuring. As we saw earlier, the average size of government financial transfers has simply become too small to be used for restructuring or investment purposes. This is indeed confirmed by the absence of a correlation between the amount of transfers obtained and the levels of investment realized. The majority of financial transfers are used to solve short-term problems, such as paying wages and suppliers. As the total financial transfers available have decreased, but the number of enterprises in financial difficulties has increased, the distribution of financial transfers has become, with the exception of the few largest recipients, increasingly equal (in transfer/output) across recipients. The distribution of the various forms of support for conversion is a clear example of this trend. We will discuss this issue in more detail in the next two sections.

Financial Transfers to Enterprises: Implicit Government Objectives

What are the implicit objectives of the government in providing financial transfers to enterprises? Are there any implicit criteria behind the allo-
tion decisions of government agencies? This section attempts to identify which factors may be important in determining whether or not financial transfers are provided to a particular enterprise and, to the extent possible, the level of transfers.

The analysis in this section must be taken very cautiously for two main reasons. First, the underestimation of the reported amount of transfers discussed earlier introduces considerable noise into the data, particularly with respect to the quantitative variables. Second, also discussed earlier, the high inflation during the relevant periods and the lack of information on exactly when enterprises received transfers make any analysis of the level of financial transfers problematic, either across enterprises or over time. Therefore, most of the analysis will be qualitative. The focus will be on determining the probability of being a recipient, rather than explaining the real amount of subsidies (see the appendix to this chapter).

In addition to the underestimation by enterprise managers of the amount of financial transfers received, we encounter another problem when measuring financial transfers. We suspect that we have a common limited-dependent variable problem, in a self-selection case, as defined in the econometric literature (see Maddala 1983). Enterprise managers have decided whether to report the subsidies they receive or not. They will not do it at random, but according to specific choice criteria. Being recognized as a recipient might hamper one's chance of being selected the next year; more specifically, if a firm admits to being the recipient of one kind of subsidy, it may fear that it would not get any more from other sources. We indicated earlier that the largest enterprises that are recipients of substantial financial transfers were less willing than other firms to correctly answer the survey questions related to financial transfers, or to answer the questions at all.

One can think of at least four possible motives for the government to provide financial transfers to some firms rather than others.

First, financial transfers can be seen as a natural compensation for enterprises suffering from state intervention in their daily operations. These interventions include price or profit margin controls or high levels of government procurement and state orders. In addition, Russian enterprises are burdened with the cost of providing social benefits to employees. Let us call this first category of financial transfers the compensatory subsidies.

Second, subsidies can be given to the firms that have suffered most from transitional shocks. Instead of letting these firms go bankrupt, the government might wish to temporarily relax their budget constraint in
order to give them more time to adapt to new market conditions. This kind of transfer can be justified by arguments similar to those developed by the proponents of the infant-industry theory in the protectionism versus free trade debate. Therefore, we will call them protectionist subsidies.

Third, subsidies can be part of a government strategy aimed at charting the future restructuring and development path of the national economy. Government financial transfers may be intended to foster growth in promising sectors and place the national industry in a more favorable position within the international division of labor. We will then call these the strategic subsidies.

Fourth, financial transfers can be imposed by political and social pressures. The government, under political constraint, might have to bail out inefficient enterprises for its own survival, even if it delays or hampers the global restructuring of the economy. These are forced subsidies, motivated by noneconomic criteria.

What follows is a very preliminary attempt to identify what sort of government financial assistance was given to Russian enterprises in 1993 and the first half of 1994, and for what purposes. The aim of this section is to estimate the relative importance of each category of financial transfers (as defined above) and the main trends in the government’s implicit objective function.

Before these hypotheses can be tested, one has to evaluate the impact of ownership on the probability of being a recipient, because one might expect that public enterprises would be more likely to obtain subsidies without clearly discriminating across the four motives listed.

We indeed find that the closer an enterprise is to a full private status, the smaller the probability of being a recipient (table 6-5). Nevertheless, outsider-controlled privatized enterprises actually do better than insider-controlled entities in extracting subsidies. If the first finding is consistent with the compensatory theory, the second could sustain the forced subsidies hypothesis, because outsiders controlling Russian enterprises are usually heavyweights, highly connected in political spheres (see Boycko, Shleifer, and Vishny 1995). It will be important in what follows to test whether the correlations hold or not, once we control for ownership.

The Compensatory Financial Transfers

Price controls are a good indicator of market-restricting government policies. One can expect government financial transfers to go to price-control-
Table 6-5. Transfers and Ownership (percent)

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Probability of being a recipient</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-owned</td>
<td>47</td>
</tr>
<tr>
<td>Worker-owned</td>
<td>34</td>
</tr>
<tr>
<td>Privatized</td>
<td></td>
</tr>
<tr>
<td>Managerially owned</td>
<td>29</td>
</tr>
<tr>
<td>Outsider-owned</td>
<td>44</td>
</tr>
<tr>
<td>Unspecified</td>
<td>24</td>
</tr>
<tr>
<td>De novo</td>
<td>16</td>
</tr>
<tr>
<td>All firms</td>
<td>35</td>
</tr>
</tbody>
</table>

Note: Tests of independence:
Likelihood-ratio Chi²: 5 degrees of freedom
independence rejected at 0.5 percent in 1994.H1
independence rejected at 0.5 percent in 1993.
Kendall’s tau-b: independence rejected at 5 percent in 1994.H1
independence rejected at 5 percent in 1993.

led industries. Indeed, more than a third of the enterprises in the sample as a whole, and 43 percent of all enterprises receiving financial transfers, faced various forms of price and margin controls in the middle of 1994 (see table 6-6). As expected, most of the sectors with a high proportion of recipients (above 40 percent) are also those with the highest share of price control: electricity, oil processing, defense-related, heavy machinery, and food processing. The strong correlation between sectors and price controls explains the absence of correlation of price controls with the probability of being a recipient in table 6-7. Most of it is captured by three sectoral dummies—fuels, agromachinery, and the military-industrial complex.

One factor closely related to price controls is government procurement and state orders. Government procurement in Russia tends to be associated with rather unfavorable conditions for producers, including both price restrictions and delays in payments. It is clear from table 6-6 that recipients are much more affected by government purchases as a whole (34.3 percent of their sales are affected) and by government procurement of defense goods (10.9 percent). For nonrecipients, the corresponding shares of total sales are 23.4 percent and 2.4 percent, respectively. Firms that sell their products mainly to the government, however, seem to re-
Table 6-6. Comparison of 1994 Recipients and Nonrecipients

<table>
<thead>
<tr>
<th>Item</th>
<th>Group 1a</th>
<th>Group 2b</th>
<th>Group 3c</th>
<th>Group 4d</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market forces and government intervention</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprises under price control (percentage of total)</td>
<td>36</td>
<td>43</td>
<td>43</td>
<td>32</td>
</tr>
<tr>
<td>Enterprises in industrial associations (percentage of total)</td>
<td>43</td>
<td>59</td>
<td>63</td>
<td>52</td>
</tr>
<tr>
<td>Enterprises without direct competitor (percentage of total)</td>
<td>22</td>
<td>28</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>Number of direct competitors c</td>
<td>25</td>
<td>11</td>
<td>19</td>
<td>80</td>
</tr>
<tr>
<td><strong>1994 social expenditures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of profit</td>
<td>10</td>
<td>26</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Percentage of costs</td>
<td>1</td>
<td>0.5</td>
<td>0.4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Government procurements (percentage of 1994 sales)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government purchases</td>
<td>23</td>
<td>34</td>
<td>47</td>
<td>35</td>
</tr>
<tr>
<td>Nonmilitary procurement</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Military procurement</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td><strong>External shocks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduction of exports, as a share of total sales, 1990–94 (percentage change)</td>
<td>-12</td>
<td>-12</td>
<td>-17</td>
<td>6</td>
</tr>
<tr>
<td>Exports to CIS</td>
<td>-1</td>
<td>-0.5</td>
<td>-8</td>
<td>4</td>
</tr>
<tr>
<td>Reduction of military sales, as a share of total sales, 1990–93 (percentage change)</td>
<td>-3</td>
<td>-9</td>
<td>-12</td>
<td>1</td>
</tr>
<tr>
<td><strong>Financial indicators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss-makers (number of firms as a percentage of total)</td>
<td>15</td>
<td>10</td>
<td>11</td>
<td>29</td>
</tr>
<tr>
<td>Capacity utilizationf</td>
<td>62</td>
<td>61</td>
<td>61</td>
<td>53</td>
</tr>
<tr>
<td>Real investment growthg</td>
<td>[3.15]</td>
<td>[3.3]</td>
<td>[3.3]</td>
<td>[3.53]</td>
</tr>
<tr>
<td>Investment plan, in the short run (percentage of firms with a plan)</td>
<td>74</td>
<td>92</td>
<td>77</td>
<td>82</td>
</tr>
<tr>
<td><strong>Wages</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average wage, 1994.H1 (thousand rubles, current prices)</td>
<td>256</td>
<td>172</td>
<td>182</td>
<td>270</td>
</tr>
<tr>
<td>Average wage, 1993 (thousand rubles, current prices)</td>
<td>56</td>
<td>50</td>
<td>50</td>
<td>52</td>
</tr>
<tr>
<td>Wage, percentage of total cost, 1994</td>
<td>13</td>
<td>16</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Wage bonuses, percentage of profits, 1994</td>
<td>4</td>
<td>7</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>

a. Nonrecipients.
b. Recipients not responding to quantitative questions.
c. Recipients providing quantitative answers.
d. Nonrespondents.
e. Only for enterprises that have at least one competitor.
f. Weighted by output.
g. It is an ordered discrete variable, for which "3" means a drop of about 20 percent, and "4" a drop of about 40 percent.
h. Weighted by employment.
<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Odds ratio (percent)</th>
<th>Explanatory factors</th>
<th>Sectors correlated</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price controls</td>
<td>1.09</td>
<td>N.S.</td>
<td>Compensatory</td>
<td>Fuels*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Agromachinery*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MIC*</td>
</tr>
<tr>
<td>Government procure-</td>
<td>1.01</td>
<td>2</td>
<td>Compensatory</td>
<td>Fuels**</td>
</tr>
<tr>
<td>ments*</td>
<td></td>
<td></td>
<td>Strategic</td>
<td>Heavy machinery*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Agromachinery**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MIC**</td>
</tr>
<tr>
<td>Social benefitsb</td>
<td>1.02</td>
<td>4</td>
<td>Compensatory</td>
<td>MIC*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N.S. (collinearity)</td>
<td>***</td>
</tr>
<tr>
<td>Drop in exports</td>
<td>262.03</td>
<td>8</td>
<td>Compensatory</td>
<td>N.S.</td>
</tr>
<tr>
<td>to CIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop in exports</td>
<td>6.50</td>
<td>N.S.</td>
<td>Compensatory</td>
<td>N.S.</td>
</tr>
<tr>
<td>to CMEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop in military</td>
<td>1.01</td>
<td>N.S.</td>
<td>Compensatory</td>
<td>Automobiles*</td>
</tr>
<tr>
<td>output</td>
<td></td>
<td></td>
<td></td>
<td>N.S.</td>
</tr>
<tr>
<td>Military conversion</td>
<td>0.81</td>
<td>N.S.</td>
<td>Compensatory</td>
<td>MIC*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Forced</td>
<td>N.S. (collinearity)</td>
</tr>
<tr>
<td>Military productionc</td>
<td>1.02</td>
<td>2</td>
<td>Strategic</td>
<td>Fuels*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Forced</td>
<td>N.S.</td>
</tr>
<tr>
<td>Western marketsd</td>
<td>1.01</td>
<td>N.S.</td>
<td>Strategic</td>
<td>Wood and paper*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N.S.</td>
</tr>
<tr>
<td>Industrial association</td>
<td>1.98</td>
<td>1</td>
<td>Forced</td>
<td>Heavy machinery*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>public sector*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Agromachinery*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MIC**</td>
</tr>
<tr>
<td>Size (labor force)e</td>
<td>1.00</td>
<td>4</td>
<td>Forced</td>
<td>N.S.</td>
</tr>
<tr>
<td>Investment plan</td>
<td>4.04</td>
<td>&lt; 0.5</td>
<td>Strategic</td>
<td>N.S.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Forced</td>
<td>public sector*</td>
</tr>
</tbody>
</table>

Note: This table lists the results of logistic regressions (one regression by row). In each case the explained variable is the dummy "being a recipient of any financial transfer in 1994," and the explanatory variables are six ownership dummies (one for each category, seen in table 6-5), fifteen sectoral dummies, plus another variable as indicated in the first column. Thus, all regressions differ only by the last explanatory variable. The third column gives the significance level of the odds ratio for this last variable only. All dummy variables are in italic, all other variables are percentages, unless indicated in footnotes. They are all explained in detail in the text. We use the following notations: *** = significant at a 0.5 percent level; ** = significant at a 5 percent level; * = significant at a 10 percent level; N.S. = nonsignificant at a 10 percent level. The number of observations, although not reported, is over 350 for all regressions.

The odds ratio measures (for regressions that are statistically significant) the impact of the last variable on the probability of being a recipient of financial transfers in 1994, given an

(continued on the following page)
Table 6-7 (continued)

ownership status and a sectoral affiliation. (A ratio close to 1 says that the impact of the last variable on the probability of being a recipient is negligible.) We have associated these explanatory variables with ad hoc explanatory factors, in line with our earlier discussion. We do not give individual results for each control dummy, but indicate which ones are correlated with “being a recipient in 1994” in the two last columns.

a. Sales to government as a percentage of profit.
b. Total social expenditures as a percentage of profit.
c. Military output as a percentage of total sales.
d. Percentage drop in exports to all countries but CIS and former CMEA.
e. Number of employees.

receive a higher level of transfers, even after taking into account the size effect, but the significance degree is very often quite low. This can be explained in part by the results in table 6-7. After controlling for sectors and ownership, government procurement has no significant impact on the probability of being a recipient (odds ratio close to 1 in the logistic regression). Once again, this is because a few sectors are strongly associated with government procurement. These sectors are fuels, heavy machinery, agromachinery, and defense-related industries.

Under the compensatory subsidy hypothesis, one might expect that recipients would generally carry the heaviest burden of social expenditures, because transfers might be partially driven by the necessity to compensate enterprise losses brought about by their social obligations. We are not, however, in a position to confirm this relationship with the existing data. The absence of any significant correlation among transfers and relative social expenditures, whether normalized by profit or by wages, is caused by the ownership impact. Nonstate, recently privatized enterprises can still have high levels of social expenditures but receive relatively less in subsidies because of their private status. Table 6-7, however, shows that within the same ownership category, higher levels of social expenditures increase the probability of being a recipient.

Protectionist and Strategic Transfers

One of the potential explanations for the existing pattern of transfer distribution is exposure to past external shocks. Enterprises might be partially compensated for shocks resulting from the collapse of the Council
for Mutual Economic Assistance (CMEA) and the Soviet Union. If this factor is important, then we might find that losses of recipients from such shocks have to be much more severe than for subsidy-free enterprises. We examine this hypothesis with regard to the trade shocks (losses in the Eastern European and Commonwealth of Independent States, or CIS, markets) and the post-Cold War shock (reduction in defense output with conversion and demilitarization).

A cursory inspection of the results in table 6-6 suggests that external shocks are not important in determining transfer allocation. Recipients and nonrecipients have a similar decline in former Soviet Union sales in 1994 (12 percent of sales). In addition, the role of the Eastern European market for many Russian enterprises has not been very important, accounting for an average of 2.5 percent of total sales. Recipients, however, lost a larger share of their Eastern European markets compared with non-recipients, but the difference was not crucial—1.7 percent and 1.0 percent, respectively, of the total sales.

Another post–Cold War shock, the drop in military procurement, has clearly affected the government’s allocation of financial transfers. The government is trying to compensate for the drop in the demand for military products. This is shown by the results in tables 6-8 and 6-9. The dummy variable distinguishing enterprises taking part in a conversion program is correlated with the probability of being a recipient.

Transfers to the military-industrial complex (MIC) might have more than one objective. They could be seen as protectionist (to soften the budget constraint for a while, and therefore help the “conversion” process). They could also be seen as “strategic subsidies,” investing in enterprises that have gathered the best of both technical and human capital over the years. The latter could very well be investing in the hope of promoting a Russian high-tech industry. Finally, subsidies to this sector could equally be identified as “forced subsidies” because of the pressure of the military lobby and its own power within the state.

*The Forced Subsidies*

As we have seen above, compensatory and protectionist transfers can only explain a part of the story. We are now left with a large residual of financial transfers that cannot be explained by the motives we have discussed. These are considered as forced transfers. As we shall now see,
most of the recipients of financial transfers have strong bargaining positions with the government. Forced financial transfers are actually obtained by the enterprises themselves in a coercive game with government authorities, sometimes at the expense of the employees themselves (Aslund 1995, pp. 298–311, provides a good analysis of lobbyism and rent-seeking in Russia). Which measurable characteristics are more useful in extracting government transfers? As we will show, a number of enterprise variables, such as size of the labor force, market power, or participation in industrial associations, have a direct influence on the probability of a particular enterprise becoming a recipient of government transfers.

<table>
<thead>
<tr>
<th>Item</th>
<th>Being a recipient in 1992</th>
<th>Being a recipient in 1993</th>
<th>Being a recipient in 1994</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi² tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial branch</td>
<td>(0.00)</td>
<td>(0.01)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>[391]</td>
<td>[412]</td>
<td>[408]</td>
</tr>
<tr>
<td>Member of military-industrial complex</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>[383]</td>
<td>[412]</td>
<td>[400]</td>
</tr>
<tr>
<td>Member of an industrial association</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>[391]</td>
<td>[412]</td>
<td>[408]</td>
</tr>
<tr>
<td>Has an investment plan</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>[356]</td>
<td>[375]</td>
<td>[371]</td>
</tr>
<tr>
<td>t-tests on means</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profitability, current year</td>
<td>n.a.</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.01)</td>
<td>(0.06)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[266]</td>
<td>[265]</td>
</tr>
<tr>
<td>Wage bonus, current year</td>
<td>n.a.</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.01)</td>
<td>(0.05)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[282]</td>
<td>[313]</td>
</tr>
</tbody>
</table>

n.a. Not available.

Note: Listed are sign of correlation; significance level, in parentheses; and number of observations, in brackets.

a. Profitability = -(Costs/Sales), in percent.
b. Wage bonus as a percentage of total costs.
Table 6-9. Correlations with the Current Amount of Financial Transfers Received

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total transfers</td>
<td>Transfers over labor force</td>
<td>Transfers over output</td>
</tr>
<tr>
<td></td>
<td>Total transfers</td>
<td>Transfers over labor force</td>
<td>Transfers over output</td>
</tr>
<tr>
<td></td>
<td>Total transfers</td>
<td>Transfers over labor force</td>
<td>Transfers over output</td>
</tr>
<tr>
<td></td>
<td>Total transfers</td>
<td>Transfers over labor force</td>
<td>Transfers over output</td>
</tr>
<tr>
<td></td>
<td>Total transfers</td>
<td>Transfers over labor force</td>
<td>Transfers over output</td>
</tr>
<tr>
<td>t-tests on means&lt;sup&gt;a&lt;/sup&gt;</td>
<td>±</td>
<td>±</td>
<td>±</td>
</tr>
<tr>
<td>Under partial price control in 1994 (dummy variable)</td>
<td>(0.09)</td>
<td>(0.16)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Pearson correlations&lt;sup&gt;b&lt;/sup&gt;</td>
<td>±</td>
<td>±</td>
<td>±</td>
</tr>
<tr>
<td>(The following variables are expressed as a percentage of sales&lt;sup&gt;c&lt;/sup&gt;)</td>
<td>±</td>
<td>±</td>
<td>±</td>
</tr>
<tr>
<td>Sales to the government</td>
<td>n.a.</td>
<td>0.02</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.69)</td>
<td>(0.43)</td>
</tr>
<tr>
<td>Nonmilitary sales to government or budget organizations</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.93)</td>
<td>(0.91)</td>
</tr>
<tr>
<td>Military production</td>
<td>0.05</td>
<td>0.05</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(345)</td>
<td>(331)</td>
</tr>
<tr>
<td>Revenue from military goods purchased by the state as a percentage of total revenues&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(345)</td>
<td>(331)</td>
</tr>
<tr>
<td>Average wage, current year</td>
<td>0.07</td>
<td>0.07</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(320)</td>
<td>(313)</td>
</tr>
<tr>
<td>Output growth in volume over the previous year</td>
<td>±0.02</td>
<td>±0.02</td>
<td>±0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.32)</td>
<td>(0.32)</td>
</tr>
</tbody>
</table>

n.a. Not available.

Note: Degree of significance is listed in parentheses, number of observations in brackets.

a. First line: sign of correlation.

b. First line: coefficient of correlation.


<sup>a</sup> Significant correlation at a 10 percent confidence level. <sup>b</sup> Significant correlation at a 5 percent confidence level.
First, employment appears to be one of the main variables determining the amount of transfers, as well as the probability of being a recipient. For enterprises with over 5,000 employees, the chance of being a recipient is more than one in two (see figure 6-5). Smaller enterprises have a much lower chance of receiving transfers. The volume of subsidies received per employee, however, is positively correlated with employment size for small and medium-size enterprises only (here defined as those with fewer than 1,500 employees). The largest enterprises received about 50 percent of the average transfers per employee for the overall sample in both 1993 and 1994 (table 6-2). It is equally interesting to note that these relationships lose most of their significance if the employment level is replaced by output or by the volume of sales as the size indicator. This suggests that workers, more than the firm itself, are the real concern of the authorities in their decision to provide transfers, giving extra lobbying leverage to the enterprises that are the largest in employment.
Even enterprises that are not very large in size but are in the same sector can collude to increase their leverage on government authorities to extract funds (see Perotti 1994, in particular). This explains why participation in industrial associations substantially increases enterprises’ chances of becoming recipients. While for the sample as a whole, the average participation rate in associations is about 48 percent, for the recipient group it is almost 60 percent (see table 6-8). We further explore if enterprises’ market power increases their ability to extract large volumes of government funds. Indeed, while 24 percent of all enterprises in the sample recognized that they do not have competitors, 29 percent of those in the recipient group and 22 percent of nonrecipients indicated that they do not face market competition. In addition, nonrecipients estimate their average number of competitors at twenty-five, while for recipients, it is twelve (see table 6-6). The likelihood-ratio $\chi^2$ test of independence, however, does not significantly reject the null hypothesis. This might be because collusion is less effective in industries with nonhomogenous products, including manufacturing and defense-related industries. The number of enterprises in an industry is not as good a predictor of its market power as the product itself (this is well described in Aslund 1995).

General rent-seeking behavior is also exhibited by enterprise managers. Almost 80 percent of the managers in the sample expressed an intention to invest in the medium term, including 90 percent of the recipient-enterprises. The explanation of the latter phenomena is probably institutional. The easiest way to extract government transfers in Russia today is to design a large-scale investment program and to request federal funds for its implementation, arguing that the program is of national importance. This does not mean that such intentions will be realized later, however, because transfers received might be reallocated for noninvestment purposes. Table 6-8 shows that the $\chi^2$ test rejects the null hypothesis of independence between “being a recipient” and “have an investment plan.”

Table 6-10 tells us what remains after the impact captured by ownership and sectoral dummies. We see that the compensatory factors—government procurement and social benefits—have odds ratios significantly close to 1. This means that enterprises within the same sector and of the same ownership status do not have a greater chance to get subsidies simply because of these compensatory factors. Not surprisingly, membership in industrial associations and the size effect are completely captured by
Table 6-10. Explained Variable: “Being a Recipient in 1994”

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government procurement</td>
<td>1.01**</td>
</tr>
<tr>
<td>Social benefits</td>
<td>1.02*</td>
</tr>
<tr>
<td>Military production</td>
<td>4.60*</td>
</tr>
<tr>
<td>Industrial association</td>
<td>N.S.</td>
</tr>
<tr>
<td>Labor force (size)</td>
<td>N.S.</td>
</tr>
<tr>
<td>Investment plan</td>
<td>9.56***</td>
</tr>
<tr>
<td>Each of six ownership categories</td>
<td>&gt; 1,000,000***</td>
</tr>
<tr>
<td>Sectors: heavy machinery, tool engineering, agronomy</td>
<td>70–95**</td>
</tr>
<tr>
<td>Sectors: fuels, MIC, metalworking</td>
<td>36–49*</td>
</tr>
<tr>
<td>All other sectors</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

Note: This table presents the results of a logistic regression on “being a recipient in 1994.” The selected explanatory variables, taken individually, were significant at a 5 percent level, as shown in table 6-7. We still control for ownership and sectors. Explanatory dummy variables are in italic. Results from the maximum likelihood estimation: \( \chi^2(25) = 77.64; \) number of observations = 190; Prob > \( \chi^2 \) = 0.000; Pseudo \( R^2 \) = 0.326. ** = significant at a 5 percent level; * = significant at a 10 percent level; N.S. = not significant at a 10 percent level.

sectoral and ownership dummies. A higher share of military production in total sales (although the significance level associated with this variable is rather low) and the existence of at least one investment program do strongly increase the probability of being a recipient. As we have seen earlier, there is no correlation between “being a recipient in 1994” and either the existence of a military conversion program or the amount of actual investment spending. These results together suggest that forced subsidies are the prevailing category.

Government Financial Transfers and Enterprise Performance

We now turn to the relationship between government financial transfers and enterprise performance. Given some of the data problems discussed earlier and the lack of time series for variables measuring enterprise performance, we will not be able to examine the causality issue. Instead, we will simply look at cross-section correlations at a given point in time. Aware of the simultaneity involved in this exercise, we will not be able to answer the question of whether subsidies foster or hamper the restructur-
ing process. Instead, our emphasis will be on documenting the differences in performance between recipients and nonrecipients and within the subset of recipients.

Not surprisingly, our data suggest that financial transfers are concentrated in enterprises with the worst financial performances. It is true that the proportion of loss-makers in the group of recipients (10 percent) is smaller than among nonrecipients (15 percent), and that the proportion of recipients among firms in financial distress\(^7\) (24 percent in 1993) is smaller than for all other firms (36 percent) (see table 6-6). Nevertheless, because financial transfers are part of the enterprise’s cash flows, positive profits that appear on balance sheets might actually be negative when net of all subsidies.\(^8\) Thus, many recipients in the profit-maker group should instead be considered like loss-makers. Indeed, table 6-8 shows that the costs/sales ratio, which can be read as a proxy for profitability (of opposite sign), is highly negatively correlated with the probability of being a recipient. This result holds after controlling for ownership and sector.

Our results suggest that firms that adjust less were among the largest recipients—\textit{ex post} they received more transfers than recipients that adjusted more quickly. The data for the first half of 1994 are consistent with the hypothesis that subsidies helped them maintain output and employment levels without making the needed adjustments. Table 6-9 shows that output decline in 1994 is negatively correlated with financial transfers, suggesting that 1994 subsidies might have helped support industrial activity. We also observe relatively fewer layoffs in the recipient enterprises than in the rest of the sample. In addition, there is some indication that government transfers may have been used for additional wage increases. On average, enterprises within the sample preserved the level of their 1993 real wages in 1994, despite additional declines in sales. Although the recipients had lower wages in both years and a significantly lower wage growth in 1994 (see table 6-6), table 6-8 shows that the share of wage bonus in total cost is positively correlated with the probability of being a recipient. Therefore, it is not surprising that figure 6-6 shows that changes in the nominal labor productivity of recipients is about three times worse than that of nonrecipients. Our interpretation is that although large transfers have helped decrease the scale of the output drop to some extent, they have also encouraged labor hoarding and have resulted, \textit{ex post}, in diminishing labor productivity, at least in real terms.
This last hypothesis is further confirmed when one looks at the small group of recipients that are the largest enterprises. These firms, although faced with a sharp decline in their output level, have not reduced their employment. This subgroup of recipients constitutes the core of enterprises facing real restructuring problems, and they have received substantial government assistance. Unfortunately, these enterprises did not provide quantitative information about the amount of subsidies obtained.

All these results show that recipient-enterprises, especially the largest recipient-enterprises, adjusted much less than the nonrecipient group. This lack of adjustment, together with the failure of 1992–94 government transfers to lead to an increase in enterprise investment activity, which instead went primarily to finance recurrent costs, particularly to protect wages, suggests that subsidies may have contributed to slowing down, rather than facilitating, restructuring by the recipient enterprises.
Conclusions and Policy Recommendations

By the middle of 1994, after two-and-half years of market reforms, the Russian enterprise sector as a whole still faced a rather soft budget constraint. The number of subsidy-free enterprises was very small. About one-third of enterprises in the survey received some government assistance in 1993, and about one-quarter received such support in the first half of 1994. Only 20 percent of the enterprises in the sample reported that they neither received government transfers nor accumulated tax arrears. Even these numbers may underestimate the actual scale of government financial assistance to enterprises because of some of the downward biases in the survey data discussed earlier.

Transfers are highly concentrated: 1.5 percent of the enterprises within the sample received about half of total transfers. Large and extra-large enterprises, as a rule, are the greatest recipients of government funds. The average size of transfers is relatively small, however, and it has been substantially reduced since 1992. For the largest recipients (7–8 percent of the sample), the size of transfers is about 6 percent of their output. The bulk of recipients receive even smaller transfers. Government transfers of such a size do not provide recipients with the necessary funds for a genuine restructuring. Instead, they are mainly used to finance current operations and losses. Our analysis shows that one of the most important factors determining whether an enterprise receives government transfers, and how much these transfers might be, is the size of its employment. Overall, government financial transfers do not seem to serve any other identifiable objectives (such as promoting restructuring, high-tech, and export industries).

The system of transfers is composed of about a dozen independent channels, which makes government assistance even less efficient and more difficult to monitor. The most explicit transfers, such as budget subsidies and investment grants, amount to a very small portion of the total transfer flows; far more funds are disbursed in the forms of tax exemptions and directed credits. While explicit government transfers have been reduced significantly, tax arrears have become a main source of soft enterprise financing since mid-1993. Even enterprises that do not receive explicit government transfers seem to operate in a rather soft financial environment. They can extract funds in the form of tax arrears and arrears to their suppliers because of poor tax administration, weak procedures of debt recovery, and underdeveloped bankruptcy procedures.
The analysis of the factors determining transfer allocation revealed that, on average, government assistance does not go to enterprises that face the most severe financial problems, or those particularly affected by recent external shocks, such as losses of Eastern European and CIS markets. Transfers are also not biased toward enterprises with more intensive investment spending. There is some indication that selected forms of transfers play a slightly compensatory role for price controls and/or government procurement. Overall, however, the distribution and the level of transfers are related consistently to the size of employment and enterprise membership in industrial associations. In other words, the main allocation criterion of government financial transfers is the bargaining power of the enterprises.

The current level and system of government financial transfers clearly have not promoted enterprise restructuring, especially for the largest recipients. In order to encourage restructuring of the enterprise sector, further reduction and rationalization of government financial transfers will be required. Suggestions are listed below.

- **Deepening price and trade liberalization and reducing the total volume of transfers.** Substantial reductions in transfers can be achieved through further liberalization efforts. This will reduce the need for compensatory subsidies and, at the same time, reduce distortions in the economy. Medium-term liberalization objectives might include eliminating the remaining price and margin controls, especially at the local level; completing the divestiture of social assets; and implementing market prices and a competitive framework for state procurement. Although most of this task had already been achieved at the federal level in 1995, much remains to be done by the local governments.

- **Reducing the number of channels.** There are currently numerous channels through which government financial assistance is provided to enterprises. Rationalizing transfers requires a substantial consolidation of these channels, as well as a transition to transparent and explicit forms of allocation. In principle, all government financial assistance to enterprises should be channeled through the budget (as subsidies, investment grants, or loans). This will enhance the government's ability to assess the overall fiscal costs of maintaining such transfers and to monitor the use of transfers more easily.
• **Reducing the number of agencies involved in the allocation of transfers.** Corresponding to the multitude of transfer channels, there are currently a large number of government and quasi-government agencies involved in the allocation of financial assistance to enterprises, without effective coordination. There is clearly a need to reduce the number of agencies involved in the allocation of transfers to enterprises and to clarify responsibilities for allocation and monitoring among the core economic agencies.

• **Improving transparency of the allocation process.** The current system of government financial transfers to enterprises lacks any transparent procedures and criteria for allocation. Even when criteria do exist, our analysis shows that they are not implemented consistently, if at all. The objectives of the transfers should be transparent, nondiscretionary, and known to the public.

• **Conditioning remaining transfers on restructuring.** The lack of transparent procedures and criteria has also meant that most transfers do not have clearly stated purposes or objectives, and no meaningful conditions are attached to them. In order to make a continued reduction in the government financial transfers to the largest recipients sustainable, transfers should be clearly targeted for specific purposes (such as the divestiture of social services by enterprises or severance pay for workers) and conditional on time-bound and measurable actions by the recipient enterprises toward restructuring.

• **Improving monitoring and supervision over the use of transfers.** For the transfers to reach their intended recipients and achieve their stated purposes, an effective system of monitoring and supervision of their use must be put in place. These mechanisms should be relatively simple and focused on regular accounting of the transfer flow that has been disbursed and spent, and also on whether the enterprises have complied with conditions attached to the transfers. Penalties should be imposed on the misuse of transfers.

Appendix

*Measures of Association and Qualitative Variables*

Association measures between binary variables (between “being a recipient for a given year” and an explanatory dummy variable, for example)
are assessed with the likelihood-ratio Chi² independence test (at one degree of freedom). The number in parentheses is the significance level at which the null hypothesis that variables are independent is rejected. Therefore, a small figure will mean that qualitative variables are significantly correlated. The sign indicates the impact on the marginal probability: for instance, if it is positive, then the probability of being a recipient, given that the explanatory variable equals 1, will be greater than the unconditional probability of being a recipient.

In the case of the Ownership variable (table 6-5), an ordered multivalued explanatory variable (taking integer values from 1 to 6, increasing with the degree of independence from the state), we have added another test: the Kendall's tau-b. This measure of association accounts for the ranking of the explanatory variable and takes values between -1 and 1. In the specific case of ownership, the measured Chi² has 5 degrees of freedom.

To test the correlation between “being a recipient for a given year” and any continuous explanatory variable, we use the t-test on means and test the null hypothesis that the means of the two subsamples—recipient/nonrecipient—are equal.

Finally, a simple Pearson correlation gives the measure of association between any two quantitative (continuous) variables. In table 6-9, we present the correlation coefficient, the significance level in parenthesis (a 0.00 value would mean that the correlation is significant at a 0.5 percent confidence level), and the number of observations in brackets.

All calculations have been computed with a Stata-version 3.1 software.

References

Notes
1. Taking into account that only about 70 percent of respondents in the survey provided the volume of their nominal output.
2. The group of the largest recipients was determined on the basis of two complimentary criteria, absolute size of received transfers and relative size of transfers as a percentage of output. An enterprise was included in the group of large
recipients for 1993 if it had received either more than 1 billion rubles in 1993 (US$1 million) or had a transfer/output ratio exceeding 15 percent. For two other years, 1992 and 1994, this 1 billion threshold level was deflated according to the annual producer price index (PPI). About one-quarter of all recipients were classified as the largest recipients.

3. Total directed credits, however, are estimated at 28 percent of total financial transfers in 1993 according to the survey, compared with 24 percent at the aggregate level. It is possible that, when asked, enterprises in the survey felt the need to justify the final use of the directed credits they received, and designated other kinds of directed credits as those for investment and conversion.

4. As indicated earlier, we suspect that most of the nonrespondents are recipients/bad payers, unwilling to reveal themselves.

5. Please note that not all defense-related enterprises have necessarily identified themselves in the survey as being members of the military-industrial complex (MIC).

6. The level of concentration of transfers is similar to the concentration of directed credits, which was considered in another recent study (Freinkman 1994). One-hundred largest recipients of directed credits allocated in 1992-93 received, depending on the credit program, from 25 to 50 percent of the total disbursed funds. At the same time, the cumulative employment of those recipients amounted to only 3-4 percent of total industrial employment.

7. Our definition of "financial distress" is the same as that in chapter 4 of this volume—firms that reported they are chronic loss-makers.

8. See Kornai (1986) and Schaffer (1990) for discussions of profits and subsidies in Hungarian and Polish state-owned enterprises, also relevant here.
Part III

Corporate Governance and Competition
Ownership Structures, Patterns of Control, and Enterprise Behavior in Russia

John S. Earle, Saul Estrin, and Larisa L. Leshchenko

*We have created a broad basis of shareholders who have an economic interest in the success of the reform.* A. Chubais, *The Financial Times*, 30 June 1994

*Most enterprises continue to be run unchallenged by old management teams, which often lack the human capital and interest to initiate significant restructuring.* M. Boycko, *The Financial Times*, 30 June 1994

According to *The Financial Times* (27 June 1994, p. 3), Russia’s mass privatization program, carried out between late 1992 and mid-1994, “sold more than 11,000 state-owned enterprises, accounting for around 70 per-

The authors would like to thank Zuzana Sakova for dedicated research assistance, and Mark Schaffer for detailed comments, which led to many improvements in the chapter. Helpful comments were also received from David Bernstein, Joseph Blasi, Simon Commander, Randall Filer, Alan Gelb, Mike Marrese, Mario Nuti, Judith Sedaitis, and participants at seminars at the World Bank, CERGE, Leontief Center in St. Petersburg, and the Center for International Security and Arms Control at Stanford University (CISAC). The World Bank, the Labor Research Program of the Central European University Privatization Project, and CISAC provided financial and logistical support.
percent of Russian industry, in exchange for cash and 148m freely distrib-
uted vouchers." From a very low level in 1992, employment in the private
sector is estimated to have grown to around 50 percent of the labor force
(European Bank for Reconstruction and Development, cited in the Inter-
national Herald Tribune). It is thus not surprising that Russia's pro-reform
politicians, as well as some Western analysts (see, for example, Lieber-
man and Nellis 1994), have hailed the program as a success. But for many
observers the speed of privatization has been bought at the price of
suboptimal ownership structures, which may carry deleterious implica-
tions for the restructuring process.

There has been surprisingly little empirical analysis of which owner-
ship forms have emerged, nor of the implications for the control and be-
behavior of formerly state-owned firms. Government sources suggest that
some 40 million people, about half the labor force, have become share-
holders (Reuters, 30 June 1994), and according to Professor Yasin, head of
President Yeltsin's advisory economic council, "insiders own on average
some 70 percent of the privatized enterprises" (reported in The Financial
Times, 30 June 1994). Data from a sample of 142 firms collected by Blasi
and Shleifer (1995) indicate that insiders held an average of some 65 per-
cent of the shares in 1993. The ownership question may be crucial, for
economic theory predicts differing performance, not merely depending
on whether firms are privately or state-owned, but also according to
whether privately owned firms are insider or outsider controlled, and
whether the controlling group of insiders is made up of managers or
workers (see, for example, Aghion, Blanchard, and Burgess 1994). While
all the evidence suggests that it is employees who hold a majority of
shares (see Blasi 1994, for example), control is usually argued to be vested
primarily in the hands of senior management (see Blasi and Shleifer 1995;
Commander, Dhar, and Yemtsov in chapter 2 of this volume). Neverthe-
less, there has not yet been an attempt to describe the patterns of owner-
ship and control, nor to analyze their impact on different areas of
enterprise decisionmaking. It is these three issues—ownership structures,
patterns of control, and enterprise behavior—and their interrelationships
that are the subject matter of this chapter.

Alternative Ownership Forms and Enterprise Behavior:
Some Hypotheses

Although the literature on transition has stressed that privatization is a
critical component of the transition process, there have been few attempts
to evaluate the comparative strengths and weaknesses of alternative majority ownership structures for the newly privatized companies. Earle and Estrin (1994) argue that the balance of advantage shifts among different ownership forms according to the problem under consideration. For example, outsider ownership may offer superior access to external capital markets, but it may also cause greater social dislocation, while worker ownership may slow employment restructuring. In this section, we provide a simplified comparison of alternative majority ownership forms in achieving four widely accepted objectives of the transition, including:

1. Developing a politically independent and market-oriented enterprise sector, which we term "depoliticization".
2. Long-term restructuring
3. Short-term restructuring
4. Minimizing transaction costs associated with further evolution of ownership.

The hypothesized impact of each ownership form, in relation to one another and against the base case of state ownership, is reported in table 7-1. The table summarizes the analysis that follows, and indicates, for example, the predicted extent of depoliticization in worker-owned firms, relative both to state ownership and the other ownership forms. But a few words of caution are needed. First, the table summarizes results derived from theoretical models of 100 percent ownership by a single group. In defining our five ownership forms empirically, however, we take a majority stake (or indeed the largest single stake if other holdings are diversified) as implying effective control of the firm. This may be misleading. In practice, the largest group of owners may have highly diversified holdings, while minority interests may be greatly concentrated, giving the latter effective control. For example, enterprises classified as worker-owned according to ownership stake may actually be managerially controlled. We return to this issue below.

There are many assumptions behind the behavior hypothesized in the table, not all of which will always be satisfied. Three cases will suffice. First, the extent of restructuring will typically be greater when product and factor markets are more competitive, ceteris paribus. If sectoral and regional diversity is sufficient, these elements might swamp any independent ownership effects. Second, the precise institutional form of different ownership types may significantly affect behavior. Thus, firms owned collectively by workers with limited share tradeability might be expected to perform much worse than those owned by workers on the
Table 7-1. Comparison of the Impact of Alternative Ownership Forms in Attaining Objectives of Transition

<table>
<thead>
<tr>
<th>Item</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depoliticization</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Long-term restructuring</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>U</td>
</tr>
<tr>
<td>Unbundling</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>U</td>
</tr>
<tr>
<td>Investment</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>U</td>
</tr>
<tr>
<td>Internal organization</td>
<td></td>
<td></td>
<td>+++</td>
<td>U</td>
</tr>
<tr>
<td>Short-term restructuring</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>U</td>
</tr>
<tr>
<td>Nonlabor cost minimization</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>U</td>
</tr>
<tr>
<td>Labor cost minimization</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Evolution</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>U</td>
</tr>
</tbody>
</table>

Note: All entries are relative to the status quo, state ownership. The + denotes better; ++ denotes much better; +++ denotes comparable to Western firms; U denotes not a relevant comparison; 0 denotes the same as the state sector. WO: enterprises with dominant worker stake. MO: enterprises with dominant manager stake. OO: enterprises with dominant outsider stake. DN: newly established privately owned enterprises.

basis of individually held and freely tradable shares. Finally, the situation of the firm itself is relevant. Profitability clearly assists restructuring, regardless of ownership form. At the same time, collective employee ownership might be beneficial in situations of extreme loss-making by geographically isolated firms, because such a form allows workers to trade wages for employment security. These provisos aside, the table reports predictions about the relative impact of alternative ownership forms on restructuring. The arguments are summarized below.

Developing a Politically Independent and Market-Oriented Enterprise Sector

A fundamental objective for new ownership structures in transitional economies is to promote the clarification of property rights and to establish new objectives for the firm. All privatizations assign titles of ownership to particular individuals. But founding a new relationship with the state involves ensuring freedom for firms from arbitrary interference and a radical reorientation of goals from seeking rents to satisfying the demands of the market (see Boycko, Shleifer, and Vishny 1993; Frydman and Rapaczynski 1994).

Compared with state ownership, de novo private and outside private ownership seem likely to be best able to ensure depoliticization of the
firm and reorientation of objectives. To the extent that the new owners are entrepreneurs, they will be less a part of the old order, and perhaps have more restricted access to the flow of subsidies. Insiders will also have incentives to increase economic profits, since they personally stand to gain through their shareholdings. But they may also have closer ties to the state bureaucracy and greater opportunities to pursue special concessions than outsiders or new entrepreneurs.

Within the category of insiders, one might also predict a difference between managerial and worker ownership. If budget constraints are soft, it is arguable that transfers of ownership either to managers or to workers will have little or no effect on enterprise behavior, because both sets of new owners will remain motivated to maximize rents rather than profits or earnings per worker. Insider privatization is therefore unlikely to bring many benefits until budget constraints are tightened. Under somewhat harder budget constraints, the net returns to profit as against rent-seeking will be determined by both the opportunity costs and the benefits, which are in turn affected by the prospects of the firm, its environment, the political situation, and so forth. There may be some differences, however, between employee and managerial ownership in this respect. Workers represent a new and more diffuse group of owners than managers, who are generally survivors from an earlier period, maintaining their good connections and bad habits. The costs to seek rents may be higher for worker-owned firms than those under managerial ownership because the former may have more diffuse and heterogeneous objectives. More important, the benefits to rent-seeking may be lower in employee-owned firms because managers, given their longstanding connections under the previous regime, may be more effective at extracting subsidies. Managers may also be able to achieve higher returns to rent-seeking because they may be better able to appropriate the rents for themselves, or because there are fewer of them to share the spoils. In such circumstances, insider privatization to employee owners, by weakening the old relationships, might be superior to managerial ownership. Nevertheless, we predict that both will prove inferior to outsider privatization in this area.

**Long-Term Restructuring**

We focus on three issues here: unbundling, organizational structure, and investment. The boundaries of firms in a market economy are supposed to be determined by efficiency considerations: the costs and benefits of in-
integration. But in socialist economies, as emphasized by Kornai (1992), the relationship between the managers of firms and their superior, whether the director of a trust or a branch minister, differed little from the relationship between the manager and the foreman or production supervisor under his or her direction. An important element in the transition process is therefore to reorganize the groups of productive units that previously comprised the enterprise sector to form a new industrial structure in which the boundaries of the firms minimize internal transactions costs.

A market orientation should also be reflected in changes in enterprise organizational form. The structure of the organization should be adapted to respond to the changing demands of customers, to ensure adequate mechanisms for managerial control, and to provide appropriate information for rational decisionmaking. This may involve such moves as the establishment of new functional divisions within the firms suitable for finance or marketing and the development of new control and monitoring systems. Finally, long-term restructuring involves investment in capital equipment to introduce new technologies, to raise quality standards, to broaden product differentiation, and to address input wastage and its environmental consequences. An important issue is the ability of different ownership forms to mobilize capital and introduce new technologies.

Restructuring, both long and short term, is primarily a problem faced by current and former state-owned firms, so we exclude de novo private firms from these comparisons. Provided outsiders are able to exercise their nominal property rights, outsider ownership is probably best suited to long-term restructuring. Given their profit orientation, outside owners will take the most dispassionate view of existing production and organizational structures, and in principle they suffer least from agency problems in their dealings with external capital markets. Insider-owned firms might be expected to suffer more serious difficulties in raising outside capital because of the agency problems faced by lenders and minority investors (see, for example, Shleifer and Vasilyev 1994 and Hansmann 1990 for summaries).

Ownership by managers is also likely to dominate that of nonmanagerial employees in redefining the appropriate boundaries of the firm. Worker ownership may still be superior to state ownership, because rearranging the boundaries of the firm will be possible provided the employees who gain can compensate the losers. In principle, even highly
egalitarian employee-owned firm with high solidarity may therefore be able to undertake some restructuring and unbundling, provided it offers a potential Pareto improvement and some form of compensation package can be agreed upon.

In some situations, however, this compensation will not be possible, and potential Pareto improvements will not be convertible into actual Pareto improvements (for instance, because lump-sum transfers are infeasible or because of severe capital market imperfections). The biggest problems are likely to arise from the difficulties of collective decision-making under uncertainty, particularly when some groups of workers are earning supracompetitive rents. Many enterprises have a large number of potential restructuring paths—for instance, changing product lines, reorganizing company divisions, or adopting different kinds of new technologies—but each has different implications for the value of the human capital of groups of workers in the company. Given that the profit associated with each path is also greatly uncertain, each group of workers will try to block paths that seem likely to downgrade their own skills. Thus, it may not be difficult for blocking coalitions to form ex ante, preventing ex post desirable restructuring.

In resolving these agency problems, managerially owned firms have a clear advantage. They will be motivated to undertake any restructuring or rearrangements in the boundaries of the firm that increase profits. Supracompetitive wages may be reduced and workers laid off with little or no compensation. Agency problems apart, managerial ownership thus has the potential to yield restructuring benefits analogous to those of investor ownership, benefits greater than those under worker ownership.

**Short-Term Restructuring**

The transition process demands that firms become responsive to market signals in the short term, both in the products they choose to supply and in their use of factor inputs. In firms in which the optimal level of output has fallen, the ownership system must be able to effect large decreases in employment and other inputs. Because of inherited technologies and production practices that are wasteful in the use of inputs, including energy and labor, new owners must have the incentives and the ability to ensure that costs are reduced, that the factor mix is rationalized, that productiv-
ity is raised, and that quality is improved. These are the standard problems of restructuring (see, for example, Belka and others 1995; Estrin, Gelb, and Singh 1993).

Once again, one can predict that outside owners will have fewer qualms than insiders about reducing employment and implementing other short-term restructuring measures. Nevertheless, they might be unable to exercise their property rights in such sensitive areas, especially if insiders refuse to cooperate. Moreover, if product or factor markets are relatively more competitive and budget constraints hard, insiders may be forced to restructure and improve their efficiency in order to survive.

Comparing managerial and worker ownership, it is important to stress that both have equivalent incentives to increase economic profits and cut nonlabor costs. Worker-controlled firms, however, are more likely than managerially owned enterprises to perpetuate inefficiencies in the allocation of labor. The flip side of this argument is that worker-owners would probably be able to get rid of managers more easily. In cases where managerial turnover is a sine qua non for the firm to be turned around, managerial ownership has the disadvantage of entrenching bad managers.

Evolution of Governance Form

The transition process involves dynamic adjustment by organizations to changed and changing economic circumstances. The outcome of the process may be path dependent, and the appropriate institutional arrangements may gradually change as the process unfolds. In such circumstances, it may not be possible to specify ex ante the optimal ownership structure, but it would be desirable that whatever structure is first selected should have the flexibility to evolve as the dynamic path of transformation proceeds. The lower the transaction costs involved in exchanging ownership rights, the less binding the initial allocation of those rights, because markets would emerge to ensure a reallocation to achieve better matching of owners with assets. Institutions dealing with property rights should therefore be designed to lower transaction costs and to facilitate the development of financial markets. The new ownership configuration should also minimize the probability of degeneration back to state ownership.

Widespread ownership by outsiders, whether in de novo or privatized firms, is likely to encourage the development of secondary markets, and
thus further the evolutionary process of matching and rematching assets with owners. In contrast, concentrated insider ownership will discourage the development of takeover markets, because the lack of liquidity in small numbers of shares implies that it may be very difficult to earn the control premium on minority stakes previously acquired, and rematching is thus inhibited. If worker shareholdings are widely dispersed, secondary markets may develop more easily than if shares are concentrated in the hands of a few managers. Although still difficult, it may be somewhat easier for outsiders to take over companies by buying up small numbers of shares than by negotiating with a single manager or a small group of managers. While there may be a collective interest among the insiders to exclude outsiders, individual employees may "free ride" by selling their small holdings to outsiders. Concentrated insider holdings are more likely to lead to entrenchment because of the informational advantage of insiders over outsiders. In an environment that carries great uncertainty over the prospects for any company and suffers a lack of functioning financial markets to provide estimates of value, the concentration of holdings, together with the asymmetry of information, may give rise to adverse selection in the market for corporate control.

Summary of Hypotheses

In summary, outside ownership is predicted to provide the greatest progress toward our four objectives for enterprises in transition. Where relevant, this performance would be matched by de novo owners. Insider privatization is expected to be superior to state ownership, but inferior to majority outsider control. If we compare forms of insider ownership, worker ownership is hypothesized to have deficiencies in long-term restructuring, especially rearranging the boundaries of the firm, and in short-term restructuring when employment levels are at issue, but it is perhaps superior in depoliticization and evolution of governance structure.

Institutional Features of Russian Privatization

The Russian mass privatization involved large-scale giveaways to insiders, based on the argument that there was no politically feasible alternative form of privatization. This is because managers and workers had already accumulated tremendous political influence, and enterprises had
gained significant autonomy and *de facto* property rights. Early methods of ownership decentralization under *Perestroika* had already emphasized leasing arrangements, eventually resulting in insider buyouts at highly preferential prices.

The institutional features implied by the State Privatization Program seem straightforward. The legal form of enterprises is an open, individually owned joint-stock company, and shares are in principle fully tradable, and voting rights (of voting shares) are freely and equally exercised. But there are some important qualifications relevant to our hypotheses, which we list in increasing order of importance. First, in addition to the better-known ways in which workers were able to acquire shares, there was possibility of a kind of ESOP (Employee Stock Ownership Plan), the FARP (Fund of Workers’ Shares). On average, the FARP seems to hold only a minor fraction of shares, but may sometimes be more significant, exercising a governance role and restraining share trading. Second, under the “Option 1” method of privatization, 25 percent of company shares were given to company employees free-of-charge, but under the condition that they be nonvoting. Third, as noted above, many companies were privatized outside the State Privatization Program, generally through the buyout of a lease granted to the workers’ collective during the years of *Perestroika*. According to Webster and others (1994, p. 11), “almost all former leaseholds were either closed joint stock or limited liability companies.” In closed joint-stock companies, share trading is permitted only among employees and with the approval of the workers’ collective (which apparently survives in many firms).

Furthermore, many observers question the degree to which the legal institutions function in practice, even in nominally open joint-stock companies. For instance, there seems to be some evidence of ESOP-like trusts being formed to stifle worker influence. According to Blasi (1994), many managers intended to form a trust for the employees’ shares in order to control how those shares were voted. More generally, voting rights may not always be freely exercised. Managers have reportedly often postponed the first general meeting of shareholders after privatization, and voting is sometimes said to be conducted neither by secret ballot nor in proportion to shareholdings. Despite frequent press accounts, it is difficult to obtain reliable information on such practices or to estimate their prevalence.
There also seem to be many constraints on the tradability of shares, resulting partly from attempts by insiders to prevent the entry of outside investors, and partly from the limited development of secondary markets. Probably the best evidence for the poor possibilities for share trading was the extremely low cash value of vouchers, and the implied low value of company shares. Because the cash value of vouchers was determined primarily by transactions involving minority investors, it seems likely that the control premium in this case is enormous: outsiders have little willingness to pay for minority stakes in insider-controlled firms.

Finally, we come to the issue of the residual softness of budget constraints. Little change in enterprise behavior can be expected to result from ownership changes when firms systematically fail to bear the costs or win the benefits of their actions. It is often assumed that subsidy reductions are necessarily associated with privatization, but in Russia this may not be true. Indeed, shortly after the voucher privatization process began, and no doubt with the intention of encouraging the process to move forward, President Yeltsin signed a state decree, “On Not Permitting Discrimination Against Privatized Enterprises in the Provision of State Financial Support” (November 27, 1992). Nonetheless, there seems to be agreement that subsidies and money creation generally declined in 1993 and 1994, so that the “nondiscrimination” may be starting to apply in the form of hard budget constraints for all. If this is true, privatization could begin to affect behavior in Russia. We examine the evidence provided by the survey on these points below.

Corporate Control in Russian Enterprises

In our subsequent empirical work, we address whether firms owned by different groups of majority or dominant owners behave differently. To examine this question, five categories of ownership groups were constructed. The firms in the sample were first classified according to whether they were old enterprises (privatized or state-owned [SO]) or new private ones (de novo private firms, DNs). Categories for the possible controlling interests in the old firms were then defined on the basis of the information on legal form, method of privatization, status of privatization, and the structure of ownership, the last determined by the percentage of voting shares held at the time of interview by ten categories of owners.
Old firms were then categorized into state enterprises and those claiming their company "has been privatized." The latter companies were designated as outsider-owned (OO) if banks, investment funds, other domestic firms, foreign institutions, and individuals other than employees together held more than the combined total for insiders. Insider-owned companies were considered to be managerially controlled (MO) when the percentage of shares held by managers was at least as great as that held by nonmanagerial employees. When a larger share was held by nonmanagerial employees, we classified a firm as worker-owned (WO).

Table 7-2 reports information on the ownership structure of the 439 companies in the sample. Of these, 45 are DNs and 325 are old firms, of which 110 still have a dominant state share and 214 are majority privatized (the remaining firms are unclassified). The sample of state-owned and privatized firms was randomly drawn from a list of the population of industrial firms employing more than fifteen workers, to which were added a predetermined number of de novo firms. The data therefore provide an opportunity, which is particularly valuable in the absence of comprehensive official statistics, to measure the ownership outcome of the Russian privatization process. Workers have become dominant owners in a majority of cases: WOs account for 138 firms, 65 percent of the total; 19 percent, or 40 firms, are MOs; while the remaining 16 percent, 36 firms, are OOs. Among all privatized companies, workers hold an (unweighted) average of 47.5 percent of all shares, and managers hold 20.8, which yields a total insider stake of 68.3 percent, over two-thirds of all shares. The remainder is divided between the state (10.7 percent) and outsiders (19.7 percent), while 1.1 percent of the shares were owned by unclassifiable "others."

The sample contains significant diversity in category of dominant owner, which makes it well-suited for our purpose of relating these categories to elements of the firms’ behavior. There also appears to be an association between the extent of share ownership by workers and that of outsiders: each is more likely to own shares in a company dominated by the other than they are to own shares in a company dominated by either managers or the state. Managers and outsiders seem particularly unwilling to own shares in one another's companies. In addition, the state appears to exhibit a slight preference for share ownership in companies dominated by managers over those dominated by workers or outsiders.
Table 7-2. Distribution of Ownership by Dominant Owner Type

<table>
<thead>
<tr>
<th>Category</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>00</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>89</td>
<td>10</td>
<td>13</td>
<td>12</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>Mean</td>
<td>7</td>
<td>63</td>
<td>14</td>
<td>26</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>21</td>
<td>14</td>
<td>15</td>
<td>13</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>Workers</td>
<td>7</td>
<td>63</td>
<td>14</td>
<td>26</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>Mean</td>
<td>2</td>
<td>12</td>
<td>63</td>
<td>7</td>
<td>58</td>
<td>17</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>5</td>
<td>11</td>
<td>23</td>
<td>7</td>
<td>39</td>
<td>26</td>
</tr>
<tr>
<td>Managers</td>
<td>2</td>
<td>14</td>
<td>9</td>
<td>53</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>Mean</td>
<td>6</td>
<td>16</td>
<td>12</td>
<td>21</td>
<td>36</td>
<td>22</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Outsiders</td>
<td>6</td>
<td>16</td>
<td>12</td>
<td>21</td>
<td>36</td>
<td>22</td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>110</td>
<td>138</td>
<td>40</td>
<td>36</td>
<td>45</td>
<td>439</td>
</tr>
</tbody>
</table>

Note: SO: enterprises with dominant state stake; WO: enterprises with dominant worker stake; MO: enterprises with dominant manager stake; 00: enterprises with dominant outsider stake; DN: newly established, privately owned enterprises. The total column includes firms that were not classifiable according to dominant owner, and thus the numbers do not correspond strictly to the sum (or average) of the previous five columns.

Together, these results provide some evidence against the somewhat prevalent views (for instance, in Webster and others 1994) that managers and workers are in close coalition with one another in privatized Russian firms, and that managers are more likely than workers to become independent of the state.

Official data on the ownership structure of the newly privatized companies is unavailable. Nevertheless, our results on ownership shares are of the same order as those obtained from three earlier surveys that attempted to collect some of this information for samples of privatized companies. In Pistor’s (1994) sample of thirty-six firms, all employees together received an average of 61.8 percent of all shares, while outsiders held an average of 19 percent, and the State Property Fund retained 19.3 percent. Blasi’s (1994) survey of 127 privatized firms found 90 percent with majority employee ownership. On average, insiders held 65 percent of shares in his sample, with a median of 60 percent. Finally, Webster
Table 7-3. Legal Form by Dominant Owner Type

<table>
<thead>
<tr>
<th>Legal form</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint stock</td>
<td>27</td>
<td>120</td>
<td>30</td>
<td>31</td>
<td>12</td>
<td>267</td>
</tr>
<tr>
<td>Limited liability</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>General partnership</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Limited partnership</td>
<td>0</td>
<td>9</td>
<td>5</td>
<td>0</td>
<td>11</td>
<td>33</td>
</tr>
<tr>
<td>Cooperatives</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Physical persons</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>State-owned joint stock</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Leasehold</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nonincorporated, state-owned</td>
<td>68</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>133</td>
<td>39</td>
<td>31</td>
<td>44</td>
<td>415</td>
</tr>
</tbody>
</table>

Note: The total column includes firms that were not classifiable according to dominant owner, and thus the numbers do not correspond strictly to the sum of the previous five columns.

and others (1994) reported on a survey of ninety-two privatized firms in Moskovskaya and Vladimirkaya oblasts conducted in October 1993. On average, only 10 percent of the shares of these companies remained with the state, managers held 17 percent, and workers have 61 percent.

These studies, of course, rely on small, nonrandom samples and did not have information on major aspects of ownership rights, such as whether shares were voting or nonvoting. Our findings also differ, particularly insofar as the managerial stake in the companies in our sample is significantly larger, and because we did find a significant number of outsider-controlled companies in the privatized group. The survey was also conducted later, and there may, of course, have been some evolution of the ownership structure, although most commentators believe such changes have been minimal so far (see Blasi and Shleifer 1995).

Tables 7-3 to 7-6 provide information on other characteristics of our sample by our categories of ownership. Table 7-3 reports the breakdown according to legal form for the 415 companies for which this information is available. Among privatized companies, the joint-stock form overwhelmingly predominates, with 90 percent of the total, but we are unable to distinguish closed from open joint-stock companies. DNs exhibit a wider variety of forms; the largest number are individual entrepreneurships.
Table 7-4. Branch by Dominant Owner Type

<table>
<thead>
<tr>
<th>Industry sector</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Fuel</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Ferrous metallurgy</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Nonferrous metallurgy</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Chemicals</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Heavy machine building</td>
<td>6</td>
<td>11</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Electrotechnical</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Machine tools and computers</td>
<td>7</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Automobile industry</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Agricultural machinery</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Light machine building</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Defense industry</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Shipbuilding</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Radio industry</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Communications and electronics</td>
<td>7</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Metal constructions</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Machine repairing</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Wood harvesting</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Woodworking industry</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Construction materials</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>Textiles</td>
<td>4</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Clothing industry</td>
<td>2</td>
<td>13</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Food processing</td>
<td>6</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Meat and milk</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Other industrial production</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Commercial activity</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Military-industrial complex</td>
<td>31</td>
<td>12</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>138</td>
<td>40</td>
<td>36</td>
<td>45</td>
<td>369</td>
</tr>
</tbody>
</table>

In Table 7-4 the distribution by industrial branch is shown, and in Table 7-6 the distribution by region. In order to control for differences in technologies and in shocks across firms, we have disaggregated branches according to the major product, which results in twenty-six roughly two-digit industrial branches. The survey instrument also asked which firms were part of the military-industrial complex (MIC); 53 of the 369 placed themselves in that category, as against 14 in the defense sector. About 60 percent of MIC firms remain state-owned, a higher proportion than that of all firms, and of the roughly 40 percent that have been privat-
Table 7-5. Dominant Owner by Industry Sector Group

<table>
<thead>
<tr>
<th>Industry sector group</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel and energy</td>
<td>13</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Heavy industry</td>
<td>36</td>
<td>56</td>
<td>13</td>
<td>18</td>
<td>18</td>
<td>141</td>
</tr>
<tr>
<td>Light industry</td>
<td>42</td>
<td>34</td>
<td>8</td>
<td>13</td>
<td>16</td>
<td>113</td>
</tr>
<tr>
<td>Consumer goods</td>
<td>19</td>
<td>44</td>
<td>17</td>
<td>4</td>
<td>11</td>
<td>95</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>138</td>
<td>40</td>
<td>36</td>
<td>45</td>
<td>369</td>
</tr>
</tbody>
</table>

Note: SO: enterprises with dominant state stake. WO: enterprises with dominant worker stake. MO: enterprises with dominant manager stake. OO: enterprises with dominant outsider stake. DN: newly established privately owned enterprises.

Table 7-6. Region by Dominant Owner Type

<table>
<thead>
<tr>
<th>Region</th>
<th>Total</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>53</td>
<td>17</td>
<td>16</td>
<td>6</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Volga-Vyatka</td>
<td>21</td>
<td>6</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Povolzhski</td>
<td>49</td>
<td>21</td>
<td>18</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>North Caucasus</td>
<td>36</td>
<td>1</td>
<td>23</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Urals</td>
<td>49</td>
<td>18</td>
<td>14</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>West Siberia</td>
<td>43</td>
<td>13</td>
<td>21</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>East Siberia</td>
<td>29</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Moscow</td>
<td>43</td>
<td>16</td>
<td>11</td>
<td>6</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Centre</td>
<td>46</td>
<td>10</td>
<td>20</td>
<td>3</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>110</td>
<td>138</td>
<td>40</td>
<td>36</td>
<td>45</td>
</tr>
</tbody>
</table>

Note: SO: enterprises with dominant state stake. WO: enterprises with dominant worker stake. MO: enterprises with dominant manager stake. OO: enterprises with dominant outsider stake. DN: newly established privately owned enterprises.
ucts are in demand. In Group 3, 67 percent of enterprises are also SO and WO, perhaps so the state can continue to control sectors such as electronics. In Group 4 workers control more than 45 percent of enterprises, and the state less than 20 percent, perhaps because these sectors require lower levels of investment.

Regarding regions, we have combined similar groups of oblasts into nine regions, closely following the usual division of the Russian Federation into twelve economic regions, which differ in level of economic development and infrastructure, the availability of natural and human resources, their fields of specialization, and their geographic locations. Because of the small number of observations in some regions, however, we have combined the regions of the North and Northwest, Central and Central-Chernozem, and Eastern Siberia and the Far East. In Kaliningrad, we had no observations, and we treat Moscow as a separate region.17

Ownership and Control in Russian Firms

What do these data on the structure of ownership imply about who controls Russian firms and the nature of enterprise behavior? Despite the relatively small proportion of managerially dominated firms, and of managerial ownership generally, most observers believe that top managers have remained firmly in control (see Blasi 1994; Boycko, Shleifer, and Vishny 1993). In this section we look at the reported degree of “influence” over the kinds of decisions exercised by different owners to test whether nominal ownership and effective controls are positively correlated.

“Influence” is measured in our data as a qualitative variable that can take on one of three values: “rarely or never influential” (1), “moderate influence” (2), or “dominant, most important” (3). We assume that these categories are adequate proxies for participation in decisionmaking about the firm’s operation, and analyze their relationship with ownership shares.

Tables 7-7, 7-8, 7-9, and 7-10 contain the means, by ownership-control category, of the reported influence of several kinds of “actors” over four different kinds of decisions: (a) sales, production, marketing, and current operations; (b) employment, hiring, and firing of workers and social and nonwage benefits; (c) employment, hiring, and firing of management and managerial compensation; and (d) allocation of profits, major investments, sale or lease of major assets, and financial issues generally. One might expect the influence of outside owners to be greater in category d
Table 7-7. Clarification of Property Rights: Influence of Actors by Dominant Owner Type

<table>
<thead>
<tr>
<th>Actor</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management, Board of Directors</td>
<td>2.77</td>
<td>2.68</td>
<td>2.86</td>
<td>2.63</td>
<td>2.76</td>
<td>2.73</td>
</tr>
<tr>
<td>Manager-shareholders</td>
<td>2.48</td>
<td>2.48</td>
<td>2.58</td>
<td>2.48</td>
<td>2.65</td>
<td>2.52</td>
</tr>
<tr>
<td>Worker-shareholders</td>
<td>1.36</td>
<td>1.39</td>
<td>1.41</td>
<td>1.24</td>
<td>1.32</td>
<td>1.35</td>
</tr>
<tr>
<td>Outside individual owners</td>
<td>1.15</td>
<td>1.15</td>
<td>1.00</td>
<td>1.30</td>
<td>1.30</td>
<td>1.17</td>
</tr>
<tr>
<td>Outside institutional owners</td>
<td>1.26</td>
<td>1.25</td>
<td>1.00</td>
<td>1.30</td>
<td>1.00</td>
<td>1.21</td>
</tr>
<tr>
<td>Local government</td>
<td>1.34</td>
<td>1.20</td>
<td>1.16</td>
<td>1.13</td>
<td>1.23</td>
<td>1.23</td>
</tr>
<tr>
<td>Federal government</td>
<td>1.47</td>
<td>1.24</td>
<td>1.30</td>
<td>1.38</td>
<td>1.22</td>
<td>1.35</td>
</tr>
<tr>
<td>Banks</td>
<td>1.19</td>
<td>1.33</td>
<td>1.27</td>
<td>1.41</td>
<td>1.31</td>
<td>1.30</td>
</tr>
</tbody>
</table>

Note: SO: enterprises with dominant state stake; WO: enterprises with dominant worker stake; MO: enterprises with dominant manager stake; OO: enterprises with dominant outsider stake; DN: newly established, privately owned enterprises. The total column includes firms that were not classifiable according to dominant owner, and thus this does not correspond strictly to the sum (or average) of the previous five columns.

than in the other decision areas; of workers to be relatively greater in b; and of managers in a. One would also expect dominant owners to have significantly more influence on decisionmaking in general than other actors.

None of these propositions seems to hold for the data. Rather, in every firm, “management and executive boards” are reported to have the great-

Table 7-8. Decisions Concerning Employment: Hiring and Firing of Workers, Social and Nonwage Benefits

<table>
<thead>
<tr>
<th>Actor</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management, Board of Directors</td>
<td>2.71</td>
<td>2.60</td>
<td>2.78</td>
<td>2.51</td>
<td>2.66</td>
<td>2.66</td>
</tr>
<tr>
<td>Manager-shareholders</td>
<td>2.44</td>
<td>2.40</td>
<td>2.55</td>
<td>2.46</td>
<td>2.64</td>
<td>2.49</td>
</tr>
<tr>
<td>Worker-shareholders</td>
<td>1.45</td>
<td>1.43</td>
<td>1.47</td>
<td>1.27</td>
<td>1.21</td>
<td>1.41</td>
</tr>
<tr>
<td>Outside individual owners</td>
<td>1.14</td>
<td>1.11</td>
<td>1.00</td>
<td>1.17</td>
<td>1.20</td>
<td>1.11</td>
</tr>
<tr>
<td>Outside institutional owners</td>
<td>1.25</td>
<td>1.19</td>
<td>1.00</td>
<td>1.26</td>
<td>1.00</td>
<td>1.15</td>
</tr>
<tr>
<td>Local government</td>
<td>1.26</td>
<td>1.21</td>
<td>1.19</td>
<td>1.36</td>
<td>1.18</td>
<td>1.22</td>
</tr>
<tr>
<td>Federal government</td>
<td>1.19</td>
<td>1.13</td>
<td>1.14</td>
<td>1.21</td>
<td>1.14</td>
<td>1.17</td>
</tr>
<tr>
<td>Banks</td>
<td>1.08</td>
<td>1.11</td>
<td>1.09</td>
<td>1.03</td>
<td>1.14</td>
<td>1.11</td>
</tr>
</tbody>
</table>

Note: The total column includes firms that were not classifiable according to dominant owner, and thus this does not correspond strictly to the sum (or average) of the previous five columns.
Table 7-9. Decisions Concerning Employment: Hiring and Firing of Management, Managerial Compensation

<table>
<thead>
<tr>
<th>Actor</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management, Board of Directors</td>
<td>2.69</td>
<td>2.61</td>
<td>2.86</td>
<td>2.74</td>
<td>2.66</td>
<td>2.69</td>
</tr>
<tr>
<td>Manager-shareholders</td>
<td>2.40</td>
<td>2.32</td>
<td>2.52</td>
<td>2.57</td>
<td>2.74</td>
<td>2.47</td>
</tr>
<tr>
<td>Worker-shareholders</td>
<td>1.24</td>
<td>1.33</td>
<td>1.36</td>
<td>1.26</td>
<td>1.28</td>
<td>1.31</td>
</tr>
<tr>
<td>Outside individual owners</td>
<td>1.11</td>
<td>1.12</td>
<td>1.00</td>
<td>1.17</td>
<td>1.10</td>
<td>1.11</td>
</tr>
<tr>
<td>Outside institutional owners</td>
<td>1.21</td>
<td>1.23</td>
<td>1.06</td>
<td>1.41</td>
<td>1.00</td>
<td>1.19</td>
</tr>
<tr>
<td>Local government</td>
<td>1.30</td>
<td>1.19</td>
<td>1.13</td>
<td>1.25</td>
<td>1.10</td>
<td>1.22</td>
</tr>
<tr>
<td>Federal government</td>
<td>1.26</td>
<td>1.16</td>
<td>1.14</td>
<td>1.10</td>
<td>1.14</td>
<td>1.19</td>
</tr>
<tr>
<td>Banks</td>
<td>1.10</td>
<td>1.11</td>
<td>1.10</td>
<td>1.03</td>
<td>1.14</td>
<td>1.11</td>
</tr>
</tbody>
</table>

Note: See table 7-2 for acronyms and notes.

The greatest influence on all kinds of decisions. They are closely followed by managerial shareholders, while at first glance all other actors dwindle into insignificance.

There are, however, a few areas in which dominant ownership category affects control over enterprise decisions. First, we note that worker-shareholder influence is consistently greater than the influence of the other actors, with the exception of managers. In this regard, it is particularly worrisome that workers are seen as moderately influential over the allocation of profit, especially in worker-owned firms. This sits somewhat uneasily with studies that dismiss the influence of workers outright (see,

Table 7-10. Decisions Concerning Allocation of Profits, Major Investments, Sale or Lease of Major Assets, Financial Issues Generally

<table>
<thead>
<tr>
<th>Actor</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management, Board of Directors</td>
<td>2.77</td>
<td>2.87</td>
<td>2.92</td>
<td>2.67</td>
<td>2.63</td>
<td>2.81</td>
</tr>
<tr>
<td>Manager-shareholders</td>
<td>2.47</td>
<td>2.53</td>
<td>2.81</td>
<td>2.41</td>
<td>2.71</td>
<td>2.59</td>
</tr>
<tr>
<td>Worker-shareholders</td>
<td>1.42</td>
<td>1.68</td>
<td>1.63</td>
<td>1.26</td>
<td>1.26</td>
<td>1.53</td>
</tr>
<tr>
<td>Outside individual owners</td>
<td>1.19</td>
<td>1.23</td>
<td>1.10</td>
<td>1.43</td>
<td>1.22</td>
<td>1.25</td>
</tr>
<tr>
<td>Outside institutional owners</td>
<td>1.46</td>
<td>1.34</td>
<td>1.12</td>
<td>1.63</td>
<td>1.00</td>
<td>1.37</td>
</tr>
<tr>
<td>Local government</td>
<td>1.34</td>
<td>1.27</td>
<td>1.23</td>
<td>1.33</td>
<td>1.29</td>
<td>1.29</td>
</tr>
<tr>
<td>Federal government</td>
<td>1.46</td>
<td>1.25</td>
<td>1.28</td>
<td>1.32</td>
<td>1.27</td>
<td>1.32</td>
</tr>
<tr>
<td>Banks</td>
<td>1.24</td>
<td>1.27</td>
<td>1.13</td>
<td>1.23</td>
<td>1.22</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Note: See table 7-2.
for example, Blasi and Shleifer 1995). The flip side is that we find limited evidence of outside owners—either individuals or institutions—having significant influence over enterprise decisions, although outsiders do have some influence over financial decisions in OOs, and banks on production and sales. This weak outside control holds, despite the survey suggestion that their shareholdings are considerable (15 percent on average) and that they are dominant shareholders in about 15 percent of privatized firms. This suggests that, rather than searching for changed shareholdings, one has to look to changes in control and behavior before applauding the gradual increase in outsider shareholdings in Russian firms. Finally, we note a continued, if secondary, influence of the state, especially in state-owned firms and in decisions regarding production and the allocation of profit.

We go on to investigate more systematically whether these measures of influence are associated with the magnitude of ownership stakes, using correlation analysis. Table 7-11 contains simple correlation coefficients between influence and ownership share. The coefficients are typically low, and relatively few are statistically significant. Nevertheless, the two groups that gain significantly more influence through higher ownership are managers—over the issues of long-run resource allocation—and outside individual owners—over all issues except questions of short-run sales and production. Banks as owners also appear to be able to exercise some control over production decisions through their shareholding.

Table 7-11. Correlation of Ownership and Influence

<table>
<thead>
<tr>
<th>Type of owner</th>
<th>n</th>
<th>Type of decision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Manager-shareholders</td>
<td>257</td>
<td>0.108</td>
</tr>
<tr>
<td>Worker-shareholders</td>
<td>233</td>
<td>0.109</td>
</tr>
<tr>
<td>Outside individual owners</td>
<td>160</td>
<td>0.178</td>
</tr>
<tr>
<td>Outside institutional owners</td>
<td>123</td>
<td>0.030</td>
</tr>
<tr>
<td>Local government</td>
<td>202</td>
<td>0.017</td>
</tr>
<tr>
<td>Federal government</td>
<td>188</td>
<td>0.150</td>
</tr>
<tr>
<td>Banks</td>
<td>193</td>
<td>0.209*</td>
</tr>
</tbody>
</table>

Note: A: sales, production, marketing, current operations; B: employment, hiring, and firing of workers, social and nonwage benefits; C: employment, hiring, and firing of management, managerial compensation; D: allocation of profits, major investments, sale or lease of major assets, financial issues generally.

a. One-tailed significance: 0.01.
Worker shareholdings are positively correlated with influence, especially over questions of managerial employment and long-run allocative issues, but the effect is not quite significant.

These results might be taken as evidence for the common view that Russian managers are largely in control of their firms, regardless of share ownership (see Blasi 1994; Boycko, Shleifer, and Vishny 1993; and Shleifer and Vasilyev 1994). It must be remembered, however, that in all cases the evidence relies on the self-reported perceptions of the managers themselves. The widespread self-confidence of managers does not in itself constitute sufficient evidence. Table 7-11 suggests that the higher shareholding yields greater influence, both to outsiders and to banks, and while the evidence on worker shareholdings is weaker, one could imagine a normally quiescent workforce intervening to prevent drastic restructuring. We therefore go on to examine how closely the objectives of the firm, as demonstrated through observable actions, follow the interests of dominant shareholder groups.

Ownership and Enterprise Behavior

In this section we analyze empirically whether different structures of shareholding influence enterprise behavior in Russia. In particular, we test some of the hypotheses outlined earlier about the relative effects of privatizing to different dominant ownership groups. We report our findings in three subsections:

- Changing the nature of the economic relationship between the firm and the state ("depoliticization")
- Long- and short-term restructuring strategies ("reorientation")
- Short-term enterprise performance, in employment, sales, exports, and the like.

The latter two subsections conflate the second and third "objectives of transition," mentioned earlier, in a manner dictated by the data.

Unlike the previous section, where we looked at both the number of shares held by each ownership group and the firms categorized according to dominant owner, in the work that follows we look only at the five ownership groups by controlling shareholder interest. Our general approach is to use regression analysis to investigate whether there are statistically significant differences in enterprise performance by dominant
ownership category, and if so, whether these differences persist once we control for sectoral, regional, and firm-specific sources of heterogeneity within each ownership class.

Our approach is to estimate four OLS regressions on each indicator of performance, commencing with the ownership dummies, then adding a lagged endogenous variable (where available), then including sectoral and regional dummies, and finally controlling for size by employment in 1991. The simplest equation provides information on the distribution of performance by ownership type. The second is a dynamic specification that indicates the impact of ownership on change in performance. Neither of these equations include any other explanatory variables, and they are intended to describe, in a statistically meaningful way, the differences among the ownership groups. The third equation tests whether ownership effects on the change in performance can be isolated when a fuller set of explanatory variables has been included as independent variables to control for firm-specific heterogeneity in the data set. In the absence of a formal model to guide the choice of independent variables, and for parsimony and consistency between equations, we prefer to report only regressions that control for competitive market pressures and locational effects, picked up by sectoral and regional dummies, respectively. Because the size of the firm may be an important variable for certain aspects of Russian transition, however, especially when comparing de novo with current and former state-owned firms, we sometimes also report a final equation that further includes a proxy for firm size—employment in 1991. This helps in the analysis of the relative performance of de novo firms, which could perform differently because they are new and private, or because they are new and small (see Richter and Schaffer, chapter 8 of this volume).

**Distancing from the State**

In this subsection, we investigate the hypothesis that, relative to state ownership, outsider-owned firms, and especially DNs, will be the most successful in distancing themselves from the state. Between managerially and worker-owned firms, we want to test whether worker-owned firms become relatively less dependent on the state than their managerially owned counterparts.
Our initial approach is descriptive. In table 7-12 we report several proxies for state influence in, and support for, enterprises. The first three variables concern sales of products to state customers, the argument being that the relationship between the enterprise and the state will be closer in enterprises producing primarily for procurement, whether military or not. $PRFORST2$ is the percentage of revenue from all “government customers,” while $PRFORST4$ is the percentage of revenue from the sale of what we infer to be publicly procured goods. According to both measures, government sales are most important to SOs, followed in order by MOs and OOs, but they are least important to WOs. Although the standard deviations are large enough to suggest caution in interpreting the results, on average it does appear that the WOs have the fewest supply ties to the state among old companies. It is surprising, however, that the proportion of total revenue derived from government sales on the part of DNs is quite high—30.8 percent—perhaps providing evidence of some dependency of the new private sector on the state.

$PROFORST$ measures the change in the percentage of revenue derived from sales of publicly procured goods since 1990 (the change in $PRFORST2$ is unavailable). The decrease averaged only 2.6 percent, with the size of the decline directly related to the current level, so that these sales fell the most in SOs, followed by MOs, OOs, and WOs. Regression results are reported in table 7-13. In the first column, the only independent variables are dummies for dominant owner groups. We confirm that WOs, OOs, and DNs receive a smaller percentage of their revenue from the state, differences that are significant at the 1 percent level (for WOs), the 5 percent level (for DNs), and the 10 percent level (for OOs). But these results are level rather than rate-of-change phenomena; they vanish in the second column, where $PRFORST4$ from 1990 is added to the right-hand side. The lagged dependent variable has a coefficient of .66, which, with a $t$-statistic of 27.5, accounts for much of the variation in current sales to the state. This is evidence that there is significant inertia in sales to the state. The third column shows the results from adding controls for sector and region, many of which are significant, but the most important explanatory variable remains the four-year lagged dependent variable. In the latter two equations, we do not pick up any significant differences across ownership forms. This suggests that the significant rankings by ownership type are selection effects by history, region, and
## Table 7-12. Depoliticization

<table>
<thead>
<tr>
<th>Dominant owner</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRFORST2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>32.72</td>
<td>22.56</td>
<td>24.03</td>
<td>23.82</td>
<td>30.77</td>
<td>26.27</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>42.00</td>
<td>35.44</td>
<td>37.43</td>
<td>40.95</td>
<td>42.09</td>
<td>38.61</td>
</tr>
<tr>
<td><strong>PRFORST4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9.93</td>
<td>2.21</td>
<td>7.58</td>
<td>3.10</td>
<td>3.02</td>
<td>5.50</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>24.66</td>
<td>12.34</td>
<td>21.98</td>
<td>13.93</td>
<td>11.03</td>
<td>19.18</td>
</tr>
<tr>
<td><strong>PROFORST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>-5.56</td>
<td>-1.08</td>
<td>-2.89</td>
<td>-1.93</td>
<td>0.20</td>
<td>-2.56</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>17.41</td>
<td>5.18</td>
<td>11.31</td>
<td>9.90</td>
<td>3.26</td>
<td>11.56</td>
</tr>
<tr>
<td><strong>PRICONT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.57</td>
<td>0.32</td>
<td>0.32</td>
<td>0.30</td>
<td>0.24</td>
<td>0.38</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.52</td>
<td>0.47</td>
<td>0.47</td>
<td>0.47</td>
<td>0.43</td>
<td>0.48</td>
</tr>
<tr>
<td><strong>ARRTOST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>20.00</td>
<td>13.03</td>
<td>13.16</td>
<td>6.25</td>
<td>6.15</td>
<td>13.88</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>33.67</td>
<td>27.24</td>
<td>24.77</td>
<td>21.63</td>
<td>22.19</td>
<td>28.56</td>
</tr>
<tr>
<td><strong>STATLOAN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.20</td>
<td>0.14</td>
<td>0.13</td>
<td>0.14</td>
<td>0.09</td>
<td>0.13</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.40</td>
<td>0.34</td>
<td>0.33</td>
<td>0.36</td>
<td>0.29</td>
<td>0.34</td>
</tr>
<tr>
<td><strong>PREFLOAN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>22.09</td>
<td>15.21</td>
<td>6.40</td>
<td>20.58</td>
<td>14.00</td>
<td>16.03</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>35.49</td>
<td>27.54</td>
<td>15.79</td>
<td>25.26</td>
<td>31.94</td>
<td>28.38</td>
</tr>
<tr>
<td><strong>GOVSUP92</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.33</td>
<td>0.19</td>
<td>0.18</td>
<td>0.23</td>
<td>0.13</td>
<td>0.22</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.47</td>
<td>0.40</td>
<td>0.38</td>
<td>0.43</td>
<td>0.34</td>
<td>0.41</td>
</tr>
<tr>
<td><strong>GOVSUP93</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.46</td>
<td>0.32</td>
<td>0.28</td>
<td>0.37</td>
<td>0.16</td>
<td>0.32</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.50</td>
<td>0.47</td>
<td>0.45</td>
<td>0.49</td>
<td>0.37</td>
<td>0.47</td>
</tr>
<tr>
<td><strong>GOVSUP94</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.39</td>
<td>0.20</td>
<td>0.20</td>
<td>0.31</td>
<td>0.16</td>
<td>0.26</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.49</td>
<td>0.40</td>
<td>0.41</td>
<td>0.47</td>
<td>0.37</td>
<td>0.44</td>
</tr>
<tr>
<td><strong>GOVASS92</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>93.67</td>
<td>13.47</td>
<td>10.95</td>
<td>13.97</td>
<td>0.18</td>
<td>30.02</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>449.48</td>
<td>57.94</td>
<td>31.22</td>
<td>48.98</td>
<td>0.79</td>
<td>225.60</td>
</tr>
<tr>
<td><strong>GOVASS93</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>611.69</td>
<td>67.29</td>
<td>139.72</td>
<td>213.09</td>
<td>5.52</td>
<td>220.32</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3,150.09</td>
<td>239.02</td>
<td>519.93</td>
<td>905.69</td>
<td>28.30</td>
<td>1,621.70</td>
</tr>
<tr>
<td><strong>GOVASS94</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>368.50</td>
<td>107.06</td>
<td>82.92</td>
<td>163.62</td>
<td>3.09</td>
<td>160.22</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1,251.56</td>
<td>700.49</td>
<td>231.05</td>
<td>613.77</td>
<td>11.71</td>
<td>784.17</td>
</tr>
<tr>
<td><strong>GASS94BE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.16</td>
<td>0.10</td>
<td>0.06</td>
<td>0.11</td>
<td>0.03</td>
<td>0.79</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.50</td>
<td>0.61</td>
<td>0.17</td>
<td>0.30</td>
<td>0.09</td>
<td>13.36</td>
</tr>
</tbody>
</table>
Table 7-12 (continued)

<table>
<thead>
<tr>
<th>Dominant owner</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>CO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>-0.61</td>
<td>-0.38</td>
<td>-0.37</td>
<td>-0.58</td>
<td>-0.15</td>
<td>0.30</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.42</td>
<td>1.17</td>
<td>1.48</td>
<td>1.68</td>
<td>0.68</td>
<td>13.35</td>
</tr>
</tbody>
</table>

Note: PRFORST: percentage of production to the state out of the total revenues in 1994; PRFORST(T-4): percentage of production to the state out of the total revenues in 1990; PROFORST: change in percentage of total revenue provided by these goods in 1994 compared to 1990; ARRTOST: percentage of liabilities to the state that are overdue more than three months; PRICONT: dummy, which takes on value of 1 if there is price control and 0 otherwise; STATLOAN: dummy that takes on value 1 if enterprise received any loan from government; PREFLOAN: percentage of total loans received at the central bank discount rate. The total column includes firms that were not classifiable according to dominant owner, and thus this does not correspond strictly to the sum (or average) of the previous five columns. GOVSUP94-92: dummy defined as 0 if there was no government support in 1994-92, 1 otherwise; GOVASS94-92: million rubles of government assistance in years 1994-92; GASS94BE: million 1994 rubles of government support per employee received in 1994. GASS4BE = GOVASS94/EMPLOYMENT91 - GOVASS93/EMPLOYMENT93, where IPI is Industrial Price Index.

sector, and the ownership category is not yet significantly affecting the pace of change of sales to the state.

Although it is unlikely to be under the direct influence of enterprises, the continuing existence of price controls does reflect lingering state involvement in enterprise behavior, as well as an issue for which influence costs could be quite high. Such controls persist largely through the ability of local governments to constrain the size of markups. PRICONT in table 7-12 is a dummy variable equal to 1 if the firm reports that there are “price controls or fixed profit margins on [their] major products,” and zero otherwise. By this measure, prices are far from fully liberalized in Russia, with a full 57 percent of SOs reporting price controls. Distinctly fewer privatized companies, 30-32 percent, face controls on their output prices, and the fraction for DNs, 24 percent, is still less, although the levels are high in absolute terms.

We now turn to the vexing issue of state support for the enterprise sector. ARRTOST measures the percentage of tax liabilities that were more than three months overdue as of 1 April 1994. This follows our predicted pattern exactly. Arrears were highest among SOs, at 20 percent,
Table 7-13. Depoliticization Regressions

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variable: PRFORST4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>WO</td>
<td>-7.72**</td>
</tr>
<tr>
<td></td>
<td>(2.46)</td>
</tr>
<tr>
<td>MO</td>
<td>-2.34</td>
</tr>
<tr>
<td></td>
<td>(3.52)</td>
</tr>
<tr>
<td>OO</td>
<td>-6.83*</td>
</tr>
<tr>
<td></td>
<td>(3.77)</td>
</tr>
<tr>
<td>DN</td>
<td>-6.90**</td>
</tr>
<tr>
<td></td>
<td>(3.36)</td>
</tr>
<tr>
<td>PRFORST (t - 4)</td>
<td>No</td>
</tr>
<tr>
<td>Regions</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
</tr>
<tr>
<td>Sectors</td>
<td>No</td>
</tr>
<tr>
<td>n</td>
<td>323</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.023</td>
</tr>
</tbody>
</table>

Note: * = significant at 10 percent level; ** = significant at 5 percent level; *** = significant at 1 percent level. PRFORST4 = percentage of production to the state out of the total revenues in 1994; PRFORST(T-4) = percentage of production to the state out of the total revenues in 1990.

followed by MOs and WOs at 13 percent, and OOs and DNs at 6 percent. The next two variables measure loans received with state support. STAT-LOAN is a dummy variable that takes the value of 1 if either of the company’s two largest outstanding loans was received from, mandated, or guaranteed by the CBR or any state agency, and the value of 0 otherwise. Twenty percent of SOs received such loans, while they are extended to only 13–14 percent of privatized companies and only 9 percent of new private firms. A measure of preferential credits is PREFLOAN, the percentage of all loans that carry an interest rate below the discount rate of the CBR. Once again, SOs receive the best treatment: 22.1 percent of their loans are preferential, compared with 20.6 percent among OOs, 15.2 percent among WOs, 14.0 percent among DNs, and an average of 6.4 percent for MOs.

The final set of variables to measure the extent of depoliticization consists of a group of indicators of direct government assistance to the companies. As shown in table 7-12, GOVSUP92, GOVSUP93, and GOVSUP94 are dummy variables equal to 1 if the enterprise admitted receiving any
support from the state—subsidies, investments, tax benefits or exemptions, preferential credits, or others—in 1992, 1993, and 1994, respectively. The percentage of companies reporting support rose from 22 percent in 1992 to 32 percent in 1993, before falling back to 26 percent in 1994. The highest percentage of companies receiving such support is the group of SOs—39 percent in 1994. Surprisingly, OOs were next, with 31 percent, followed by MOs and WOs with 20, and DN, as expected, were last, with 16 percent.

This pattern is confirmed by estimating logistic regressions with GOVSUP94 as the dependent variable, shown in table 7-14. The first column shows the simple specification, while only ownership dummies are included on the right-hand side. DNs, WOs, and MOs have a significantly lower probability of receiving state support than do SOs, while between SOs and OOs there is no statistically significant difference. The results in columns 2 and 3, however, make evident that there is quite significant persistence in the receipt of government support: the lagged dependent variable is highly significant in both equations, implying that the same firms that receive support in 1993 tended to receive it in 1994. It is impressive that the coefficient on WOs remains statistically significant in these regressions, implying that with systematic regularity, more worker-owned firms lost support in 1994.

The reported total values (in current million rubles) of all of the same categories of government assistance are represented in table 7-12 by GOVASS92, GOVASS93, and GOVASS94 for 1992, 1993, and 1994, respectively. Assistance declined sharply in 1994, to about 20 percent of its real value in 1993, once privatization had been accomplished. Mean assistance is highest in SOs, next highest in OOs, followed by WOs, MOs, and DN. Privatized firms received substantially fewer subsidies than did state-owned enterprises. Because ownership types also differ by size, we divided government assistance by employment; GASS94BE equals the ratio of GOVASS94 to employment in 1994. Scaling by size reduces the differences among dominant owner types, while preserving their order in the receipt of assistance. The change in this ratio from 1993 to 1994 is variable GASS43BE, which showed there was little nominal change, but a strong real decline in all the enterprises that we could classify by dominant owner. For example, WOs received only 42 percent of the assistance per employee in 1994 that they received in 1993 (measured in 1994 rubles), while OOs received about 32 percent, and MOs about 28 percent.
Table 7-14. Depoliticization Regressions: Existence of Government Support
(logits)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variable: GOVSUP94</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>WO</td>
<td>-0.94***</td>
</tr>
<tr>
<td>(0.29)</td>
<td>(0.38)</td>
</tr>
<tr>
<td>MO</td>
<td>-0.94**</td>
</tr>
<tr>
<td>(0.44)</td>
<td>(0.57)</td>
</tr>
<tr>
<td>OO</td>
<td>-0.34</td>
</tr>
<tr>
<td>(0.41)</td>
<td>(0.56)</td>
</tr>
<tr>
<td>DN</td>
<td>-1.25</td>
</tr>
<tr>
<td>(0.46)</td>
<td>(0.58)</td>
</tr>
<tr>
<td>GOVSUP92</td>
<td>NO</td>
</tr>
<tr>
<td>(0.37)</td>
<td>(0.45)</td>
</tr>
<tr>
<td>GOVSUP93</td>
<td>NO</td>
</tr>
<tr>
<td>(0.39)</td>
<td>(0.49)</td>
</tr>
<tr>
<td>Regions</td>
<td>No</td>
</tr>
<tr>
<td>Sectors</td>
<td>No</td>
</tr>
<tr>
<td>Correct predictions (proportion)</td>
<td>73.78</td>
</tr>
<tr>
<td>n</td>
<td>370</td>
</tr>
</tbody>
</table>

Note: * = significant at 10 percent level; ** = significant at 5 percent level; *** = significant at 1 percent level. GOVSUP94-92 = dummy defined as 0 if there was no government support in 1994-92, 1 otherwise. Figures in parentheses represent standard errors.

By these measures, Russian budget constraints seem to have hardened quite significantly in 1994.

The regression results in table 7-15 provide further support for this conclusion. In column 1, GOVASS94 is regressed only on ownership dummies, demonstrating again that the level of assistance provided to WOs, MOs, and DNs is statistically significantly less than that for SOs, while the OOIs show no clear difference. Column 2 adds the lagged values of the dependent variable, which, as with table 7-14, reduces most of the ownership dummies to insignificance. The coefficient on WO remains negative and significant. In the following column, however, where sector and regional dummies are added, even the WO dummy loses significance.

In this subsection, we have looked at government-enterprise relations in procurement, price controls, and subsidies. The findings taken together conform to our prior hypotheses—the influence of the state through these three channels is most marked in the remaining state-owned firms, and
Table 7-15. Depoliticization Regressions: Magnitude of Government Assistance

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td>-261.44**</td>
<td>-150.79*</td>
<td>-134.66</td>
</tr>
<tr>
<td></td>
<td>(110.18)</td>
<td>(83.24)</td>
<td>(91.16)</td>
</tr>
<tr>
<td>MO</td>
<td>-285.58*</td>
<td>-131.82</td>
<td>-124.02</td>
</tr>
<tr>
<td></td>
<td>(158.13)</td>
<td>(117.11)</td>
<td>(125.15)</td>
</tr>
<tr>
<td>OO</td>
<td>-204.88</td>
<td>-64.37</td>
<td>-81.16</td>
</tr>
<tr>
<td></td>
<td>(166.33)</td>
<td>(124.29)</td>
<td>(134.08)</td>
</tr>
<tr>
<td>DN</td>
<td>-365.41**</td>
<td>-175.82</td>
<td>-176.75</td>
</tr>
<tr>
<td></td>
<td>(151.49)</td>
<td>(113.52)</td>
<td>(128.14)</td>
</tr>
<tr>
<td>GOVASS92</td>
<td>No</td>
<td>0.79***</td>
<td>0.82***</td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
<td>(0.15)</td>
<td></td>
</tr>
<tr>
<td>GOVASS93</td>
<td>No</td>
<td>0.20***</td>
<td>0.19***</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td></td>
</tr>
<tr>
<td>Regions</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Sectors</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of plants</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Employment in 1991</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Employment in 1994</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.013</td>
<td>0.36</td>
<td>37</td>
</tr>
<tr>
<td>n</td>
<td>353</td>
<td>343</td>
<td>343</td>
</tr>
</tbody>
</table>

Note: * = significant at less than 10 percent level; ** = significant at less than 5 percent level; *** = significant at 1 percent level. GOVASS94-92 = million rubles of government assistance in years 1994-92. Figures in parentheses represent standard errors.

least in de novo private firms. Insider privatization does act to break the links with the state, although more markedly in worker-owned than in managerially owned firms. Surprisingly, however, the relationship between the state and outsider firms remains very strong, comparable to that in state-owned firms. This could be explained by selection effects: outsiders may have tended to take control in firms with historically close connections to the state. In any case, our results demonstrate the powerful inertia in the relationship between the state and the enterprise sector.

Reorientation of Firms' Objectives and Restructuring

We hypothesized earlier that privatized firms, particularly those controlled by outsiders, may be superior to state-owned firms in most areas of restructuring. In comparing insider-controlled firms, worker ownership
might lead to relatively less unbundling, investment, and reduction of labor costs than managerial ownership. We test these hypotheses in this section using qualitative data from the questionnaire that recorded managers' own views about their restructuring strategies. The questions cover four areas of enterprise decisionmaking: production, marketing, employment policy, and investment. Managers are invited to indicate their priorities across a variety of responses in each area; they are allowed to respond on a scale from 1 (not important) to 3 (very important) for each response. The results are tabulated in table 7-16, which reports the rank-order of responses by ownership type and the average response on the 1-to-3 scale.

In sharp contrast to the findings concerning depoliticization, we see little evidence that majority ownership stakes are yet influencing restructuring strategies among privatized firms, although DNs are clearly somewhat different. The most striking thing about table 7-16 is how little the responses vary by ownership type. For example, the mean response across the ten possible actions under the heading of production strategy varies between 1.94 and 2.06. The variation is hardly greater within any particular answer. It is perhaps encouraging, however, that marketing and investment/finance strategies are generally regarded as slightly more important than production or employment strategies, regardless of ownership category.

Commencing with production strategy, the rank-orders of importance are remarkably similar in all five ownership types. The ranks in table 7-16 rise with the importance attached to a strategy, so we note that all firms attach least significance in their production strategy to disposing of assets, seeking foreign consultants, and closing plants or shops, and most importance to increasing the efficiency of input use and to investments. The only major exceptions are privately owned firms, which presumably are not encumbered with poor practices, at least to the same extent as the others. Hence, as we would expect, they place less importance on employment policy, changing product mix, and improving efficiency of resource use, and emphasize, even more than other ownership groups, technology, product quality, and investment.

Privately owned firms are also rather different in their employment strategies; employment reductions are seen as much less important, presumably because as new organizations, they have not inherited the bloated labor forces of current and former state-owned firms. Apart from
Table 7-16. Responses on Importance of Management Strategies
(rank order)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Management strategy</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Change in area of activity</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Changing production mix</td>
<td>8</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Change of inventory policy</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Closing of plant/shop</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Change in product quality</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Disposing of assets</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>More efficient use of productive resources</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Changing technology</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>Seeking foreign consulting advice</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>New investments</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>1.94</td>
<td>1.97</td>
<td>1.9</td>
<td>2.05</td>
<td>2.06</td>
</tr>
</tbody>
</table>

**Production strategy**

1. Decrease in labor                              4  5  5  4  3
2. Increase in labor                              2  1  3  3  5
3. Cutting social benefits                        3  3  2  2  1
4. Cutting wages                                  1  2  1  1  2
5. Increasing wages                               7  7  7  7  7
6. Increasing wage differentials                  6  6  6  6  6
7. Modify or establish an internal wage scale     5  4  4  5  4
Mean: 1.97 1.95 2.00 1.97 1.88

**Employment strategy**

1. Reducing new bank borrowing                    6  5  6  5  7
2. Reschedule loans                              3/4 2 3/4 2 5
3. Obtain new loans from banks                   2  4  3/4 1 2
4. Obtain new loans from non banks               1  1  1  3  3
5. Lengthening period for payables               5  6  7  7  1
6. Reducing outstanding receivables              8  8  8  8  6
7. Change bank connections                       3/4 3 2 4 4
Mean: 2.12 2.15 2.14 2.21 2.07

**Investment strategy**

1. Improve marketing                             7  6  7  7  6
2. Change distribution network                   3  5  5  6  4
3. Change suppliers                              2  2  3  2  2
4. Seeking new domestic markets                  6  7  6  5  7
5. Increasing export efforts                     5  4  1  3  3
6. Increase product price relative to competitors 1  1  2  1  1
7. Drop product price relative to competitors    4  3  4  4  5
Mean: 2.06 2.14 2.07 2.13 2.04
this, however, the similarities across ownership categories are much more revealing than the differences, and not entirely consistent with the view of unconstrained managerial control. In all ownership forms, the most important strategy by far for employment is an increase in wages, followed by the desire to increase wage differentials. Outsider-owned firms, however, place slightly more stress on establishing an internal wage structure than insider-owned firms, and—surprisingly—slightly less weight on employment reduction.

Turning to investment strategy, some modest differences begin to appear within the private group. New private firms place particular emphasis on seeking foreign investors and reducing bank borrowing. A similar stress on foreign investment is found in both state- and worker-owned firms. Managerially owned firms in particular, and outsider firms as well, shy away somewhat from foreign involvement. Perhaps this is the case in the latter category because foreign advice and capital are less needed, and in the former case because it would threaten managerial entrenchedment. Outside owners also place less stress on obtaining new loans than any other ownership form.

On the marketing side, all ownership categories rate an improvement in marketing and discovering new domestic markets very highly, but place less emphasis on price adjustments or changing suppliers. One intriguing difference, however, is that managerially owned firms place less weight on increasing exports, while state- and worker-owned firms regard international markets as potentially greater in importance.

**Enterprise Performance**

We conclude our evaluation of the impact of differing majority ownership forms by looking not at the self-reported intentions of managers, but at the behavior of their firms. We report the result of regression analysis undertaken to analyze elements of company performance in Russia, including sales, employment, exports, and pay. Means of the variables under consideration by ownership type are outlined in table 7-17, where some differences by ownership category do emerge, although the standard deviations are typically large.

The first variable in table 7-17 is sales in 1994. State-owned firms are the largest enterprises, followed by worker-owned, managerially owned, outsider-owned, and privately owned firms. The five kinds of firms in-
Table 7-17. Company Performance

<table>
<thead>
<tr>
<th>Item</th>
<th>SO</th>
<th>WO</th>
<th>MO</th>
<th>OO</th>
<th>DN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>157,022</td>
<td>5,970</td>
<td>3,785</td>
<td>3,071</td>
<td>682</td>
<td>7,382</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>53,763</td>
<td>41,956</td>
<td>8,913</td>
<td>5,354</td>
<td>3,086</td>
<td>36,949</td>
</tr>
<tr>
<td><strong>Profit-maker dummy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.86</td>
<td>0.86</td>
<td>0.90</td>
<td>0.89</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.34</td>
<td>0.35</td>
<td>0.30</td>
<td>0.32</td>
<td>0.34</td>
<td>0.34</td>
</tr>
<tr>
<td><strong>Capacity utilization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>54</td>
<td>50</td>
<td>56</td>
<td>43</td>
<td>43</td>
<td>53</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>26</td>
<td>26</td>
<td>24</td>
<td>29</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td><strong>Nongovernment sales in 1994 (percent)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>90</td>
<td>98</td>
<td>92</td>
<td>97</td>
<td>97</td>
<td>95</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>25</td>
<td>12</td>
<td>22</td>
<td>14</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td><strong>Exports to non-FSU in 1994 (% sales)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>6</td>
<td>15</td>
<td>7</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td><strong>Capital stock aged 15 yrs (percent)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>36</td>
<td>29</td>
<td>30</td>
<td>42</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>29</td>
<td>28</td>
<td>31</td>
<td>316</td>
<td>23</td>
<td>31</td>
</tr>
<tr>
<td><strong>Employment in 1994</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3,016</td>
<td>1,886</td>
<td>1,293</td>
<td>2,072</td>
<td>98</td>
<td>1,904</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>7,959</td>
<td>8,196</td>
<td>1,808</td>
<td>3,639</td>
<td>146</td>
<td>6,269</td>
</tr>
<tr>
<td><strong>Wage of workers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>135,988</td>
<td>127,062</td>
<td>131,510</td>
<td>144,357</td>
<td>173,633</td>
<td>1,255,451,083</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>111,337</td>
<td>98,102</td>
<td>102,536</td>
<td>118,705</td>
<td>141,316</td>
<td>53</td>
</tr>
<tr>
<td><strong>Wage of managers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>162,957</td>
<td>159,976</td>
<td>174,029</td>
<td>205,718</td>
<td>226,103</td>
<td>1,734,741,599</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>175,990</td>
<td>132,727</td>
<td>162,253</td>
<td>174,979</td>
<td>196,806</td>
<td>15</td>
</tr>
</tbody>
</table>

Note: SO: enterprises with dominant state stake; WO: enterprises with dominant worker stake; MO: enterprises with dominant manager stake; OO: enterprises with dominant outsider stake; DN: newly established privately owned enterprises.

Increased sales at a similar average rate between 1992 and 1994. Size according to employment shows a similar pattern. The Russian firms in our sample are not major exporters outside the former Soviet Union—on average only 4 percent of sales go to such customers and the maximum observed in the sample is only 20 percent of total sales. Non-former Soviet
Union exports are slightly higher on average in outsider-owned and worker-owned firms than in state-owned or managerially owned enterprises, and negligible in de novo firms.

The questionnaire did ask firms to report whether they were typically profit-makers. The average response to this question is reported in the second row of table 7-17. It can be seen that according to Russian accounting procedures, most firms normally make profits, and the differences across ownership types are negligible. Turning to capacity utilization, rates in 1994 are very low, averaging around 53 percent across all firms. Nevertheless, they are higher among de novo enterprises and lower in outsider-owned firms. The Russian capital stock according to the survey is relatively modern; only about 32 percent is reported as being more than fifteen years old. It is not surprising that de novo firms have significantly younger capital, on average, but state-owned, worker-owned, and managerially owned firms are all close to the mean. The proportion of old capital is higher in outsider-owned firms: 42 percent of the total. Finally, average wages for workers and managers are highest in de novo enterprises and lowest in worker-owned firms. State-owned and managerially owned firms are close to the mean, while pay for both groups is rather above average in outsider-owned firms.

In the remainder of this section we use regression analysis to investigate whether these differences persist once we control for sectoral, regional, and firm-specific sources of heterogeneity within each ownership class. Our approach is to estimate the four versions of the performance equations outlined at the start of this section.

Performance in short-term restructuring is analyzed in tables 7-18 and 7-19, which explain 1994 sales and non-former Soviet Union exports, respectively. Commencing with sales, we note from column (1) of table 7-18 that de novo private firms are significantly smaller than state-owned firms (always the omitted class), as are worker-owned firms. In the dynamic specification of columns (2) and (3), however, there are no significant ownership effects, although the sign on all privatized firms is positive relative to state-owned firms. We interpret this to imply that majority ownership structures are not yet significantly affecting the rate of change of sales, although there is great persistence in turnover, as well as significant effects on the market environment from sectors and regions.25
### Table 7-18. Sales in 1994

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td>-9,775&lt;sup&gt;*&lt;/sup&gt;</td>
<td>2,912</td>
<td>3,277</td>
</tr>
<tr>
<td></td>
<td>(5,581)</td>
<td>(2,021)</td>
<td>(2,206)</td>
</tr>
<tr>
<td>MO</td>
<td>-11,916</td>
<td>3,035</td>
<td>2,136</td>
</tr>
<tr>
<td></td>
<td>(8,063)</td>
<td>(3,037)</td>
<td>(3,230)</td>
</tr>
<tr>
<td>OO</td>
<td>-12,631</td>
<td>2,437</td>
<td>1,642</td>
</tr>
<tr>
<td></td>
<td>(8,357)</td>
<td>(3,188)</td>
<td>(3,481)</td>
</tr>
<tr>
<td>DN</td>
<td>-15,020&lt;sup&gt;***&lt;/sup&gt;</td>
<td>2,605</td>
<td>2,691</td>
</tr>
<tr>
<td></td>
<td>(7,524)</td>
<td>(3,002)</td>
<td>(3,385)</td>
</tr>
<tr>
<td>Lagged endogenous variable (1 year)</td>
<td>No</td>
<td>2.76&lt;sup&gt;***&lt;/sup&gt;</td>
<td>2.76&lt;sup&gt;***&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.08)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>Sectors</td>
<td>No</td>
<td>No</td>
<td>Yes&lt;sup&gt;**&lt;/sup&gt;</td>
</tr>
<tr>
<td>Regions</td>
<td>No</td>
<td>No</td>
<td>Yes&lt;sup&gt;**&lt;/sup&gt;</td>
</tr>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.006</td>
<td>0.86</td>
<td>0.86</td>
</tr>
<tr>
<td>n</td>
<td>298</td>
<td>246</td>
<td>246</td>
</tr>
</tbody>
</table>

Note: SO: enterprises with dominant state stake; WO: enterprises with dominant worker stake; MO: enterprises with dominant manager stake; OO: enterprises with dominant outsider stake; DN: newly established, privately owned enterprises. * denotes significance at 10 percent level; ** denotes significance at 5 percent level; *** denotes significance at 1 percent level. Figures in parentheses represent standard errors.

From table 7-19 we find that worker-owned—and to a greater extent, outsider-owned—firms export significantly more than the firms in the other three ownership categories. Despite considerable inertia in export performance over time, this result persists for worker-owned firms in the dynamic specification, and remains nearly as significant when sectoral and regional fixed effects are taken into account. De novo enterprises export notably less; all other ownership forms have a positive sign relative to state-owned firms. We note from the fourth column, however, that the size of firms is not a significant explanatory variable for non-former Soviet Union exports; its inclusion leaves other results unchanged.

Turning to capacity utilization, we find contrasting ownership effects in column (1) of table 7-20. There is no significant difference between the rate of capacity utilization in worker-owned, managerially owned, and state-owned firms. Capacity utilization is significantly lower in outsider-owned firms, and higher in de novo enterprises. The latter is easy to explain—de novo private firms did not inherit the same excess capacity and are growing (see chapter 8 by Richter and Schaffer). Perhaps outsiders...
Table 7-19. Percentage of Sales Exported to Non-Former Soviet Union Economies

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td>2.24*</td>
<td>-2.71**</td>
<td>2.58</td>
<td>0.10</td>
</tr>
<tr>
<td>MO</td>
<td>0.07</td>
<td>1.27</td>
<td>0.58</td>
<td>-3.00</td>
</tr>
<tr>
<td>OO</td>
<td>6.16***</td>
<td>3.48</td>
<td>4.09</td>
<td>2.77</td>
</tr>
<tr>
<td>DN</td>
<td>-2.55</td>
<td>0.29</td>
<td>-0.003</td>
<td>-4.08</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Regions</th>
<th>Size/1,000</th>
<th>Lagged endogenous variable</th>
<th>Adjusted $R^2$</th>
<th>$n$</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>0.02</td>
<td>325</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>(1.01)</td>
<td>0.21</td>
<td>325</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>(1.12)</td>
<td>0.17</td>
<td>325</td>
</tr>
</tbody>
</table>

Note: * denotes significance at 10 percent level; ** denotes significance at 5 percent level; *** denotes significance at 1 percent level. Figures in parentheses represent standard errors.

have taken control only of firms with more serious restructuring problems—for instance, having faced a larger output drop or worse inherited capital. It is interesting that these effects typically persist in the dynamic specifications, so the change in capacity utilization is also correlated significantly with ownership, positively for *de novo* enterprises and negatively for outsider-owned firms. There is also weak evidence that the further decline in capacity utilization tends to be correlated with employee ownership. Once again, the size of the firm does not affect the other results, and the size variable is not significant.

It is interesting to ask whether the differences by ownership type are associated with the vintage of the capital stock. There is some evidence for this relationship in table 7-21, at least with respect to *de novo* private firms. These are found to have a significantly lower proportion of capital more than fifteen years old than other firms. Nevertheless, there is no explanation for the poor showing of outsider- and worker-owned firms in their capacity utilization here; the coefficient on outsider-owned firms is
A major issue that we predicted would distinguish insider and outsider privatization was employment. The regressions reported in Table 7-22, however, provide little support for our hypotheses. We do find in column (1) that de novo private firms are significantly smaller. The equations also reveal very strong persistence of employment with significant sectoral effects, but no ownership impact in the dynamic specifications. It would not be sensible to include a size effect here, as in other equations, because we measure size of firm by lagged employment to 1991. Finally, we look at insider (manager and worker) remuneration in tables 7-23 and 7-24. One might expect this to be higher in insider- than in outsider-controlled or state-owned firms, but there is no evidence that Russian managers or workers are taking advantage of their position to pay themselves higher wages. No insider-ownership variables are significant. Interestingly, however, wages of both managers and workers are found to be higher in de novo private firms, although this is a feature caused by iner-
Table 7-21. Proportion of Capital Stock More than Fifteen Years Old

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td>-6.84*</td>
<td>-5.96</td>
<td>-5.82</td>
</tr>
<tr>
<td></td>
<td>(3.96)</td>
<td>(5.19)</td>
<td>(5.92)</td>
</tr>
<tr>
<td>MO</td>
<td>6.17</td>
<td>3.42</td>
<td>5.01</td>
</tr>
<tr>
<td></td>
<td>(5.78)</td>
<td>(7.41)</td>
<td>(8.25)</td>
</tr>
<tr>
<td>OO</td>
<td>6.57</td>
<td>8.74</td>
<td>10.04</td>
</tr>
<tr>
<td></td>
<td>(5.84)</td>
<td>(7.6)</td>
<td>(8.32)</td>
</tr>
<tr>
<td>DN</td>
<td>-27.00***</td>
<td>-23.6***</td>
<td>1.24</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td>(5.3)</td>
</tr>
<tr>
<td>of sector</td>
<td></td>
<td></td>
<td>(7.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(12.85)</td>
</tr>
<tr>
<td>Size/1,000</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.02</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.14)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>Sector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO</td>
<td>6.17</td>
<td>3.42</td>
<td>5.01</td>
</tr>
<tr>
<td></td>
<td>(5.78)</td>
<td>(7.41)</td>
<td>(8.25)</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td>(5.3)</td>
</tr>
<tr>
<td>of sector</td>
<td></td>
<td></td>
<td>(7.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(12.85)</td>
</tr>
<tr>
<td>Size/1,000</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.02</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.14)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>Sector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO</td>
<td>6.17</td>
<td>3.42</td>
<td>5.01</td>
</tr>
<tr>
<td></td>
<td>(5.78)</td>
<td>(7.41)</td>
<td>(8.25)</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td>(5.3)</td>
</tr>
<tr>
<td>of sector</td>
<td></td>
<td></td>
<td>(7.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(12.85)</td>
</tr>
<tr>
<td>Size/1,000</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.02</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.14)</td>
<td>(0.19)</td>
</tr>
</tbody>
</table>

Note: * denotes significance at 10 percent level; ** denotes significance at 5 percent level; *** denotes significance at 1 percent level. Figures in parentheses represent standard errors.

Table 7-22. Full-Time Employment

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td>-1,130</td>
<td>-183</td>
<td>-161</td>
</tr>
<tr>
<td></td>
<td>(895)</td>
<td>(277)</td>
<td>(279)</td>
</tr>
<tr>
<td>MO</td>
<td>1,723</td>
<td>930</td>
<td>-176</td>
</tr>
<tr>
<td></td>
<td>(1,269)</td>
<td>(391)</td>
<td>(382)</td>
</tr>
<tr>
<td>OO</td>
<td>944</td>
<td>-28</td>
<td>-327</td>
</tr>
<tr>
<td></td>
<td>(1,352)</td>
<td>(415)</td>
<td>(414)</td>
</tr>
<tr>
<td>DN</td>
<td>-2,918**</td>
<td>153</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(1,206)</td>
<td>(405)</td>
<td>(418)</td>
</tr>
<tr>
<td>Lagged endogenous variable</td>
<td>No</td>
<td>0.92***</td>
<td>-0.91***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Sector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO</td>
<td>1,723</td>
<td>930</td>
<td>-176</td>
</tr>
<tr>
<td></td>
<td>(1,269)</td>
<td>(391)</td>
<td>(382)</td>
</tr>
<tr>
<td>Region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO</td>
<td>1,723</td>
<td>930</td>
<td>-176</td>
</tr>
<tr>
<td></td>
<td>(1,269)</td>
<td>(391)</td>
<td>(382)</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.007</td>
<td>0.91</td>
<td>0.93</td>
</tr>
<tr>
<td>n</td>
<td>337</td>
<td>317</td>
<td>317</td>
</tr>
</tbody>
</table>

Note: * denotes significance at 10 percent level; ** denotes significance at 5 percent level; *** denotes significance at 1 percent level. Figures in parentheses represent standard errors.
Table 7-23. Average Monthly Wage of Managers

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td>-2,981</td>
<td>-20,219</td>
<td>-4,737</td>
<td>-10,530</td>
</tr>
<tr>
<td>MO</td>
<td>(22,733)</td>
<td>(19,217)</td>
<td>(20,887)</td>
<td>(23,967)</td>
</tr>
<tr>
<td>OO</td>
<td>11,071</td>
<td>-19,910</td>
<td>-6,645</td>
<td>-19,562</td>
</tr>
<tr>
<td>DN</td>
<td>(33,007)</td>
<td>(28,176)</td>
<td>(29,000)</td>
<td>(32,013)</td>
</tr>
<tr>
<td>00</td>
<td>42,760</td>
<td>-10,793</td>
<td>19,446</td>
<td>7,112</td>
</tr>
<tr>
<td>DN</td>
<td>(34,183)</td>
<td>(29,363)</td>
<td>(31,141)</td>
<td>(34,160)</td>
</tr>
<tr>
<td>Size</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-2.37</td>
</tr>
<tr>
<td>Lagged endogenous variable (1 year)</td>
<td>No</td>
<td>0.94***</td>
<td>1.63***</td>
<td>1.60***</td>
</tr>
<tr>
<td>Sector</td>
<td>No</td>
<td>No</td>
<td>Yes***</td>
<td>Yes</td>
</tr>
<tr>
<td>Region</td>
<td>No</td>
<td>No</td>
<td>Yes***</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.007</td>
<td>0.31</td>
<td>0.35</td>
<td>0.36</td>
</tr>
<tr>
<td>n</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>245</td>
</tr>
</tbody>
</table>

Note: * denotes significance at 10 percent level; ** denotes significance at 5 percent level; *** denotes significance at 1 percent level. Figures in parentheses represent standard errors.

tia, sector, and region rather than adjustment behavior. Large firms pay their workers more, but not their managers.

In summary, therefore, enterprise behavior indicates more ownership effects than we found in managers' self-reported restructuring intentions. These tend to concern the level of performance, however, rather than the pace of adjustment. There is particularly clear evidence of differences in behavior between de novo private firms and all other ownership categories. Privatization does not yet seem to be affecting employment or sales adjustment.

Conclusions

The most widely noted features of Russian privatization have been its scale and remarkable speed. In this chapter, we have tried to explore the implications of the privatization program for dominant ownership forms and to analyze the effects of different ownership structures for enterprise behavior. Our findings confirm the central ownership role granted by the privatization process to managers and, particularly, to workers, although
Table 7-24. Average Monthly Wage of Workers

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td>-7,418</td>
<td>-14,204</td>
<td>-4,352</td>
<td>-8,884</td>
</tr>
<tr>
<td></td>
<td>(15,319)</td>
<td>(14,548)</td>
<td>(14,872)</td>
<td>(14,626)</td>
</tr>
<tr>
<td>MO</td>
<td>-2,969</td>
<td>-9,136</td>
<td>-11,830</td>
<td>-12,636</td>
</tr>
<tr>
<td></td>
<td>(22,690)</td>
<td>(21,408)</td>
<td>(20,866)</td>
<td>(19,778)</td>
</tr>
<tr>
<td>OO</td>
<td>98,780</td>
<td>3,492</td>
<td>7,872</td>
<td>8,496</td>
</tr>
<tr>
<td></td>
<td>(23,242)</td>
<td>(22,205)</td>
<td>(22,343)</td>
<td>(21,043)</td>
</tr>
<tr>
<td>DN</td>
<td>39,153**</td>
<td>29,694</td>
<td>26,662</td>
<td>29,514</td>
</tr>
<tr>
<td></td>
<td>(21,741)</td>
<td>(68,208)</td>
<td>(22,155)</td>
<td>(37,275)</td>
</tr>
<tr>
<td>Size</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1.59*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.92)</td>
</tr>
<tr>
<td>Lagged endogenous variable (1 year)</td>
<td>No</td>
<td>0.792***</td>
<td>0.58</td>
<td>1.64***</td>
</tr>
<tr>
<td>Sector</td>
<td>No</td>
<td>No</td>
<td>Yes*</td>
<td>Yes</td>
</tr>
<tr>
<td>Region</td>
<td>No</td>
<td>No</td>
<td>Yes*</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.004</td>
<td>0.13</td>
<td>0.27</td>
<td>0.43</td>
</tr>
<tr>
<td>$n$</td>
<td>310</td>
<td>310</td>
<td>310</td>
<td>248</td>
</tr>
</tbody>
</table>

Note: * denotes significance at 10 percent level; ** denotes significance at 5 percent level; *** denotes significance at 1 percent level. Figures in parentheses represent standard errors.

It also reveals a higher proportion of outsider-dominated firms—both privatized and de novo—than expected. What are the consequences of this ownership structure for enterprise behavior and restructuring, and what are the policy implications of these findings?

Theory led us to expect much better enterprise performance across the board from outsider- than state-owned firms, with insider-controlled companies being somewhere in between. The balance of advantage between worker and managerial ownership depended on the issue raised, with majority managerial ownership potentially offering advantages in long-term and short-term restructuring, but worker ownership perhaps superior in achieving a greater degree of depoliticization and possibilities for evolution.

Our findings go some way toward confirming these hypotheses. We find significant differences across various aspects of control, behavior, and restructuring between state-owned and outsider-owned firms, most notably de novo enterprises. There are also differences between state- and insider-owned firms, although they are less marked. The balance of ad-
Ownership Structures, Patterns of Control, and Enterprise Behavior in Russia

...vantage between managerially owned and worker-owned firms is unclear overall, but we confirm that depoliticization is more closely associated with the latter than the former majority ownership form. The results on de novo private firms are particularly encouraging, because in other work (see Belka and others 1995), one of us has argued that, in Poland at least, it is the small and mid-size enterprises of the de novo private sector that are leading the transition process. Our findings provide an initial indication that the same forces may be at work in Russia (see also chapter 8 of this volume).

Our understanding of the Russian privatization process is also much enriched by focusing on the areas in which the data do not support our hypotheses. Although still preliminary, the most striking result is that the differences between state-owned and privatized firms, regardless of majority ownership form, are typically not very great, especially regarding the key issue of restructuring. This phenomenon is probably explained by the nature of the current restructuring, which is occurring primarily from the hardening of budget constraints, and this generally affects all firms (if not more markedly the state-owned firms). Evidence from Poland (see Belka and others 1995; Estrin, Gelb, and Singh 1993) suggests that state-owned firms will adjust their behavior in the early phase of transition solely in response to hard budget constraints and increased market competition, without any significant impact from changes in ownership and control. The force of this point is increased when we note that the survey was undertaken relatively soon after the mass privatization was completed, probably before major behavioral changes could be expected as a consequence of the new ownership structures.

More subtly, the results for enterprises privatized to outsiders are disappointing. There is no evidence of greater depoliticization, nor of differences in restructuring strategy, and apart from exports, virtually no difference in performance compared with the other privatized firms, the state-owned sector. One explanation may be that outsiders have simply not yet been able to establish effective control over the firms in which they have a majority stake, a view consistent with the evidence about managerial dominance over decisionmaking. There is also some evidence to suggest that outsiders have taken majority control over firms that are somewhat inferior in capacity utilization, overemployment, profitability, and so forth. Perhaps insiders, who by all accounts controlled the firm’s privatization process, only accepted majority outsider ownership when...
the situation of the firm was so desperate that the wider resources of outsiders were needed to ensure survival of the organization. In this case, the poor performance of outsiders would be related to the larger scale of the task in hand, rather than deficiencies of outsiders as a majority governance group.

We consider the consequences of worker ownership. Our study reveals that Russian privatization has created an economy primarily comprising majority worker-owned firms, but the effects on behavior and restructuring are not yet as disastrous as might have been predicted. Many of the reasons we have already noted: for instance, worker ownership may assist the process of depoliticization, but restructuring, where it may prove a major impediment, has hardly begun. Some may take heart that even in worker-owned firms, managerial control seems assured. Nevertheless, majority worker ownership may present a threat to effective restructuring in the future, both in the long term, when the key is access to external capital markets, and in the short term, when firms need to address the problem of overstaffing.

Policy conclusions follow directly from these findings. First, the mass privatization program has of necessity concentrated the attention of policymakers on the former state-owned sector, but in performance and behavior, prospects look better with de novo firms. The government may wish to develop a more systematic strategy for small and medium-size enterprise development, especially in the classic areas of weakness for these firms: access to outside (loan) capital, management training, and dealing with bureaucracy.

The government may also wish to look more closely at what is going on in outsider-controlled firms, to see whether the problems arise from deficiencies in the legal institutions and arrangements for corporate governance. If so, regulatory changes or more effective enforcement of current legal requirements may be required.

Finally, we return to the overhanging threat of majority employee control. We do not feel that the potential governance and behavioral problems of such control will necessarily be resolved by continued effective managerial control. In situations of conflict between workers and managers—for example, over mass redundancies—either managers will give way to the dominant owner or they will in some way overrule workers, which is counterproductive insofar as it acts to undermine emerging property rights and the rule of law. The way forward is instead for major-
ity worker ownership to evolve to new ownership forms, most significantly outsider ownership. The key policy is therefore to ensure that secondary markets are functioning so that worker shareholdings can be traded and purchasers can obtain full voting rights with their shares.

References


248 Corporate Governance and Competition


Ownership Structures, Patterns of Control, and Enterprise Behavior in Russia


Notes

1. Justification for these objectives and further discussion is contained in Earle and Estrin 1994.

2. The term "depoliticization" does not precisely capture the concept that we are investigating. According to Merriam Websters New Collegiate Dictionary, it means "to take out of the realm of politics." We are concerned with inculcating a profit orientation and establishing market discipline over firms. This relates to the nature of control over enterprises (for example, state versus private), the objectives of the controlling group (such as rent versus profit maximizing), and to the environment in which they operate (for example, soft versus hard budget constraints). For ease of exposition, we henceforth use the term depoliticization to refer to this complex process of firms distancing themselves from the state.

3. Webster and Charap (1993), in an early survey of ninety-nine private manufacturing firms in St. Petersburg, found that the vast majority of Russian entrepreneurs formerly held high-level posts in state-owned enterprises. While their skills in the sector are clearly relevant, however, it is unclear that these new entrepre-
neurs would also be able to take with them favored access to government grants, let alone rent-seeking attitudes.

4. The de novo private sector as a whole, of course, can influence industrial and economic restructuring. They may, for example, invest and minimize labor costs. But they are not adjusting from a former state-owned structure to a market-determined optimum, but instead adjusting as profit-maximizers to changing market conditions. As such, we exclude them from the table.

5. Unfortunately, our data allow neither a computation of the shares held in a FARP nor an assessment of its effects on behavior.

6. Although the data do not distinguish voting from nonvoting shares, we know the method of privatization and were able to make adjustments for this factor in our appraisal of corporate control.

7. According to Boycko, Shleifer, and Vishny (1993), imputing the value of the entire Russian capital stock on the basis of the cash value of vouchers would result in a figure around the net worth of one large U.S. company.

8. Some evidence may be found in Pistor 1994. She states, for her sample of recently privatized companies, that “trading volumes were low, and usually occurred among employees and former employees” in the summer of 1993. Moreover, the prices on the secondary markets were reportedly still much lower than in the original voucher auctions, again implying extreme shyness on the part of outsiders. Webster and others (1994) also found little evidence of share trading.

9. A major gap in the sample concerns the date of privatization. We can assume that most of the privatizations in the State Program were implemented from late 1992 until mid-1994, but lease buyouts may have taken place earlier.

10. The structure of ownership was not available in some observations, but often it could be inferred and imputed—for instance, in unincorporated state enterprises. In other cases, firms claimed to be privatized, but reported that a majority of their shares were still held by the state; we classified them as state-owned (SO). Problems also arose because of missing values, answers of an unspecified or ambiguous “other,” and the presence of nonvoting shares. Option 1 in the State Privatization Program gave employees 25 percent of the shares free-of-charge, but the shares carried no voting rights; we subtracted those shares from the numbers given for insiders, and on this basis reclassified a number of companies.

11. In the group of the potentially privatized, we designated as SO all companies in which the federal and regional property fund still owned 50 percent or more of the shares.

12. Unfortunately, we had no information on which of these entities might themselves still be state-owned, and in our analysis we are implicitly assuming they are all private.
13. When the data did not permit us to classify companies by dominant owner, including cases of inconsistent answers across questions, the firms are designated "unclassified."

14. The open-ended answers to the ownership (and other) questions allowed several "other" owners to be classified reliably into one of our categories.

15. Thus the distribution is positively skewed, implying that there were few firms that had a small proportion of insider ownership. Outsiders held an average of 21.5 percent of the shares, and the state retained an average of 13 percent.

16. Blasi also provided information on the division of shareholdings between top managers and all other employees: top managers had an average of 8.6 percent of all shares (the median was 5 percent).

17. Blasi has pointed out that he defines managers as top managers, while we refer to all managers. Using our definition, he finds median managerial ownership to be 15 percent.

18. Our ten areas were constructed as follows: Moscow (Moscow city), Center (Vladimirskaya, Voronezhskaya and Moskovskaya oblasts), Urals (Permorskaya and Sverdlovskaya oblasts and Bashkorstan), West Siberia (Novosibirskaya, Tyumenskaya, and Kemerovskaya oblasts and Altayskiy krai), East Siberia (Krasnoyarskiy and Primorskiy krai), Povolzhski (Tatarskaya, Saratovskaya, and Samarskaya oblasts), North Caucasian (Rostovskaya oblast and Stavropolskiy krai), North (St. Petersburg and Leningradskaya oblast), North (Arkhangelskaya and Volgogradskaya oblasts), and Volga-Vyatka (Nizhnegorskskaya oblast).

19. This result remains essentially unchanged when the ownership share variables are allowed nonlinear effects, as follows: less than 10 percent was reclassified as "1," 10 to 25 percent as "2," and over 25 percent as "3."

20. A persistent problem with this data set is that, because of missing values scattered across variables, a change in specification of the equation can lead to major changes in the size of the data set used to estimate the model. These differences are minimized by including only lagged endogenous variables (since firms usually report the previous value for a variable if they report it currently) and sectoral and regional dummies (which we have for all firms). The number of observations will generally be smaller when firm size is included in the fourth specification.

21. In the cases where we estimated equations with such a specification, the data set is a slightly updated version.

22. We are indebted to Mark E. Schaffer for suggesting this line of enquiry.
23. The variable is defined as the sum of “military goods” and “nonmilitary goods” purchased by the state (hospital products, schoolbooks, and so forth); PRFORST4 is therefore smaller than PRFORST2.

24. Because data are provided in the table only for the first half of 1994, the comparisons in this paragraph multiply the amount of assistance for 1994 by two. When calculating real changes, we employ the relevant price index for the first half of 1994.

25. The fourth equation, controlling for size, is not included in table 7-18 because of the close relationship between sales and employment. As expected, employment was found to have a positive and significant coefficient in the regression.
The preceding chapter noted, among other things, that the de novo (newly established) private firms in the World Bank survey were quite different from their state-owned and privatized counterparts—in particular, their economic performance was clearly better. The differences among the various categories of state-owned and privatized firms were for the most part not nearly so great. We will consider in more detail the performance and prospects of de novo private firms in Russian manufacturing.

The motivation for focusing on the de novo private sector is twofold. First, early observers such as Komai (1990) and Murrell (1990) suggested that the de novo private sector could play a critical role in the transition from socialism. Recent evidence from other transition economies indeed suggests that the newly established private sector can play a leading role in recovery, including manufacturing output growth. In Poland, for example, very strong growth in industrial output is being driven largely by the entry and expansion of de novo private manufacturing firms. Second, it has been suggested by Barberis and others (1995) that the performance of Russian firms following privatization may depend critically on the introduction of new human capital. Strong performance by new private firms, which are by definition mostly new bundles of human capital,
compared with similar state-owned or privatized firms would support this argument.

We can think of several reasons why the de novo private sector might grow rapidly early in the transition. One explanation just noted has to do with human capital and entrepreneurship in new private firms. Another derives from the nature of the Soviet economy: planning favored large units, and the small and medium-size enterprise (SME) sector was very small by Western standards. Therefore, during transition one would expect to find rapid expansion of the previously suppressed SME sector; new small firms are established and existing ones expand as the SME niche is filled. A similar argument can be made about selected industrial sectors that were suppressed under the socialist system—retail trade and residential construction are examples—and that can be expected to grow rapidly as new firms enter the sector and existing firms in the sector grow. Transition also means restructuring across regions as well as across sectors, and de novo firms are thus likely to be overrepresented in cities and towns that are expanding commercial centers.

Our goal in this chapter is twofold. First, we aim to describe in more detail the characteristics of newly established private manufacturing firms in relation to state-owned and privatized firms. Second, we try to establish whether these differences can be attributed to SME effects, industrial sector effects, or location effects, or whether the dynamism we observe in the de novo private sector requires other explanations—for example, human capital and entrepreneurship. We do not explore differences among the categories of privatized firms (worker-owned, manager-owned, and the like), but instead refer the reader to chapter 7 in this volume. Here we note only that our grouping together of all privatized firms is justified in part by the findings detailed in that chapter that the differences between the categories of privatized and state-owned firms are in general not nearly as substantial as the differences between de novo and all other firms.

We find that in most performance indicators, de novo private manufacturing firms look significantly better than their state-owned and privatized counterparts. They are actually growing rather than contracting, operating at higher levels of capacity utilization, expanding employment rapidly, and investing more. Their outlook for future performance is similarly more positive, with higher expectations for growth of output and employment, and more planned investments. In most cases these dif-
ferences appear to be inherent to the *de novo* character of the firms and cannot be attributed to their size, location, or industrial sector. In our concluding remarks we consider the role these dynamic enterprises are likely to play in the recovery of the Russian economy.

Sample Characteristics and Methodology

As explained in more detail in the appendix to this volume, the initial sample size of fifty for *de novo* firms was chosen arbitrarily. Furthermore, the survey was constructed to exclude microfirms (those employing fewer than fifteen persons); we would expect at this stage in the transition that most *de novo* firms would be found in the microfirm sector. As we shall see, the *de novo* firms included in the sample are still generally small. Consequently, these firms account for only a very small fraction—about one-half of one percent—of total employment in our sample. This cannot be taken as an estimate of the weight of the Russian *de novo* sector in industry.

A good indication of the actual size of the *de novo* sector in Russian industry is given by results from a population survey conducted by the Centre for the Study of Public Policy,\(^1\) which found in mid-1995 that 6 percent of manufacturing sector employment was in the *de novo* sector (table 8-1). This is roughly ten times the share we found in our sample. We have further evidence on small industrial enterprises in Russia from Goskomstat. At the end of 1993 there were 78,000 "nonstate" small and medium-size firms in industry (defined as firms employing up to 200 persons),\(^2\) employing about 1.5 million persons in total, or 8 percent of total industrial employment; the sector, moreover, is apparently growing rapidly.\(^3\) Much or most of this activity is likely to be in *de novo* firms. In sum, it appears that the contribution of the *de novo* private sector to Russian industrial output is already significant in the aggregate.

As noted above, we might expect that *a priori* smaller firms (whether state-owned, privatized, or *de novo*) could be expanding rapidly to fill the SME niche. Another reason that smaller firms in our survey might appear to be more dynamic derives from the selection bias resulting in the presence of only "survivors" in the survey. *Ceteris paribus*, we would expect a small firm to be less likely to survive a negative shock than a large firm.\(^4\) The smaller firms in the survey will not represent "losers" as well as they do "winners." Since *de novo* firms are mostly small, the effect of this survi-
vorship bias would be to exaggerate the performance of the *de novo* groups compared with privatized and state-owned firms.

We attempt to isolate *de novo* effects from size effects (both SME-niche effects and survivorship effects) and from industry and location effects in a very simple way—with regressions that include dummy variables for these characteristics. The usual test derives from a single regression of a firm characteristic or response on three dummy (1/0) variables: state ownership; whether the firm is *de novo*; and whether the firm is an SME, defined as a firm employing up to 200 persons. The benchmark category is therefore non-SME privatized firms. Because we have nearly 100 privatized or state-owned SMEs in the sample, we have some hope of being able to separate size effects from *de novo* effects. In most cases regressions are run a second time, when fifteen industry dummies and four location dummies (major city, oblast capital, other town, rural) are included along with the *de novo* and SME dummy variables; in this case we are trying to isolate *de novo* effects from size, industry, and location effects. The regressions take the form

\begin{align}
(8-1) \quad y &= \alpha + \beta_{DN} + \gamma_{STATE} + \delta_{SME} \\
(8-2) \quad y &= \alpha + \beta_{DN} + \gamma_{STATE} + \delta_{SME} + \\
&\quad \text{industry dummies + location dummies}
\end{align}

where $DN = 1/0$ if the firm is/isn't a *de novo* firm, and the other dummies are similarly defined. In regression 1, a test of the statistical significance of the coefficient on the *de novo* dummy ($\beta$) is a test of whether, holding size constant, *de novo* firms are different from privatized firms. Similarly, the statistical significance of the state-owned dummy ($\gamma$) tells us whether, holding size constant, SOEs are different from privatized firms. Finally, a test on the coefficient on the SME dummy ($\delta$) is a test of whether, holding ownership constant, small and medium-size firms are different from larger firms (including possible survivorship-related reasons). The interpretations of the coefficients in regression 8-2 are similar, except we are holding industry and location constant as well. In all cases the regression methods depend on the form of the variable being tested: continuous variables use ordinary least squares, 1/0 variables use logit regressions, and ranked categorical variables use an ordered logit procedure.
Table 8-1. Size Distribution of Firms

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall sample</th>
<th>State</th>
<th>Privatized</th>
<th>De novo</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of firms</td>
<td>439</td>
<td>110</td>
<td>272</td>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td>Percentage of sample</td>
<td>100</td>
<td>25.1</td>
<td>62.0</td>
<td>10.3</td>
<td>2.7</td>
</tr>
<tr>
<td>Firm employment size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(firms reporting employment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>36</td>
<td>3</td>
<td>9</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>51-200</td>
<td>91</td>
<td>20</td>
<td>52</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>201-1,000</td>
<td>126</td>
<td>39</td>
<td>83</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>1,001-5,000</td>
<td>103</td>
<td>19</td>
<td>84</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 5,000</td>
<td>28</td>
<td>14</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total number of firms</td>
<td>384</td>
<td>95</td>
<td>242</td>
<td>43</td>
<td>4</td>
</tr>
<tr>
<td>reporting employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average employment</td>
<td>1,945</td>
<td>3,053</td>
<td>1,867</td>
<td>97</td>
<td>163</td>
</tr>
<tr>
<td>Total employment</td>
<td>746,724</td>
<td>290,057</td>
<td>451,828</td>
<td>4,189</td>
<td>650</td>
</tr>
<tr>
<td>(percentage of sample)</td>
<td>(100)</td>
<td>(38.8)</td>
<td>(60.5)</td>
<td>(0.6)</td>
<td>(0.1)</td>
</tr>
</tbody>
</table>

Memo item:
CSPP population survey, April 1995

Percentage of persons working in manufacturing, by firm ownership

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>State</th>
<th>Privatized</th>
<th>De novo</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>41(^a)</td>
<td>53</td>
<td>6</td>
<td>n.a.</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) The 41 percent state = 25 percent working in state-owned firms, 15 percent working in mixed state/private firms, 1 percent in budgetary units.

Source: CSPP data from New Russia Barometer-IV press release, Centre for the Study of Public Policy, University of Strathclyde, July 1995, and authors’ calculations. CSPP survey covered approximately 2,000 adults.

Before proceeding, several caveats regarding the sample are in order. First, the number of de novo firms in the survey is not large. After examination of survey responses and recategorization of several firms based on these responses (see the appendix to this volume), we are left with a sample of forty-five newly established private firms. Missing values and partial responses often reduce the number still further. More fundamentally,
whereas the selection procedure for the basic sample of state-owned and privatized firms was genuinely random, selection of the de novo sample was essentially *ad hoc* (again, see the appendix); perhaps in effect random, but perhaps not.\(^5\) Finally, we have noted already that in principle we expect a sample of small firms to be prone to a survivorship bias. It is also possible that turnover of de novo firms is more rapid than average, even holding size constant—for example, because de novo firms are typically young, and birth and death rates are generally higher for young firms. This could mean that simply holding size constant may not be good enough to eliminate the survivorship bias in the de novo sample relative to the state-owned and privatized sample.

**Basic Characteristics of De Novo Firms**

The most salient feature of de novo manufacturing firms in our sample is that they are small (table 8-1). Nearly all the sampled de novo firms had 200 or fewer employees during 1993–94 (average employment was 100), with over one-half of these firms in the smallest size category (fifty employees or fewer). They are overwhelmingly an urban phenomenon, with two-thirds located in oblast capitals. Table 8-2 shows this overrepresentation in larger cities to be statistically significant even when controlling for size, or size plus industry; it is not an SME effect (holding ownership or ownership + industry constant, we find SMEs are, if anything, overrepresented in rural areas). That such a large share of our subsample finds itself in oblast capitals, rather than in just the two largest cities (Moscow and St. Petersburg), can be seen as a positive sign that entrepreneurial activity has taken root across the cities of Russia, not just in the major urban centers.

Nearly one-quarter of the de novo firms in our sample produce building materials, reflecting the boom in residential construction currently under way in Russia (table 8-3). Another fifth produce light industrial goods. Most of this sectoral distribution appears to be driven by size, apart from representation of de novo firms in the construction materials and food processing industries, which was far higher than average in the former case, and somewhat lower in the latter.

When examining a new firm's capital stock, one would expect second-hand equipment from state or privatized firms to be the norm, because Russia's developing capital markets may prohibit start-ups from obtain-
### Table 8-2. Geographical Distribution (percent)

<table>
<thead>
<tr>
<th>Area</th>
<th>State</th>
<th>Privatized</th>
<th>De novo</th>
<th>Significance tests vs. privatized non-SME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major city</td>
<td>27</td>
<td>16</td>
<td>24</td>
<td>0 + 0</td>
</tr>
<tr>
<td>Oblast capital</td>
<td>24</td>
<td>38</td>
<td>67</td>
<td>0 ++ 0</td>
</tr>
<tr>
<td>Other town</td>
<td>42</td>
<td>38</td>
<td>7</td>
<td>0 - 0</td>
</tr>
<tr>
<td>Rural</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>0 0 +</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Note:** Significance tests: These are tests deriving from a single regression of a firm characteristic or response on three dummy (1/0) variables—state ownership, whether the firm is *de novo*, and whether the firm is a small or medium-size enterprise (SME), defined as a firm employing up to 200 persons. The benchmark category is therefore non-SME privatized firms. In most cases regressions are run twice; the second significance result comes from a regression also including industry dummies (fifteen industry categories) and city dummies (four city categories).

Regression methods depend on the form of the variable being tested: continuous variables use ordinary least squares, 1/0 variables use logit, and ranked categorical variables use ordered logit.

Significance levels: ++ = positive and significant at the 1% level; + = positive and significant at the 5% level; 0 = insignificant at the 5% level; - = negative and significant at the 5% level; - - = negative and significant at the 1% level. (For more details, see text).

a. Major city: Moscow, St. Petersburg.
Table 8-3. Sectoral Distribution (percent)

<table>
<thead>
<tr>
<th>Sector</th>
<th>State</th>
<th>Privatized</th>
<th>De novo</th>
<th>Significance tests vs. prioritized non-SME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>State</td>
</tr>
<tr>
<td>Energy</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Fuels</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>+ (none)</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>2</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chemicals</td>
<td>3</td>
<td>7</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Heavy machinery</td>
<td>8</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Engineering</td>
<td>6</td>
<td>3</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Car manufacture</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Agricultural machinery</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Machine-building</td>
<td>22</td>
<td>13</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Other machinery</td>
<td>11</td>
<td>11</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Wood/paper</td>
<td>10</td>
<td>6</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Building materials</td>
<td>5</td>
<td>6</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Light industry</td>
<td>5</td>
<td>15</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>Food processing</td>
<td>6</td>
<td>9</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Memo item: Military-industrial complex firm

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
<td>11</td>
<td>2</td>
<td>++</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Significance tests: logit of industry dummy on ownership and SME dummies. See note to table 8-2.

capital of new firms is less than ten years old. Having such a young capital stock places de novo firms in a good position to take advantage of new opportunities opening up in the manufacturing sector. The picture for SMEs is quite different; after controlling for ownership effects, we find that the vintage of the capital stock of SMEs differs only moderately from larger firms. Why do our findings differ from those of Webster and Charap? Aside from sampling issues, the difference may be evidence that de novo firms are progressing and modernizing rapidly: our survey was done eighteen months later, and the firms included were an average of about 50 percent larger in full-time employment.
Table 8-4. Vintage of the Capital Stock  
(percent)

<table>
<thead>
<tr>
<th>Age</th>
<th>State</th>
<th>Privatized</th>
<th>De novo</th>
<th>Significance tests vs. privatized non-SME</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years old</td>
<td>14</td>
<td>15</td>
<td>59</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>++</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>5-10 years old</td>
<td>21</td>
<td>25</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 ++</td>
</tr>
<tr>
<td>10-15 years old</td>
<td>28</td>
<td>25</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>&gt; 15 years old</td>
<td>36</td>
<td>34</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Significance tests: OLS without (line 1) and with (line 2) city + industry dummies. See note to table 8-2.

Another interesting finding is the degree of inter-de novo firm trade. The total sample showed a strong correlation between ownership type of the enterprise, and ownership category of primary customers: 34 percent of the sales of state-owned enterprises were to other state-owned enterprises, and 39 percent of privatized firms’ sales were to other privatized firms. In both of these cases, the strong correlation can probably be interpreted as a continuation of trading ties established before transition. The same cannot be said in the case of de novo firms, for which other de novo enterprises represent a significantly greater share of sales than they do for privatized/state firms (24 percent of their customer base, nearly three times as great as for other firms). These new businesses did not inherit trading partners as corporate entities, although their managers or owners may have been able to draw on their personal network of business contacts.

Wage and labor data are presented in table 8-5. De novo firms reported higher average wages for May 1994 than did state or privatized firms—17 and 23 percent higher, respectively. The differences show up primarily in higher blue-collar wages in de novo firms, with firm location and industrial sector, but not size, explaining most of the differences. As discussed in more detail in chapter 3, de novo firms provide fewer social benefits...
Table 8-5. Wage and Labor Data

<table>
<thead>
<tr>
<th>Item</th>
<th>State</th>
<th>Privatized</th>
<th>De novo</th>
<th>Significance tests vs. privatized non-SME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage, May 1994</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(thousand rubles)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm average wage</td>
<td>163</td>
<td>155</td>
<td>191</td>
<td>0 ++ 0</td>
</tr>
<tr>
<td>Blue collar</td>
<td>164</td>
<td>149</td>
<td>195</td>
<td>0 ++ 0</td>
</tr>
<tr>
<td>White collar</td>
<td>176</td>
<td>152</td>
<td>160</td>
<td>0 0 0</td>
</tr>
<tr>
<td>Managerial</td>
<td>226</td>
<td>218</td>
<td>254</td>
<td>0 0 0</td>
</tr>
</tbody>
</table>

Social benefits

| Benefits provided?   | 96    | 96         | 68      | 0 0 --                                   |
| (percentage of firms)|       |            |         |                                          |
| Number of benefits   | 5.3   | 5.1        | 2.0     | 0 -- --                                  |
| Cost of benefits     | 14.7  | 16.2       | 9.7     | 0 0 --                                   |
| (percentage of wage bill)|       |            |         |                                          |

Unionization

| Unionization (percent) | 83    | 73         | 32      | + -- 0                                   |
| Any unionization?      | 88    | 80         | 33      | 0 -- 0                                   |
| (> 1 percent)          | 0     |            | 0       |                                          |

Note: Significance tests:
Wage, cost of benefits, percentage unionization – OLS without (line 1) and with (line 2) city + industry dummies.
Any benefits provided, any unionization – logit.
Number of benefits – ordered logit.

than the typical firm in the survey. This is largely, but not entirely, a size effect. The significance tests show across all measures of benefit provision that levels of provision in SMEs are lower than in larger firms, but that if we consider only the number of benefits offered, we find de novo firms offer fewer benefits than privatized and state firms, even when controlling for size. Unionization levels are much lower in de novo firms (32 percent) than in state-owned (83 percent) or privatized firms (73 percent). This is
Table 8-6. Output, Employment Growth, and Capacity Utilization (percent)

<table>
<thead>
<tr>
<th>Item</th>
<th>State Privatized</th>
<th>De novo</th>
<th>Significance tests vs. privatized non-SME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment growth, *1993-1994 (annualized)</td>
<td>-9.1</td>
<td>-12.3</td>
<td>17.6</td>
</tr>
<tr>
<td>Capacity utilization, mid-1994</td>
<td>53.8</td>
<td>49.9</td>
<td>71.4</td>
</tr>
<tr>
<td>Employment vacancy rate</td>
<td>2.1</td>
<td>1.5</td>
<td>8.4</td>
</tr>
<tr>
<td>Expectations for next 6 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expecting output increase</td>
<td>37.8</td>
<td>42.8</td>
<td>69.8</td>
</tr>
<tr>
<td>Expecting employment increase</td>
<td>7.0</td>
<td>11.6</td>
<td>32.6</td>
</tr>
</tbody>
</table>

Note: Significance tests:
Output, employment growth, capacity utilization, vacancy rate – OLS without (line 1) and with (line 2) city + industry dummies. Log capacity utilization is tested.
Output and employment expectations – raw data is ranked categorization (1 = high, 5 = low, and so forth). Tests use ordered logit with/without city + industry dummies.
a. Growth rates calculated and tested are log growth rates. These are converted to the usual growth rate format for presentation purposes.

Clearly not a size effect: the difference between de novo firms and other firms is statistically significant at the 1 percent level, whether controlling for just size or for industry and location as well, whereas SMEs (controlling for ownership) have levels of unionization that are no different from those of larger firms.

Economic Performance of De Novo Firms

Here we consider the evidence on the recent performance of surveyed firms in the realms of output, employment, and investment, and also look
Table 8-7. Job Creation and Job Destruction, Mid-1993 to Mid-1994

<table>
<thead>
<tr>
<th>Activity</th>
<th>Total sample</th>
<th>State-owned</th>
<th>Privatized</th>
<th>State + privatized, with average employment</th>
<th>All</th>
<th>De novo, with average employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50-200</td>
<td>201-1,000</td>
<td>1,001-5,000</td>
</tr>
<tr>
<td>Job creation rate</td>
<td>1.5</td>
<td>1.4</td>
<td>1.5</td>
<td>0.0</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Job destruction rate</td>
<td>7.8</td>
<td>6.2</td>
<td>8.8</td>
<td>14.4</td>
<td>12.2</td>
<td>14.6</td>
</tr>
<tr>
<td>Net growth rate</td>
<td>-6.3</td>
<td>-4.8</td>
<td>-7.4</td>
<td>-14.4</td>
<td>-11.3</td>
<td>-14.0</td>
</tr>
<tr>
<td>Job creation share</td>
<td>100</td>
<td>36.2</td>
<td>55.3</td>
<td>0.0</td>
<td>0.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Job destruction share</td>
<td>100</td>
<td>31.5</td>
<td>68.1</td>
<td>0.1</td>
<td>1.7</td>
<td>14.2</td>
</tr>
<tr>
<td>Employment share</td>
<td>100</td>
<td>39.5</td>
<td>60.0</td>
<td>0.03</td>
<td>1.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Percentage job creators</td>
<td>20.8</td>
<td>16.7</td>
<td>15.0</td>
<td>0.0</td>
<td>23.4</td>
<td>13.8</td>
</tr>
<tr>
<td>Number of firms 1993-94 employment</td>
<td>370</td>
<td>90</td>
<td>233</td>
<td>7</td>
<td>64</td>
<td>115</td>
</tr>
<tr>
<td>Total</td>
<td>748,792</td>
<td>295,474</td>
<td>448,828</td>
<td>236</td>
<td>7,864</td>
<td>56,804</td>
</tr>
<tr>
<td>Mean</td>
<td>2,024</td>
<td>3,283</td>
<td>1,926</td>
<td>34</td>
<td>123</td>
<td>490</td>
</tr>
</tbody>
</table>

Note: Job creation rate = For a given group of firms, the total increase in employment in firms expanding employment between period t and period t + 1, as a percentage of average total employment in the group in periods t and t + 1.

Job destruction rate = For a given group of firms, the total decrease in employment in firms decreasing employment between period t and period t + 1, as a percentage of average total employment in the group in periods t and t + 1.

Net growth rate = For a given group of firms, the net increase in employment in all firms between period t and period t + 1, as a percent of average total employment in the group in periods t and t + 1. - Job creation rate - job destruction rate. The net growth rate differs from the usual growth rate format in that the denominator is average rather than start-period employment; it is also not a simple mean of the sample firms but an aggregate growth rate (a weighted mean).

Average employment = (Lt + Lt + 1)/2.

Job creation share = Jobs created in a given group of firms as a share of total jobs created in the sample.

Job destruction share = Jobs lost in a given group of firms as a share of total jobs lost in the sample.

Figures for total sample include data for four firms with unknown ownership. Calculations for state, privatized, and de novo firms that use the total sample exclude these four firms.
at their expectations for the short-term (six months to one year). We begin
with changes in real output in the first half of 1994 compared with 1993
(table 8-6). The mean response for privatized firms was a fall in output of
19 percent, which is fairly close to the corresponding official Goskomstat
industrial production figure. In contrast, de novo firms grew by 4 percent.
The growth rate is not as high as might be expected (perhaps because of
underreporting of rapid growth), but the difference is still statistically sig-
nificant, at levels of 1 percent to 5 percent, in a variety of formulations. By
contrast, there is no size effect: once we control for ownership, we find
SMEs to have growth rates that are no different from those of larger
firms.

The newly established private firms are also operating at significantly
higher levels of capacity utilization. Average capacity utilization in mid-
1994 was 71 percent in de novo firms versus 51 percent in privatized and
state-owned firms. Again, the difference was statistically highly signifi-
cant under most formulations and controls; and again we observe no
SME effects. We note in passing that the declines in capacity utilization
reported by the firms in the survey are roughly consistent with their re-
ported declines in real output.

The differences between de novo firms and privatized and state firms
are most dramatic with respect to employment growth. In mid-1994,
employment in state and privatized firms in the sample had fallen by 9
percent and 12 percent, respectively, compared with a year earlier—
somewhat greater than the employment declines reported by Goskom-
stat. Employment in the newly established firms in our sample, by
contrast, had increased by 18 percent between mid-1993 and mid-1994.
What is more, when we control for size, the difference between de novo
firms and the rest is even greater; that is, we find a negative size effect.
Put another way, controlling for ownership, we find that SMEs are shed-
ing employment faster than larger firms. In part, the differences in labor
growth between privatized/state-owned and de novo firms reflect the
amount of restructuring needed in the former category, where labor
shedding has lagged the fall in output. Evidence from the survey sug-
gests this process still had some way to go as of mid-1994.

A useful way to analyze the dynamics of employment is the frame-
work of “gross job flows,” or job creation and job destruction. We report
some basic statistics on gross job flows by ownership and firm size in ta-
ble 8-7; the notes to table 8-7 provide definitions of the different indica-
tors. The net employment declines in 1993–94 of 5–7 percent in the state
and privatized sectors were driven mostly by job destruction (shedding workers), with little offsetting job creation (hiring workers). Only 15–17 percent of state and privatized firms created jobs between mid-1993 and mid-1994, and the job creation rate—that is, additional employment in these privatized/state job creators—amounted to 1–2 percent of total employment in these firms. Job destruction in shrinking privatized/state firms amounted to 6–9 percent of total employment in these firms.

*De novo* firms look very different. The job destruction rate in these firms is actually little different from that in privatized/state firms, at 6 percent, and the *de novo* contribution to job destruction is roughly in proportion to their weight in the sample. Job destruction is actually fairly common in this group: 40 percent of the *de novo* firms shed workers during the survey period. Job creation, by contrast, occurred at the rapid rate of 25 percent in newly established firms. While the *de novo* firms as a group account for less than one-half of one percent of total employment in the sample, they were responsible for 9 percent of all jobs created. The figures for the different size categories are also revealing. Job creation is much greater in both small (up to 50 employees) and medium-size (51–200 employees) *de novo* firms, and job destruction somewhat less, than in comparably sized privatized and state-owned firms. Again, the dynamism of the newly established private sector does not appear to be strictly a result of small size, and the state-owned and privatized SME sectors look anything but dynamic.

Expansion of *de novo* firms is also evident in the number of job vacancies that they report as open and vacant for more than two months (table 8-6). About one-third of both ownership groups report that they have such vacancies, but the number of vacant workplaces amounts to 8 percent of employment in the newly established firms, versus less than 2 percent in privatized/state firms. The regression analysis suggests the high vacancy rate is neither an SME phenomenon—privatized/state SMEs also have a much lower vacancy rate (again less than 2 percent)—nor related to industrial branch or location. That it is closely connected to expansion and growth is reflected in the reasons given by managers for not being able to fill the vacancies. Just over half of privatized/state and *de novo* firms with vacancies blamed the absence of qualified applicants, but two-thirds of the former cited the main reason as the inability to pay competitive wages to attract workers, compared to one-third of *de novo* firms.
Across various financial questions, *de novo* firms do not differ significantly one way or the other from their state-owned and privatized counterparts, once we control for size and the other firm characteristics. They are no more or less likely to be financially distressed, for example; 11 percent of *de novo* firms said they were "usually loss-makers," compared with 14 percent of state and privatized firms. As reported in chapter 4 in this volume, while *de novo* firms have fewer arrears to creditors than state-owned and privatized firms, these differences do not survive the inclusion of size, industry, and location controls. Chapter 5 reports that ease of obtaining bank credit is not significantly different for newly established private firms. The only important financial indicator where the difference between *de novo* firms and others was statistically strongly significant, even after controlling for firm characteristics, was in response to a question on what factors restricted fixed investment activity by the firms. *De novo* firms rated "poor financial situation of the firm" as a less important constraint on investment activity, even when controlling for size, industry, and location. Why these newly established private firms should look similar to their state-owned and privatized counterparts with respect to their financial situation, when their economic performance is clearly better, is unclear. One possibility is that these firms have a greater incentive to conceal strong financial performance—for example, because they are more likely to be targets of organized crime. Another possibility is that a financially "soft" environment blurs differences in financial performance and financial constraints across firms. More work is needed here.

We turn finally to investment, past and present, in more detail. Firms were asked to compare their current investment levels with levels in the pre-reform (1990/91) period. Not surprisingly, privatized and state-owned firms have seen large decreases in investment, with two-thirds reporting falls of 10 percent or more, and 40 percent reporting investment levels of one-half or less of the pre-reform level. Only 15 of the *de novo* firms responded to this question, reflecting in part their recent founding; most of these reported investment levels that were the same or higher than in 1990/91. Firms were also asked whether they were currently investing. Of the privatized and state-owned firms in the survey (the response rate to this question was 100 percent), 57 percent are investing, compared with 89 percent of newly established private firms. This difference is statistically significant at the 1 percent level, controlling for size,
location, and industry. We note that the size effect here is again negative: whether controlling for just ownership, or ownership, location, and industry, SMEs are significantly less likely, not more likely, to be investing in fixed capital.

Performance Expectations

Not surprisingly, we find that de novo firms are far more optimistic regarding future performance than their privatized or state counterparts (table 8-6). Managers were asked about their expectations of firm output and employment six months into the future—that is, at the end of 1994—according to broad categories (> 20 percent increase, 10–20 percent increase, and so forth). Managers of de novo firms clearly expected to expand output faster than privatized/state firms: close to half expected their firm's output to be more than 10 percent higher, and about 30 percent expected increases in excess of 20 percent, compared with about 25 percent and 13 percent, respectively, for privatized and state-owned firms. The differences are statistically highly significant even if we control for size, location, and industry. SME managers, by contrast, once we control for ownership effects, were not expecting to expand output any more or less rapidly than their counterparts in larger firms.

Two-thirds of managers of privatized/state firms forecast slow labor shedding or no change in employment by end-1994; fewer than 10 percent foresaw any increase in employment. On the whole, managers in de novo private firms expected to expand employment, but by surprisingly little: fewer than one-fifth expected to increase employment by more than 10 percent; only one-third expected to create any jobs at all (that is, increase employment). The difference in employment expectations between the two groups is statistically significant when controlling for size, but disappears when controlling for location and industry as well. Why de novo firms are not expecting to increase employment at anything near the pace of the previous year (and yet are expecting strong output growth) is not clear.

Finally, although the newly established private firms had better records of recent and current investment, there is little difference in their fixed investment plans compared with privatized and state-owned firms. When asked if the firm was planning any fixed investment the next year, 78 percent of privatized/state firms said yes, compared with 83 percent
of de novo firms. The difference is statistically insignificant, and remains so after controlling for size, location, and industry variation. Given the differences between the two groups in current investment activity, it is tempting to conclude that managers in privatized/state firms continued to be excessively optimistic compared with their counterparts in de novo firms, but verification of this awaits a resurvey of the firms.

**Russian De Novo Performance Compared with Their Polish Counterparts**

How do these findings compare with those from the World Bank survey of 200 Polish state-owned, privatized, and de novo private manufacturing firms, as reported in Belka and others (1995)? Output was growing in all the ownership categories in the Polish survey in 1993, reflecting the general economic recovery then under way. Output in the Polish de novo firms was growing extremely fast (60 percent yearly, on average, in 1993), much faster than in the new private firms in the Russian survey, and the differential between the de novo firms and the privatized and state-owned firms was greater than that observed among our Russian firms. Employment growth was, however, very similar in the two surveys; in the Polish survey, de novo firms increased their employment by 23 percent in 1993 and privatized/state firms shed 7 percent of their employment, compared with 18 percent de novo employment growth and roughly 10 percent privatized/state labor shedding in 1994 in the Russian survey.

The estimates of Russian managers of the amount of excess labor in both the newly established and the privatized/state firms were very similar to those of managers in the corresponding Polish ownership categories. Three-quarters of the de novo firms in both surveys reported they had no excess employment, compared with about half of the state-owned and privatized firms in both surveys. Nevertheless, there are some noteworthy differences in the reasons given for not reducing excess employment. While the expectation of a recovery in demand and social/ethical reasons were the most common explanations given in both surveys, about one-quarter of Polish state-owned and privatized firms (but no Polish de novo firms) cited workers’ resistance to layoffs, versus only 1 percent of Russian privatized/state firms (and again, no Russian de novo firms). We recall here that Russian de novo firms are significantly less unionized than their privatized and state-owned counterparts, even when controlling for
size, industry, and location effects; this may be evidence that Russian newly established private firms are hostile to unions despite the generally lower levels of labor activism in Russia. Their Polish counterparts are still more hostile to unions; despite, or perhaps because of, a strong tradition of labor activism in Poland, none of the Polish de novo firms in the survey by Belka and others (1995) had any union representation at all.

Reported profitability and financial health in general in Polish de novo firms was above average, a more clear-cut result than we found in the Russian newly established manufacturing firms in our survey. Finally, investment levels are significantly higher in de novo firms in both surveys.

We are also able to compare our job creation/job destruction results with a similar analysis done for the entire Polish industrial sector in 1991 (Konings, Lehmann, and Schaffer 1996). The results of that study hint again at the dynamism of the new private sector. A word of caution is in order on the comparison of the results, however, because the Polish study was based on comprehensive (essentially census-style) data of almost the entire industrial sector with the exception of unincorporated (that is, small) firms. The comprehensiveness of the Polish data compared with our survey data means that selection bias issues—observing or surveying only successful or surviving firms—will likely be a greater danger in our sample. This is probably the main reason that the Polish study found higher rates of job destruction in both the state and private sectors (15–20 percent) than we find here.

There are, nevertheless, a number of points of similarity in the two studies. The main difference between the state and “domestic 100 percent private” (the authors argue that this is composed mostly of de novo firms) sectors in the Polish study is in the much higher rate of job creation in the latter (at 18 percent, close to what we find in our Russian survey); job destruction rates in the two categories are similar, as we find in the Russian sample. Job destruction rates are lower in larger state-owned firms, again, as we find. Job creation rates in the Polish state sector decrease with size, in contrast to our finding of no clear size/job creation rate relationship.

Conclusions

In most performance indicators, de novo private manufacturing firms look better—or much better—than both privatized/state firms in general, and privatized/state SMEs in particular. They are growing rather than con-
tracting, operating at higher rates of capacity utilization, expanding employment rapidly and creating jobs, and investing more. Their expectations about future performance are similarly more positive, with higher expectations for growth of output and employment, and more planned investments. These differences do not appear to result from simple size effects—small firms expanding to fill the SME niche and/or survivorship effects—nor from simple industry or location effects—observing more entrants in expanding sectors or locations. Indeed, controlling for ownership effects, we find that Russian SMEs are, if anything, less dynamic than their larger counterparts (and this in spite of the survivorship bias mentioned above, which ceteris paribus would make the SME sector look stronger than it really is). Deeper explanations of the strong performance of newly established private firms are required. This is an area for future research.

We offer here several observations regarding the implications of our findings for future investment and growth in the Russian manufacturing sector. First, while the de novo private sector in Russia is not negligible, it is clearly much smaller than its counterparts in the transition countries that began their liberalizations early. In Poland, in particular, the current rapid rates of growth in manufacturing are driven primarily by the de novo private sector. If the pattern of de novo-led growth is followed in Russia, then it may take a few years for manufacturing output growth to accelerate, as the de novo sector catches up in weight of total manufacturing output.

Of course, Russia may not follow this pattern. Russia has the benefit of having rapidly privatized the bulk of its industrial firms. One possibility is that privatization itself will lead to improved performance by firms. Early research, however, does not yet indicate very significant performance effects of privatization per se (see chapter 7 in this volume). The work by Barberis and others (1995) suggests that the performance of Russian firms following privatization may depend greatly on the introduction of new human capital. De novo firms are by definition mostly new bundles of human capital led by new entrepreneurs, and our findings of very dynamic de novo firms would tend to support this argument. This evidence has the additional advantage of bypassing endogeneity issues in identifying human capital effects in privatized firms.¹⁰

Following this line of reasoning, the performance of the privatized sector will depend in part on incentives to bring in new management, for
example. But it will also depend on the ability of privatized firms to attract talented new people; it is an open question how successful privatized firms will be in hiring new talent, given the attractiveness to entrepreneurially minded people of starting and expanding their own firms. Privatization may, however, improve the growth prospects of the de novo sector by making it easier for rapidly expanding new businesses and new entrepreneurs to acquire privatized firms in part or in whole (and introduce new management, restructuring programs, and the like). In any case, further empirical work is needed.

References


The Performance of De Novo Private Firms in Russian Manufacturing

Notes

1. The survey covered approximately 2,000 adults and was undertaken in July 1995 by the Centre for the Study of Public Policy, University of Strathclyde.

2. The Russian convention is to refer to firms employing up to 200 persons as “small” firms, but for the purposes of this chapter we will call such firms “SMEs.”


4. Or, if it does survive, its poorer financial state may make it less willing to take part in the survey.

5. We note here that the sampling procedure for the newly established firms imposed a constraint of a maximum of 50 percent to come from Moscow and St. Petersburg (see the appendix to this volume). In the event, this constraint was not binding, because only one-quarter of the sample came from these two cities. Nevertheless, we cannot, for example, unambiguously rule out the possibility that firms from these two cities are overrepresented in the sample.

6. The significance of the difference between the wages of de novo firms and the wages in privatized firms survives the inclusion of the SME dummy (first line in each set of results in table 8-5) but not the addition of industry and location dummies (second line in each set of results).

7. Because of low response rates for reported real output growth, these growth rates are derived from nominal output and hence may differ from growth rates used in other chapters.

8. The calculation of growth rates in our job creation/job destruction analysis follows the conventions used in gross job flows literature, and hence differs slightly from that used elsewhere in the chapter and the volume. See the notes to table 8-7 for details.

9. Nota bene: the figures for de novo firms employing more than 200 persons are reported for the record only, since only three firms were in this category.

10. As Barberis and others (1995) point out, it can be difficult to separate cause and effect when good firm performance is correlated with introduction of new human capital; for example, a good privatized firm may attract good new managers, or a good new manager can turn around a firm, or both.
Appendix

The World Bank Survey of 439 Industrial Enterprises

Une J. Lee

All the chapters in this volume are organized around a World Bank survey of 439 Russian industrial enterprises conducted in mid-1994. The principal concern of the survey was to look at how enterprises were adjusting to the shocks of economic transition. The survey not only documents the evolution of financial and real variables but also provides information on factors that govern decisionmaking at the firm level. More important, this is the first comprehensive, randomly selected survey of Russian industrial enterprises, and therefore provides a unique opportunity for rigorous analysis of enterprise adjustment issues. The timing of the survey, furthermore, documents enterprise performance in Russia following the longest spell of tight credit policy since the start of the economic reforms, and it captures the sweeping changes in ownership that have taken place since 1993.

The focus here is to discuss the methodology of the sample selection, outline the general characteristics of the fieldwork, and provide more detailed information on the survey instrument. Some data issues are then explored. Finally, an overview of the survey results is provided.
Sample Selection

The sample was essentially split, with a main sample of 400 industrial enterprises and a separate sample of 50 de novo (newly established) private industrial/manufacturing firms. The main sample was drawn from two different populations of enterprises, the list of enterprises in the 1991 Goskomstat database of industrial enterprises and the 1991 Goskomstat database of industrial enterprises within the military-industrial complex (MIC). The two databases together hold information on approximately 23,000 enterprises, including the name and address of the enterprise, as well as its branch, ministry, ownership code, employment, and other variables. The fifty de novo private enterprises were selected from lists at local statistical offices. The selection of the main sample was carried out by the World Bank, while the selection of the fifty de novo private enterprises was done by the Russian Centre for the Study of Public Opinion (VTSM), the firm that carried out the fieldwork.

The main sample was selected randomly, based on the following criteria. The sample was stratified by region as well as by industrial branch. All enterprises located in the territories that were represented by the consultants were extracted from the main database. Selected branches, including those that fell in the "other" branch category, were excluded. In addition, enterprises with fewer than fifteen employees were not included.

An initial sample of 400 enterprises and an alternative sample of an additional 400 enterprises were selected randomly for the main sample of enterprises. The alternate sample was used to select substitute enterprises for those in the original sample. The main criterion for substitution was territory, with branch/sector replacement and size as the secondary criteria. When a replacement could not be found from the alternate list, VTSIOM was allowed to use their own database of industrial enterprises to select alternate enterprises, using the same criteria for replacement.

VTSIOM was also instructed to select fifty de novo private industrial enterprises that employed at least fifteen individuals and were owned by persons or groups of persons. No more than 50 percent of these enterprises were to come from Moscow and St. Petersburg. These enterprises were selected from lists at industrial departments of local statistical offices.
In the end, 439 enterprises, including all 50 de novo private enterprises, completed the survey. While the target was 400 enterprises from the main sample, 389 enterprises completed the survey. Of these, 60 percent of the enterprises came from the original sample, 25 percent from the alternate sample, and 15 percent were selected independently by VTSIOM. A number of enterprises did not complete the quantitative section of the questionnaire and therefore could not be included. Most of these enterprises, it was learned later, were part of the military-industrial complex. In general, the interviewers were confronted with particularly uncooperative attitudes on the part of enterprise managers in six of the covered territories: Altai, Kemerov, Tyumen, Bashkorstan, Rostov, and Saratov.

The Survey Instrument
The interviews with managers were conducted by VTSIOM during June and July of 1994. A total of 160 interviewers took part in the survey. The questionnaire consisted of two parts, a quantitative portion with 39 questions and a qualitative segment with 82 questions. The qualitative portion was completed during interviews with either managers of enterprises or their deputies. The quantitative section was usually given to the accounting departments within each enterprise for completion. Frequently, however, the quantitative section was completed in an interviewer's presence. Interviews lasted an average of 2 hours, but ranged anywhere from 40 minutes to over 7 or 8 hours. The quantitative section is primarily made up of questions on production, output, and sales; market structure; corporate structure; employment and wages; and enterprise finances. Enterprises were asked about current information, as well as historical data going back to the pre-reform period. The qualitative section of the questionnaire included questions on adjustment, adjustment strategy, management strategy, market structure, finance, future expectations, and privatization. This section was designed to complement and supplement the information from the quantitative section, as well as to provide additional information.

In general, the qualitative section of questionnaire had a better response rate than the quantitative section. Potentially sensitive questions were the most likely to be left unanswered. These areas included ques-
tions on the cost and profit structure of the firm and requests for financial
details, particularly government financial transfers and bank loans. Over-
all, the average response rate was 74 percent for the entire questionnaire,
with an average of 66 percent for the quantitative section and 80 percent
for the qualitative section.

Classification
An effort was made in all the chapters in this volume to use a consistent
set of variable definitions, including definitions for size, branch, and
ownership. The chapters use the following size definitions: small enter-
prises are those with 200 or fewer employees; medium-size enterprises
are those with between 200 and 1,000 employees; large enterprises are
those with between 1,000 and 10,000 employees; and very large enter-
prises are those with more than 10,000 employees. While the sample was
limited to include only enterprises with fifteen or more employees, based
on the information provided within the 1991 database for the main sam-
ple and information provided at the local statistical offices for the de novo
enterprises, the final sample of enterprises contained several with fewer
than fifteen employees for both 1991 and 1994 employment. Branches are
classified up to the three-digit standard branch codes for industry used in
Russia. Given that the majority of the enterprises from the main sample
were selected based on 1991 information, a few of the enterprises had
changed their main products, and some are now classified within the
category of "other" branches.

Ownership is a particularly sensitive category, and a great deal of
time was spent in determining this classification. Since all the enterprises
from the main sample were selected using a 1991 database, with the ex-
ception of those selected directly by VTSIOM, current ownership infor-
mation was not known. All the chapters in this volume use three basic
classifications of ownership—state-owned (SOE); privatized; and new
private or de novo private—with the exception of chapter 7 by Earle,
Estrin, and Leschenko. This chapter employs a modified version of the
classification, including a more detailed definition for privatized enter-
prises. Because more precise definitions are required for privatized firms—specifically privatized and majority worker-owned, manager-
owned, or outsider-owned enterprises—privatized firms that could not
be classified as such were left unclassified. For the SOEs and privatized enterprises, information on their current and past corporate structure, privatization information, and data concerning enterprises' shareholder structure were used for ownership classification.

After careful analysis of the evidence gained from firms' responses to questions on corporate structure, privatization, and shareholder structure, some of the firms from the separate de novo sample were reclassified as privatized. In addition, a few enterprises from the main sample were classified as de novo private firms. Based on these changes, the sample of de novo private firms was reduced to forty-five, with most (93 percent) coming from the separate de novo sample mentioned earlier.

Overview of Sampled Enterprises

The tables below outline the main characteristics of the final sample, including ownership, size, region, and branch distribution. The population averages are given alongside the sample averages for the main sample where applicable. The enterprises selected separately by VTSIOM for the main sample are included with the main sample for comparison with the population averages. The population averages are not known for de novo enterprises. A table with the distribution of enterprises associated with, or members of, the military-industrial complex is also provided.

The sample picks up the large transformation in the legal status of enterprises (see table A-1). The majority of firms have moved to the private sector. Only slightly more than one-quarter of the main sample of enterprises (excluding the de novo firms) remained in the state sector by mid-1994. Table A-2 shows the size distribution of the sample. Not surprisingly, the vast majority of de novo private firms are small, with no

<table>
<thead>
<tr>
<th>Ownership category</th>
<th>Percentage of firms</th>
<th>Number of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-owned enterprises</td>
<td>26</td>
<td>110</td>
</tr>
<tr>
<td>Privatized enterprises</td>
<td>63</td>
<td>272</td>
</tr>
<tr>
<td>New private/de novo enterprises</td>
<td>11</td>
<td>45</td>
</tr>
<tr>
<td>Unclassified enterprises</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>100</td>
<td>439</td>
</tr>
</tbody>
</table>
Table A-2. Distribution by Size of Enterprise (percent)

<table>
<thead>
<tr>
<th>Size of enterprise (employment)</th>
<th>Main sample, 1994(^a)</th>
<th>Main sample, 1991(^b)</th>
<th>De novo, 1994(^a)</th>
<th>De novo, 1991(^b)</th>
<th>Population averages, 1991, main sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 200</td>
<td>24</td>
<td>15</td>
<td>93</td>
<td>91</td>
<td>44</td>
</tr>
<tr>
<td>200–1,000</td>
<td>36</td>
<td>30</td>
<td>7</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>1,000–10,000</td>
<td>36</td>
<td>48</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>&gt; 10,000</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>327</td>
<td>332</td>
<td>43</td>
<td>11</td>
<td>10,582</td>
</tr>
</tbody>
</table>

Note: The population excludes enterprises with fewer than fifteen employees.

a. Based on 1994 employment.
b. Based on 1991 employment.

Table A-3. Distribution over Industrial Branches (percent)

<table>
<thead>
<tr>
<th>Industrial branch</th>
<th>Main sample (excluding de novo)</th>
<th>De novo enterprises</th>
<th>Population for main sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Energy</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. Fuels</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3. Ferrous metals</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4. Nonferrous metals</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. Chemicals/petrochemicals</td>
<td>6</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>6. Heavy machinery</td>
<td>9</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>7. Machine tool engineering</td>
<td>4</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>8. Automobiles</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>9. Agricultural machinery</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10. Shipbuilding, aircraft, defense</td>
<td>17</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>11. Other machine-building and metalworking</td>
<td>11</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>12. Wood and paper</td>
<td>7</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>13. Construction materials and glass</td>
<td>5</td>
<td>24</td>
<td>9</td>
</tr>
<tr>
<td>14. Light industry</td>
<td>12</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>15. Food processing</td>
<td>8</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>16. Other branches</td>
<td>3</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>394</td>
<td>45</td>
<td>10,582</td>
</tr>
</tbody>
</table>
Table A-4. Sample Distribution over Regions  
(percent)

<table>
<thead>
<tr>
<th>Region</th>
<th>Main sample (excluding de novo)</th>
<th>De novo enterprises</th>
<th>Population for main sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arkhangelsk Oblast</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Vologda Oblast</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Northwestern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Petersburg</td>
<td>7</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Leningrad Oblast</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Central</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vladimir Oblast</td>
<td>4</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Smolensk Oblast</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Moscow</td>
<td>12</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Moscow Oblast</td>
<td>3</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Volgo-Vyatkskiy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. Novgorod Oblast</td>
<td>6</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Central Chernozemniy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voronezh Oblast</td>
<td>2</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Povolzhskiy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samara Oblast</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Saratov Oblast</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Republic of Tatarstan</td>
<td>5</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>North Causasus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stavropol Territory</td>
<td>5</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Rostov Oblast</td>
<td>4</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Uralsky</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perm Oblast</td>
<td>5</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Sverdlovsk Oblast</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Rep. of Bashkorstan</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Western Siberia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altai Territory</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Kemerovo Oblast</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Novosibirsk Oblast</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Tyumen Oblast</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Eastern Siberia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Krasnoyarsk Territory</td>
<td>4</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Far East</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primorye Territory</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>394</td>
<td>45</td>
<td>10,582</td>
</tr>
</tbody>
</table>
Table A-5. Enterprises within the Military-Industrial Complex (MIC)

<table>
<thead>
<tr>
<th>MIC</th>
<th>Percentage of all survey enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC</td>
<td>15</td>
</tr>
<tr>
<td>SOE</td>
<td>48</td>
</tr>
<tr>
<td>Privatized</td>
<td>47</td>
</tr>
<tr>
<td>De novo</td>
<td>2</td>
</tr>
<tr>
<td>Unclassified</td>
<td>3</td>
</tr>
<tr>
<td>Non-MIC</td>
<td>85</td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>428</td>
</tr>
</tbody>
</table>

*de novo* private firms in the large and largest categories of enterprises. Even after excluding enterprises with fewer than fifteen employees from the population, it is clear in table A-2 that the survey enterprises from the main sample are skewed toward the large and largest enterprises. Compared with the population averages, small enterprises are underrepresented. This is consistent with the branch distribution of the surveyed enterprises (table A-3). While all of the main industrial branches are covered in the survey, there are many more enterprises from the heavy industrial sectors in the main sample relative to the population averages. The heavy industrial branches were historically far larger in employment in Russia than the light industrial sectors.

Compared with the population averages for the main sample, the regions are fairly well represented proportionally, even in the regions interviewers considered uncooperative (see table A-4). Moscow and St. Petersburg, however, are somewhat overrepresented. With the exception of the northern economic region, *de novo* enterprises were represented in all major economic regions.

Finally, about 15 percent of all sampled enterprises indicated that they belonged to the military-industrial complex, as did 16 percent of the main sample of enterprises, excluding *de novo* private firms (see table A-5). This is a much higher rate than the population average of 7 percent for the main sample, and is again consistent with the size and branch distribution of the sample. MIC enterprises are generally larger by employment and attached to the heavy industrial sectors of the economy.
Notes

1. MIC enterprises are enterprises that have been classified as such by the Ministry of Internal Affairs. They are predominately associated with, but not limited to, certain industrial branches such as shipbuilding, aviation, and defense industry.

2. The survey instrument benefited enormously from a similar survey completed in Poland in late 1993 as part of a World Bank research project, Enterprise Behavior and Economic Reform, headed by I. J. Singh.
Index

(Page numbers in italics indicate material in figures or tables.)

Arrears, 87-88, 92-93; causes of, 126-28; correlates of (at the firm level), 116-17, 118, 119, 120, 121-28; estimate of real net flow of, 96; financial indicators and, 121; in financially distressed firms, 110-13, 114-15, 116; firm characteristics and, 119; frequency of, 124; industrial sector and, 121; interest on, 94, 95-96; largest category of, 98; as late payments, 128; liquidity and, 109-10; location of firm and, 122; measuring, 94-97; in Russian industry, 102; term structure of, 122, 123; time trends of, 99, 102-3. See also Bank arrears; Enterprise arrears; Overdue payables; Tax arrears; Trade credit arrears; Wage arrears

Arrears crisis, 102, 108

Bad debts, 88, 91, 152, 162; vs. late payments, 89-91; owed to banks, 7-8, 145, 150-54; rolling over banks', 148, 149

Bad debt stock problem, 90

Balance sheet items, data on, 93-94, 95

Balance sheets, 91; Goskomstat data on, 134-36; of industrial sectors, 100, 101

Bankruptcy, 89, 131-32

Banking system, softness in, 7

Bank loans and bank credit, 142, 154-57; arrears and difficulty in obtaining, 124-25; as bad debts, 7-8, 145; definition of "bad" or "overdue," 148; ease of obtaining, 156, 162; factors affecting supply of, 155-57, 158; held by "bad" or financially distressed firms, 150-54; most common problem in obtaining, 154; overdue, 7, 142, 145, 146, 147-53

Banks: arrears to, 123-24, 133; bad debts owed to, 7-8, 145, 150-54; commercial, 141-42; as creditors, 163; cross-holdings between firms and, 144-45; enterprise decisions and, 157, 159, 160, 161, 162-63; as investors and shareholders, 11, 145, 161, 162; overdue liabilities to, 162; risk exposure of, 142, 162; with shares held by firms, 144-45, 155-57

Benefits. See Social benefits to workers; Workers' compensation
Bulgaria, financial transfers by government to enterprises in, 167

Capacity utilization, 2, 21–22, 238, 239–40, 241
Capital stock, vintage of, 240, 242
Childcare facilities as benefit, 55, 57, 58, 71, 75–76
Collateralization of loans, 143–44, 148, 162
Compensation. See Workers’ compensation
Council for Mutual Economic Assistance (CMEA), 188–89
Courts to collect overdue debts, 130–31
Credit on preferential terms, 155
Credit. See Directed State credits (DSC)
Credit control, 128–32
Creditworthiness, 155–56
Czech Republic: government financial transfers to enterprises in, 180; tax arrears in, 107; trade credit in, 103, 104, 106

Debt: courts to collect, 130–31; payment periods for, 96, 106. See also Arrears; Bad debt; Bank loans; Credit; Late payments
Debtors, insolvency of, 131

De novo private firms, 253–58, 270–72; with bank credit, 142, 143; bank credit for, 157; benefits and compensation offered by, 5, 67, 77, 241, 261–63; capacity utilization by, 238, 239; characteristics of, 258–63; economic performance of, 263, 264, 265–68; equipment of, 258–60; loans for productive fixed income investment and, 143; performance expectations for, 268–69; performance of Russian compared to Polish, 269–70; pre- and post-reform investment by, 267–68; as shareholders in banks, 144; size of, 9, 238; trading partners of, 261
Depoliticization, 249 n.2
Directed state credits (DSCs), 141, 144–45, 171

Eastern European market for Russian enterprises, 189
Employee Stock Ownership Plan (ESOP), 214
Employment, 23–24, 34; excess, 24, 26, 27; growth of, 264, 265–66; industrial, 188; output and, 16, 17–18, 19, 20–21; in private sector, 206; privatization and, 241, 242, 243. See also Jobs
Employment stability, 4, 10, 45; wages and, 15
Enterprise decisions: banks’ influence on, 157, 159, 160, 161, 162–63; by insiders, 4, 19
Enterprise ownership, 1, 214; behavior of the enterprise and, 206–12, 225–33; control and, 215–21, 221–25; employment policies and, 234, 236; enterprise performance and, 236–41, 243; by workers, 246–47. See also Privatization
Enterprise restructuring, 209–11; short-term, 211–12
Enterprises: balance sheet structure of, 95, 97–99; bank shareholding in, 145, 161, 162; corporate control in, 215–21; Eastern European market for products of, 189; government subsidies and restructuring of, 196, 230–31; insider ownership of, 206; liabilities of, 97; ownership effects in, 31–35; ownership forms of, 1; worker compensation and restructuring of, 53; worker ownership of, 8, 246–47. See also De novo firms; Firms; World Bank survey of enterprises
Enterprise sector, developing a politically independent market-oriented, 208–9
Financial stress, 91
Firms: with bank credit, 142, 143, 159, 162; bargaining on wages and employment and, 39–45; benevolence of, 10; budget constraints of, 5–8; cross-holdings between banks and, 144–45; decisionmaking in, 4, 19, 29–31, 48, 157, 159, 160, 161, 162–63; depoliticization of, 208–9; employment strategies of, 234, 235, 236; evolution of governance forms of, 212–13; financially distressed, 150; financial management strategies of, 129; that hold bank credit, 157, 159; investment strategies of, 235, 236; with lending banks as shareholders, 145; location of, 39, 122; managers of, 8, 9, 10–11; marketing strategies of, 235, 236; need to support customers and, 131; non-bank loans to, 143; objectives of, 35–37, 38, 39, 208, 233–34, 236–41, 243; with overdue bank credit, 152–53; ownership of, 9, 21–22, 208–9, 212–13, 221–25; ownership impact on performance of, 236–41, 243; payment priorities of, 127; performance of new private, 9; problems with accounting systems of, 139 n.12; production strategies of, 234, 235; response to difficulty in obtaining bank loans, 154; as shareholders in lending banks, 144–55, 156–57; tax arrears of financially distressed, 6; workers' role in, 9, 30; use of loans by, 143. See also De novo firms; Enterprises
Firms’ performance, effects of ownership and control on, 206
Fund of Workers’ Shares (FARP), 214
Goskomstat data, 134–36
Government-directed credit. See Directed State Credits (DSCs)
Government financial assistance, most commonly requested forms of, 155
Government procurement, 185, 187, 189
Government policies, market-restricting, 184–85, 186, 187
Health facilities as benefit, 55, 57, 58, 75–76
Housing as benefit, 56, 57, 58, 59, 60, 61, 63, 64; cost recovery and, 70; labor mobility and, 55
Hungary: bankruptcy in, 89; bank credit in “bad” firms in, 152; control of overdue receivables in, 129–30; overdue bank credit in, 147–48; tax arrears in, 107, 116; trade credit in, 103, 104, 106
Incentive payments for workers, 78
Industrial output, 21–22; restructuring of Russian industry and, 2
Industrial sectors, balance sheets of, 100, 101
Inflation, 94–95, 96, 103, 139 n.18, 183; bank loans and, 143, 147, 163; measures to control, 109; trade credit arrears and, 108
Insiders: enterprise ownership and, 206; firm-level decisions by, 4, 29; influence of, 37, 39; rent-taking by, 4
Interest arrears, 147; capitalization of, 162
Interenterprise debt. See Trade credit
Investors, banks as, 11, 145, 161, 162. See also Shareholders
Jobholding, multiple, 4, 79
Jobs, 264, 265-66. See also Employment
Labor: cost of, 77; excess, 3; firms’ unwillingness to shed, 15; flows of, 24; part-time, 5; productivity of, 19, 20–21, 44, 49; time allocation and, 79–81. See also Unions; Workers
Labor hoarding, 24–25, 27, 195
Labor mobility, 77, 78; housing as benefit and, 55
Labor productivity, 195
Late payments, 88, 91; arrears as, 128; vs. bad debts, 89–91. See also Arrears
Legal reforms needed, 132
Legal system, reforms needed in, 132. See also Courts
Liabilities in balance sheets, 91–92; overdue, 92–93
Liquidity, arrears and, 109–10, 128
Liquidity problems, 7
Loans, collateralization for, 143–44. See also Bad debt; Bank loans; Credit
Local governments’ transfers to enterprises, 171, 175
Managers, 8, 9, 10–11; inside, 35
Military-industrial complex, government financial transfers to, 189
Military procurement, payment delays by government and, 121
New firms. See De novo firms
New Zealand, uncollectible taxes in, 107
Outsider shareholders, 9
Overdue payables, term structure of, 122, 123
Overdue receivables, firms’ control of, 128–29
Overdue receivables/sales ratio, 96
Payment periods, 96
Payments gridlock, 108
Poland: bank debt in “bad” firms in, 152; control of overdue receivables in, 129–30; de novo-led growth in, 271; government financial transfers to enterprises in, 180; overdue liabilities to banks in, 148, 150; payment priorities of financially distressed firms in, 128; tax arrears in, 107, 116; trade credit in, 103, 105, 106; wage arrears in, 133; workers’ benefits in, 67–68
Price controls, 184–85, 186, 187, 198, 228, 229
Principal, rescheduling of, 162
Private sector, informalization of, 5
Privatization, 205–6, 243–47; employment and, 48, 241, 242, 243; firm behavior and, 8–9; institutional features of Russian, 213–15. See also Enterprise restructuring
Privatization program, ownership forms of enterprises following the, 1
Productivity, wages and, 44, 49
Product mix, changes in, 3
Profit, 238; as firms’ objective, 36; firms’ response to deterioration of, 71

Receivables/sales ratio, 96
Reform: in enterprise and financial sectors, 140–41; needed legal system, 132
Rent-seeking behavior by enterprise managers, 193
Restructuring, 10; measures of, 2
Romania, financial transfers by government to enterprises in, 167
Sales, wages and, 47
Shareholders: employment reductions and insider, 34; outside, 9; worker layoffs and outside, 32-33. See also Investors
Shocks faced by Russian firms, 2; compensation for, 188-89
Slovakia, tax arrears in, 107
Social benefits and services to workers, 4, 55-59, 60, 61, 62, 63-68; asset structure and, 57-58; costs of, 68-70, 73; de novo firms and, 61, 63; enterprise ownership and, 61, 65; financing of, 5; by firm setting, 64; firm size and, 58-59, 63, 64-65; firms’ spending on, 53; increase in market value of, 74; by industrial sector, 60; loss of, 71; offsetting costs of, 71; reasons for continuing, 57, 76; recovery of costs of, 70-73; by region, 62, 63; results of providing, 53-54; subsidies and, 188; underestimation of Social benefits and costs of, 73; wage level and, 66. See also Workers’ compensation
Stock/flow ratio, 96
Stock problems, 90
Subsidies to firms, 5-6, 7, 171, 172, 174; compensatory, 183, 184-85, 188; forced, 184, 189-90, 192-94; privatization and, 215; protectionist, 184, 188-89; strategic, 184, 188-89. See also Government financial transfers to enterprises
Survey. See World Bank survey of industrial enterprises
Tax arrears, 6, 90, 107, 108, 116, 123-24, 133, 175-76, 197, 229-30; financial distress and, 128
Tax benefits, 171
Tax breaks and exemptions, 155, 175
Tax credits, 71
Taxes: excess wage, 54, 73; payroll, 55
Tax evasion, 5
TRADE; over 30:70 rule, 125
Trade credit, 87; international comparisons in, 103, 104-5, 106-8; overdue, 7, in transition countries, 103, 104-5, 106; volume of, 129
Trade credit arrears, 87, 98, 103, 132; macroeconomic policy and, 108-9; narrow range of, 109; in transition economies, 104-5, 106
Transition countries, trade credit in, 103, 104-5, 106
Unemployment, 5; low rate of, 3, 79; threat of, 77
Unemployment benefits, 3, 76, 77
Unions, 31
Wage arrears, 7, 44, 132-33; wage level and, 125
Wage decisions, 31
Wage differentials, 78
Wage to gross profit per worker ratio, 45
Wage to gross surplus per worker ratio, 44, 46
Wages, 3, 241-42; bargaining on, 39-45; consumer prices and, 73; firms’ evolution and, 27-29; firms’ financial characteristics and, 43, 45; low, 27-29; output and, 19; outside shareholders and workers’, 34; productivity and, 44, 49; sales and, 47; setting, 79; in state and privatized firms, 77; traded for employment stability, 15. See also Social benefits and services to workers; Workers’ compensation
Wage-tax regulations, 54-55
Worker effort, 77
Worker-manager harmony, 48
Workers: attachment to original firms, 4-5, 78; bargaining power of, 39; benevolent retention of, 3; decision-making by (in firms), 8; incentive
Workers (continued)
payments for, 78; layoffs of, 23–24, 32; motivating, 78; ownership of firms by, 8, 246–47. See also Labor entries
Workers' compensation, 45, 75–76; enterprise restructuring and, 53; monetary, 27, 73; nonmonetary, 4, 29, 49. See also Social benefits and services to workers; Wage entries

Worker welfare as firms' objective, 35–37, 38, 39
World Bank survey of industrial enterprises, 275; classification of the enterprises and, 278–79; overview of the enterprises, 279–80, 280, 281, 282; sample instrument used in, 277–78; sample selection, 276–77
Distributors of World Bank Publications

Prices and credit terms vary from country to country. Consult your local distributor before placing an order.

ALBANIA
Adicon Ltd.
Perrat Rrshpiti Str.
Pall. 9, Shk. 1, Ap. 4
Tirana

ARGENTINA
Oficina del Libro Internacional
Av. Cordoba 1877
1120 Buenos Aires

AUSTRALIA, FIJI, PAPUA NEW GUINEA, SOLOMON ISLANDS, VANUATU, AND WESTERN SAMOA
D.A. Information Services
649 Whitehorse Road
Mitcham 3132
Victoria

AUSTRIA
Gerold and Co.
Weihburgasse 26
A-1011 Wien

BELGIUM
Jean De Lannoy
Av. du Roi 202
1060 Brussels

BRAZIL
Publicacoes Tecnicas Internacionais Ltda.
Rua Peixoto Gomide, 209
01409 Sao Paulo, SP.

CANADA
Renouf Publishing Co. Ltd.
5369 Candidek Road
Ottawa, Ontario K1J 9J3

CHINA
China Financial & Economic Publishing House
8, Da Fo Si Dong Je
Beijing

COLOMBIA
Infonetica Ltda.
Carrera 8 No. 51-21
Apartado Aereo 34270
Santafe de Bogotá, D.C.

COTE D’IVOIRE
Centre d’Edition et de Diffusion Africaines (CEDA)
04 B.P. 541
Abidjan 04 Plateau

CYPRUS
Center for Applied Research
Cyprus College
8, Diogenes Street, Engomi
Nicosia

CZECH REPUBLIC
National information Center
prodeje, Konviktka 5
CS – 113 57 Prague 1

DENMARK
Santundis, litteratur
Rosentorn Allé 11
DK-1970 Frederiksberg C

EGYPT, ARAB REPUBLIC OF
Al Ahram Distribution Agency
Al Galaa Street
Cairo

FINLAND
Akateeminen Kirjakauppa
P.O. Box 128
FIN-00101 Helsinki

FRANCE
World Bank Publications
86, avenue de Château
75116 Paris

GERMANY
UNO-Verlag
Poppelsdorfer Allee 55
53115 Bonn

GREECE
Papasotiropiou, S.A.
35, Stioumaro Str.
102 62 Athens

HUNGARY
Foundation for Market Economy
112 PF 249
1515 Budapest

INDIA
Allied Publishers Ltd.
751 Mound Road
Madras - 600 002

INDONESIA
Pl. India Limited
Jalan Borobudur 20
P.O. Box 181
Jakarta 10320

IRAN
Ketab Sara Co. Publishers
Khaled Eslamboli Ave.,
6th Street
P.O. Box 15745-733
Kushohe Delafroz No. 8
Tehran

IRELAND
Government Supplies Agency
Oifig an Stáilathair
4-5 Harcourt Road
Dublin 2

ISRAEL
Yozmot Literature Ltd.
P.O. Box 56055
3 Yohanon Hasandlar Street
Tel Aviv 61560

ITALY
Licosa Commissionaria Sansoni SPA
Via Duca Di Calabria, 1/1
Casella Postale 552
50125 Firenze

JAMAICA
Ian Randle Publishers Ltd.
208 Old Hope Road
Kingston 6

JAPAN
Eastern Book Service
3-13-Hongo 3-chome, Bunkyo-ku
Tokyo 113

KENYA
Africa Book Service (E.A.) Ltd.
Quaran House, Mtangano Street
P.O. Box 45245
Nairobi

KOREA, REPUBLIC OF
Daejon Trading Co. Ltd.
708 Seoum Bldg
44-6 Yudo-Dong, Yeonghung-Ku
Seoul