Economic Reform and the Military in Poland, Hungary and China

Keith Crane, K. C. Yeh
The research described in this report was supported by the J. Howard Pew Freedom Trust, one of the Pew Charitable Trusts under Grant No. T86-00654-008.

Library of Congress Cataloging in Publication Data
Crane, Keith, 1953-
   Economic reform and the military in Poland, Hungary, and China /
Keith Crane and K.C. Yeh.
   p. cm.
   "Supported by the Pew Charitable Trusts."
   "R-3961-PCT."
   Includes bibliographical references.
   ISBN 0-8330-1095-6
HC340.3.C720 1990
338.9438—dc20 90-20442
CIP

The RAND Publication Series: The Report is the principal publication documenting and transmitting RAND's major research findings and final research results. The RAND Note reports other outputs of sponsored research for general distribution. Publications of RAND do not necessarily reflect the opinions or policies of the sponsors of RAND research.

Published 1991 by RAND
1700 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138
Economic Reform and the Military in Poland, Hungary and China

Keith Crane, K. C. Yeh

Supported by the Pew Charitable Trusts
PREFACE

This report is an empirical assessment of the economic reforms of three centrally planned economies: those of Poland, Hungary, and China. It contributes to the empirical foundations of the debate about the effects of economic reforms in these systems and the extent to which centrally planned economies are reformable.

Research for this report took place during a stay in Poland that was financed by the U.S. government's Fulbright-Hayes Program and at The RAND Corporation through the Program for Integrating Economics and National Security funded by the J. Howard Pew Freedom Trust, one of the Pew charitable trusts. It is part of a continuing research program in International Economic Policy, the principal focus of which is the interface between international economics and national security issues, in RAND's National Security Research Division.

Parts of this report have previously appeared elsewhere, most notably portions of the section on Poland, which formed the basis for the chapter, “The Polish Economic Reform After Six Years,” in The Polish Economy Today, David Kemme, ed., Westview, 1990.
SUMMARY

OBJECTIVE

During the 1980s, the leaderships of three centrally planned economies—those of Poland, Hungary, and China—introduced or extended economic reforms that significantly altered the operation of their economies. Although different in design, all three reforms involved a turn from direct to more indicative planning and gave greater play to markets.

Our study assesses these reforms. Because of the central role the state sector plays in these economies and the importance attached to industry, the study focuses on assessing the economic reform in state-owned industrial firms. Because these firms dominate production, and because continued state ownership is one tenet of socialism, if these reforms were to succeed, they must have induced these firms to become more efficient. In this study, we assess the extent to which the reforms succeeded in improving the efficiency of these firms.

In exploring the question of these systems’ reformability, we also assess the military’s role in the implementation and operation of economic reforms. Analysts have argued that the military has an inordinate role in centrally planned systems, primarily for political reasons. With the advent of a reformed system, the military sector faces problems and promises. On the one hand, the old system of priorities and commands, which ensured it its primary position in the economy, would be destroyed in a system largely run using markets. On the other, the new system should lead to higher output levels and thereby release more output for the military. Thus, how the military in these countries would see economic reforms is not clear.

Even if the military theoretically supports reform, the old system may still destroy the new. Military priority systems may not be disbanded and may prevent the new systems from functioning. We designed this study in part to analyze these factors’ effect on the implementation of reform in these countries.
CONCLUSIONS

Increases in Allocative Efficiency

The thrust of reforms in all three countries was similar: Incentives for enterprise managers and, to a lesser extent, the work forces were tied to profitability. The countries made greater use of markets in the allocation of some resources, although none made much use of them in allocating capital, and China continued to place tight controls on labor mobility.

However, reforms were introduced quite differently in China than in Hungary and Poland. The latter two countries attempted to implement simultaneously a supposedly consistent package of changes in foreign trade, prices, taxation, enterprise control, and incentives. In China, reforms have been sequential and incremental.

In all three countries, output and efficiency increases have been most notable in the private sector. China's agricultural sector also recorded stellar performance. In contrast, the state-owned industrial sector has tended to be a problem area.

In Poland, productivity increases in state-owned industry after the imposition of the reform were somewhat better than in the late 1970s, before the economic collapse at the turn of the decade. However, absolute productivity levels for capital were still below 1975 levels. Hungary had better aggregate factor productivity growth than Czechoslovakia and Poland, and by some measures than the German Democratic Republic (GDR). Labor productivity growth was faster in Hungary than in all these countries over the life of the reform.

Neither Poland, Hungary, nor China solved the problem of efficiently allocating capital. In both Hungary and Poland, changes in investment shares were negatively correlated with profitability—that is, the central authorities channeled investment away from profitable sectors and toward unprofitable sectors. In Hungary, capital allocation appears to have been worse than in Czechoslovakia and the GDR. All the reforming countries attempted to solve this problem by creating two-tier banking systems and the rudiments of capital markets but had limited success.

In all the reforming countries, prices tended to be adjusted but not decontrolled. The combination of controlled prices and accommodatory monetary policy led to excess demand in many markets. The Hungarians did best in limiting excess demand; the Poles did worst. Enterprises in all three countries faced difficulties obtaining imports and intermediate goods.
A major problem in the reforms was the frequency with which regulations changed and the poor flow of information between the center and enterprise managers. Even managers of large enterprises in Poland frequently did not understand or were not aware of new directives. In addition, very little coordination existed between the central plan and enterprise plans. Because the state allocated such a large share of inputs directly, this lack of knowledge led to large efficiency losses and poor planning.

The major problem faced by enterprise managers was that of supply uncertainties. Production was frequently constrained by shortages of labor and intermediate goods, especially imports. These shortages reflected the excess demand endemic to the systems and the absence of price systems that reflected relative scarcities and permitted the highest bidders to purchase scarce goods and services.

Excess demand in the system stemmed from the central authorities’ unwillingness to impose “hard budget constraints” on enterprises. The ad hoc grants of subsidies and tax reliefs that increased the budget deficit (and excess demand) rewarded poorly performing enterprises and provided substantial incentives for enterprises to lobby for these reliefs rather than focus on changing internal operations.

Enterprise managers in all three reforming countries responded quickly to changes in incentives and paid close attention to trade-offs. Managers calculated the relative costs and benefits of various activities and allocated their efforts accordingly. Thus, the argument that the mentality of consumers, producers, and especially managers must be changed before reforms can function is false. This argument, somewhat akin to the argument that the Soviet-type system will work well when people have developed a “Socialist” mentality, masks the real problems with reforms: the many constraints on production and investment the center imposes on enterprise managers. Whether state-owned enterprises would still function poorly in a market system is an open question. However, they have failed under these reforms because of the center’s inability to introduce market conditions in the economy, not because of attitudinal problems in managers and consumers.

Are centrally planned economies ultimately reformable? This study indicates that reform does lead to increases in the rate of factor productivity growth in state-owned industry. Reformed economies were also more competitive on international markets. However, reform was not a halfway house between socialism and capitalism; improvements in the performance of state-owned industry tended to be marginal. Only sectors of the economy that experienced a large infusion of new, private entrants, such as private industry in Poland and Hungary and agriculture in China, exhibited very substantial improvements in performance.
Implications for the Military

The military's role in the economic reforms in these three countries has been quite different. In China, the military faced its own internal reform, the fourth modernization. Military manpower was reduced by one million men, and reported military spending declined. The army's command structure was streamlined, and mission-oriented forces were forged. The military has emphasized professional training and research and development (R&D); procurement appears to have been reduced in part because the military realizes that most Chinese equipment is so far behind the current world state of the art that China needs to concentrate R&D resources to leapfrog a generation. In general, the military supported the reform because of its promise of economic modernization. It appeared to accept that there is a trade-off between reductions in current defense spending and potential large increases in the future and opted for the latter.

The military was also important in Poland, but, in contrast to China, no military modernization occurred; the military was relatively untouched by the reform. Supply operations changed somewhat, because more supplies had to be procured directly from independent enterprises. On the other hand, military-goods producers were not really incorporated into the reformed system. They were obliged to fulfill government orders that differed little from the old plan targets. They were also compelled to belong to a trust of military-goods producers.

Hungary has the smallest military, both relative to its economy and in absolute terms. Not surprisingly, the military had little say in the reform, although as in Poland, enterprises could be compelled legally to produce for the military. Other customers (with the exception of clients in other Council for Mutual Economic Assistance countries) did not have this legal right.

During the 1980s, the Hungarian military did not do well. Reported defense expenditures as a share of total output declined, and the minister of defense frequently stated that Hungary's military contribution to the Warsaw Pact depended on its economic capabilities. Moreover, the military faced severe difficulties recruiting career officers because of increasingly attractive alternatives in the private sector.

The Chinese military differed from those of Hungary and Poland in that it ran a large industrial establishment. Since the reform, it has moved into civilian-goods production, sold technology to the civilian sector, and aggressively marketed arms abroad. It has been able to keep a large share of the profits and hard currency from these sales for its own use. Although Poland is also an important arms exporter, proceeds from arms exports did not go to the military. Polish
producers of military goods were generally not run by the Ministry of Defense.

As in Hungary, both the Chinese and Polish militaries faced increased competition for manpower. Civilian opportunities have improved under the reform, so attracting career officers has become more difficult.

In the long run, the military in China may find itself the loser from reform. Although reform promises greater resources for the military in the future, as other claimants become increasingly vocal and markets gradually replace the old priority system, the military may find that the government never fulfills its promises.
ACKNOWLEDGMENTS

Steven Popper of The RAND Corporation has been extremely generous with his time, ideas, and resource materials. The Hungarian section greatly benefited from his contributions. Charles Wolf, Jr., deserves a special note of thanks for backing this project in one or another of its manifestations until its completion. We have also greatly benefited from the discussions and reviews of our RAND colleagues, particularly Charles Cooper, Kent Osband, and Benjamin Zycher. David Kemme of Wichita State University reviewed an earlier draft of the section on Poland. His incisive comments and suggestions greatly improved the piece. Ben Slay of Bates College was most generous in sharing his thoughts and work on economic reform in Hungary and Poland. Keith Crane would like to acknowledge an intellectual debt to Professor Paul Marer of Indiana University. This study has greatly benefited from his writings and discussions, even more than the footnotes suggest. Keith Crane would also like to express his thanks to the many Hungarian and Polish managers, workers, policymakers, and economists who have shared their experiences, views, and research on economic reform in their countries. Although many readers may disagree with this study’s conclusions, the study would have been far poorer without the above contributions.
CONTENTS

PREFACE .......................................................... iii
SUMMARY ......................................................... v
ACKNOWLEDGMENTS .............................................. xi
TABLES .......................................................... xv

Section
   I. INTRODUCTION ............................................. 1
      The Wave of Reform .................................... 1
      Objectives ............................................. 2
      Approach .............................................. 4
   II. POLAND ..................................................... 6
      Introduction .......................................... 6
      The System .......................................... 6
      The Center ........................................... 8
      Policies and Policy Instruments .................... 10
      The Enterprises ..................................... 18
      Assessing the Reform ................................. 30
      Conclusions ......................................... 35
   III. HUNGARY .................................................. 39
      Introduction .......................................... 39
      The System .......................................... 39
      Actors ................................................ 41
      Policies and Policy Instruments .................... 43
      The Enterprises ..................................... 53
      Assessing the Reform ................................. 63
      The Military and the Hungarian Reform .......... 79
   IV. ECONOMIC REFORM IN CHINA, 1979–1989 .............. 81
      China’s Economic Reform: Background and
      Objectives ............................................. 81
      Economic Reform and Productivity Change .......... 95
      Economic Reform and Military Modernization ..... 98
   V. COMPARISON AND CONCLUSIONS ............................ 113
      The Reforms ........................................... 113
      Economic Performance ............................... 115
Are Centrally Planned Economies Reformable? ........ 117
The Military and Reforms ......................... 118

Appendix
A. COBB-DOUGLAS MODELS OF CZECH, EAST
   GERMAN, POLISH, AND HUNGARIAN INDUSTRY ... 121
B. AVERAGE RATES OF RETURN: RANKINGS
   BY INDUSTRIAL SECTOR .......................... 123

BIBLIOGRAPHY ....................................... 129
TABLES

2.1. The relationship between profit margins and wages in 1985 ........................................... 24
2.2. Decapitalization in a sample of Polish industrial enterprises ........................................... 28
2.3. Factor productivity growth in Polish socialized industry ........................................... 33
2.4. Investment and employment shares and the profitability of socialized industry ..................... 35
3.1. Enterprise council composition ............................................................................... 55
3.2. Transition probabilities resulting from fiscal redistribution in the state sector of manufacturing in 1982 ........................................................................................................ 63
3.3. Comparative productivity growth in Eastern Europe: 1968–1985 ........................................ 67
3.4. Distribution of Hungarian investment in industry .................................................. 69
3.5. Sectoral nonruble exports and sectoral investment ................................................. 71
3.6. European CMEA and Chinese shares in OECD imports .......................................... 75
3.7. European CMEA and Chinese shares in OECD imports from non-OECD areas .......... 76
4.1. Comparison of the command economy and the model system ...................................... 85
4.2. Growth of agricultural output, labor, and fixed capital, 1957–1978 .............................. 88
B.1. Ranking by average rates of return, by industry ...................................................... 123
B.2. Hungarian enterprise profitability rankings, 1986 .................................................. 124
I. INTRODUCTION

THE WAVE OF REFORM

This report is a guide to the pitfalls of reform for centrally planned economies. Two of the three protagonists, the economies of Poland and Hungary, have moved beyond the study’s focus—the transition from central planning to systems that no longer use compulsory plan targets. The third protagonist, the Chinese economy, is currently directionless. The Chinese leadership’s determination to prevent the turn to parliamentary democracy and liberalism taken by Poland and Hungary has called into question past and future economic liberalization. The course of the political struggle in China will determine the actual shape of its reform.

While Poland and Hungary are rapidly abandoning socialism, the governments of Bulgaria, Vietnam, and the Soviet Union are discussing and introducing changes in their economic systems to decentralize economic decisionmaking authority and increase efficiency. Their interest in markets and greater emphasis on economic efficiency have produced a qualitative change in thinking about their economies, if no significant change in their actual operation.

What do these reforming governments wish to change? The following principles characterize the traditional centrally planned system:

1. The political elite’s preferences’ domination over those of the populace.
2. The imposition of those preferences through direct allocation of goods and services.
3. The use of an annual plan composed of physical plan targets to impose the state’s preferred pattern of resource allocation.
4. The use of a bonus system tied to plan fulfillment to induce producers to increase output and conserve inputs.
5. Central allocation of primary inputs.
6. A monopoly on foreign trade designed to prevent arbitrage and preserve the state’s power to determine the allocation of goods and services.

We define economic reforms as changes in the economic system that transgress some or all of these basic principles. Although somewhat artificial, this terminology has use in differentiating changes that devolve decisions on resource allocation to markets and enterprise
managers from administrative changes that move the locus of decision-making in the bureaucratic hierarchy or alter performance indicators. It also differentiates changes designed to change socialism but preserve it from wholesale abandonment.

As these countries' governments move from discussion of reform to implementation, one wonders whether proposed changes will have the desired effects. Will changes in incentives and prices lead to significant improvements in factor productivity, output, and quality? Although only time can answer these questions, the experiences of countries that have already embarked on economic reforms should give some indication of the likelihood that the Soviet Union and others introducing reforms will be successful.

OBJECTIVES

The leaderships of three countries with centrally planned economies—Poland, Hungary, and China—made changes that significantly altered the operation of their economies. None of these governments agreed to let consumer preferences dominate their own. However, in all three systems (at least on paper), the central authorities attempted to replace direct allocation of goods and services through the use of obligatory plan targets with allocation through direct sales between buyers and sellers mediated by indirect instruments such as taxes, subsidies, and exchange rates. In these new systems, managers of state-owned enterprises were rewarded in part based on their success in increasing profits or value added, not output. Because of the increased importance of net rather than gross measures, prices became more important and the center gave markets a greater role in determining prices and allocating resources.

This report assesses the economic reforms in these three countries during the 1980s. We chose these countries because all three tried to introduce changes in their economic systems that meet our definition of reform. Other countries (most notably the German Democratic Republic [GDR] and Bulgaria) that changed their systems do not pass our test of reform, because the changes did not challenge the tenets of the centrally planned system. We excluded from our analysis two countries that have also had reforms: Czechoslovakia in 1968–1969 and Yugoslavia. In our view, Czechoslovakia's experience was too short to assess its reform. Yugoslavia, on the other hand, grounded its reforms on the principle of workers' self-management. Given the tenor of recent proposals within the Soviet Union and elsewhere, the path of reform in centrally planned economies is more likely to follow that of
the reforms in China, Hungary, and Poland than that of Yugoslavia. Consequently, we have omitted the Yugoslav case from our analysis. Moreover, the nationality problems in Yugoslavia have had an important effect on the evolution of its reform and its economic policy. We felt that this increased the difficulty in assessing the Yugoslav reform and extrapolating from its experience to reform efforts elsewhere.

Because of the importance attached to industry, the central role the state sector plays in these economies, and reasons of brevity, we have confined our study in the cases of Poland and Hungary to economic reforms in state-owned or cooperatively owned industry. These enterprises dominate production in this sector. As long as countries such as the Soviet Union, China, and Vietnam hold continued ownership of these enterprises by the state or by collectives as one tenet of socialism, economic reforms (if they are to succeed) must make these enterprises more responsive to changes in relative prices and more concerned with efficiency. For these reasons, the question, Are these economies reformable? is directed toward the limits to which markets and indirect instruments such as taxes, exchange rates, and subsidies can be used to improve the efficiency of the state-owned or cooperatively owned industrial sector, not to the prospects for returning such enterprises to the private sector, as is now policy in Poland and Hungary.

Efficiency, however, is not policymakers’ only goal. As we will show, many failings of past reforms stem from conflicts between the pursuit of efficiency and other policy goals, most notably restraining inflation, preventing unemployment, and maintaining equilibrium in the balance of payments. The study describes policy goals in these areas and explains why the central authorities chose the instruments they did to achieve these goals. It also discusses the implications of these choices for improving economic efficiency—the overarching goal of economic reform.

A second objective of the study is to determine the military’s effect on the implementation and operation of economic reforms. Some analysts have argued that the military has an inordinate role in centrally planned systems, primarily for political reasons. The priority system for allocating resources, close state control over citizens, and the concentration of investment in heavy industries appear to have given centrally planned economies a comparative advantage in the production of military services. Would a reformed system eliminate this advantage?

---

1Wolf and Zycher, 1989.
With the advent of a reformed system, the military sector faces problems and promises. On the one hand, the old system of priorities and commands, which assured the military of the primary position in the economy, would be destroyed in a system largely run using markets. On the other, the new system should lead to higher output levels and thereby release more output that could be spent on the military. Thus, how the military in these countries would see economic reforms is not clear.

Even if the military theoretically supports reform, the old system may still destroy the new. The government may choose not to disband military priority systems. This may prevent the new system from functioning. This study is designed in part to analyze these factors' effect on the implementation of reform in these countries.

The differing military sectors in these three economies illuminate the implications of the military for economic reform and vice versa. China is a major, regional military power: It has the largest armed forces in the world, possesses nuclear weapons, and has its own indigenous military technology. At the other extreme, Hungary has one of the smallest armies in the Warsaw Pact, spends a very small share of its output on the military (some 2 percent of the gross national product [GNP]), and imports all its heavy weapons. Poland occupies the middle ground: It has the second-largest army in the Warsaw Pact and is still well-regarded by the populace (according to recent opinion polls). It produces heavy weapons such as the T-72 tank under license from the Soviet Union and is a significant arms exporter. Thus, the three countries have very different military sectors. Their experiences integrating these sectors into a reformed economic system should illuminate the potential bonuses and pitfalls likely to await the Soviet Union and other newcomers to reform in this area.

**APPROACH**

Changes in economic systems cause problems for economists. The conditions one needs to assume in order to use statistical tests are not fulfilled when one speaks of an entire change of system. Moreover, systemic changes are often preceded or accompanied by changes in the economic environment or economic policy. These factors' impact is extremely difficult to disentangle from the change in the system itself. Consequently, evaluating the results of an economic reform is fraught with problems.

This study is designed to partially remedy this problem by comparing the course of economic reforms across three countries. We believe
that by comparing reforms across several countries, we can separate policy and environmental effects from those caused by changes in the system itself.

For each country, we first outline the way in which the center—the group of institutions responsible for the country's economic policy—attempts to direct enterprises. Next, we discuss how enterprises react to these instruments and then look at the economic outcomes of this process. Because ideas, outlines, and plans for reforms in all three countries have been a dime a dozen, we describe what the center appears to be attempting to do and then discuss how enterprises have reacted, rather than dwell on particular theoretical outlines. In this way, a clearer picture of the reform emerges. Moreover, by focusing on "revealed preference"—what the center has actually chosen to do, rather than its policy statements—we avoid the problem of determining actual intentions from contradictory policy statements.

In all cases, we employ measures of changes in economic productivity as our test of the reforms' success. Although other macro-economic indicators measure success in attaining other policy goals, the crucial measure of the reforms' success is improvement in factor productivity.

In each country section, we focus particular attention on how the military has affected the economic reform and how the reform has affected the military. We focus on implications for procuring equipment, retaining personnel, and conducting military operations. We pay particular attention to how the center treats the sectors in which the militaries have the strongest interest and how firms within these sectors react.
II. POLAND

INTRODUCTION

In 1982, Poland’s leaders introduced a large-scale economic reform. The reform was undertaken to reverse the previous three years’ severe declines in economic output and living standards and to respond to the accompanying popular pressure for an economic system that would be more responsive to consumers and provide a higher standard of living.

The economic reform was based on the assumption that the only way to generate economic growth was to increase productivity. A primary goal was to induce enterprises and consumers to make more efficient use of available resources—that is, to increase technical efficiency. Another goal was to increase allocative efficiency by creating mechanisms that would match supply and demand more closely, especially in consumer-goods markets, and would increase gains from trade by improving Polish export performance and making more efficient use of imports.

This section assesses this reform’s effectiveness in socialist industry—that is, in state-owned or cooperatively owned industrial enterprises. It begins with an outline of the reformed economic system and discusses the policies pursued by the center and the instruments the center used to pursue these policies. The section then assesses how enterprises reacted to these instruments. It concludes with a look at the economic outcomes of this process. Throughout, we examine how the military affected the course of the reform and how, in turn, the reform affected the military.

THE SYSTEM

Theoretically, the reform significantly altered the Polish economy’s operation. Although Poland had previous reforms (for example, in 1956 and 1972), Polish state-owned and cooperative industry was generally run according to the principles of the traditional Soviet-type model (discussed in Sec. I). The 1982 reform purported to change some central tenets of this system.

The core of the Polish economic reform in state-owned industry centered on the three S’s: samofinansowanie (enterprise self-financing), samorzadnosc (self-management), and samodzielnosc (independence).1

1Kierunki reformy gospodarczej, 1981.
According to these principles, Polish enterprises were to be independent, self-financing entities managed by directors chosen by workers' councils (but approved by the government). The idea was to force managers to improve efficiency by making them accountable for enterprise performance and by making financial results the primary criterion for enterprise success. Government authorities' meddling in enterprise decision-making would be limited by making the workers' council the locus of ultimate authority in each enterprise. Financial discipline would be imposed by making markets a major means of allocating resources.

Despite this original design, the Polish reform was not an attempt to establish market socialism. Even under the reformed system, enterprises did not operate like independent, profit-maximizing units, because the central authorities continued to play an important role in the hiring, firing, and remuneration of managers and in the allocation of investments and intermediate goods. State-owned enterprises were still in effect part of a gigantic state-owned corporation, Poland, Inc., a paradigm in use to describe the traditional Soviet-type system\(^2\) in which the head management (the center) seeks to improve the operation's efficiency through decentralization. Managers, like line managers in the West, remained dependent on the center for their incomes and jobs. Therefore, their actions were largely determined by their perceptions of what the center wanted them to do.

Resources within this system were allocated through several different mechanisms. Prices were to be used to clear consumer-goods markets, although prices of many politically sensitive items such as meat, gasoline, and rents were controlled. Intermediate goods and labor markets were to clear using market prices. Investment, on the other hand, was allocated through the state bank, but the center determined major sectors for investment and the share of final output devoted to investment. Enterprises ostensibly had the right to choose freely between domestically produced items and imports (at least imports from hard-currency areas); private individuals did not. Consequently, the zloty did not become truly convertible.

These constraints on producers and consumers were to be enforced primarily through financial instruments, although direct suasion through ministerial contacts with managers was also important. The center used subsidies, tax relief, investment grants, and wage and price controls to control the allocation of resources, spur economic growth, and pursue its other policy goals. The interaction of its often conflicting policy goals and subsequent alterations in policy instruments determined the form and consequences of the reformed system. Thus, one

\(^2\)Campbell, 1974.
must look to the composition and policy goals of the center to understand how and why the economic reform functioned as it did.

THE CENTER

The center is, of course, not a single-minded institution with set goals. It consisted of several institutions—the Politburo, the Council of Ministers, and functional and branch ministries and organizations—each with its own functions and interests.

The Politburo decided overall economic policy, but under General Wojciech Jaruzelski, the Council of Ministers determined much of the policy's content. Although the Sejm (the Polish parliament) had a greater legislative role during the 1980s than in the past, the Council of Ministers generated most Polish law through decrees. These decrees determined the reform's structure. Although the Sejm passed some 300 laws on the reform between 1982 and 1985, the government issued approximately 12,000 decrees, of which the Ministry of Finance issued 8000. To put these figures in perspective, fewer than 6000 state- or cooperative-owned enterprises existed in all of Polish industry during this period—that is, two decrees were issued per industrial enterprise. These decrees represented the central authorities' revealed preferences.

The National Defense Council (Komitet Obrony Kraju [KOK]) was also an important policymaking institution. On November 22, 1983, the Sejm promoted it to equal ranking with the Council of Ministers. KOK was the highest decisionmaking body in peacetime on military issues and had the right to issue binding directives for the rest of the government. In addition to strictly defense-related matters, it concerned itself with military industry and military cooperation within the Warsaw Pact's High Command and with the Council for Mutual Economic Assistance (CMEA). Because its primary objective was to maintain national security, it was concerned with maintaining effective armed forces. Consequently, it attempted to ensure the provision of satisfactory weapons and supplies to the armed forces.

The most important functional organs were the Ministry of Finance, the National Bank, the Planning Commission, and the Ministry of International Economic Cooperation (formerly the Ministry of Foreign Trade). With the exception of the Planning Commission, these organs greatly increased in importance after the reform's introduction.

The Ministry of Finance set regulations on prices, implemented tax policy, and determined which enterprises were eligible for tax rebates

and subsidies. Consequently, it became the most important ministry in Poland.

The National Bank also changed its role. Whereas it formerly merely handled transactions and issued money as needed to finance enterprise investment and the budget deficit, it was given targets for credit and for the issue of currency. It also evaluated an enterprise’s potential to repay a loan from the proceeds of an investment. (In the past, credits had been granted passively on the orders of the Council of Ministers or the Planning Commission.)

The Planning Commission still used the balance method to draw up plans, so the mechanics of plan formulation did not really change. Branch ministries provided the commission with lists of expected output levels and input demands for “key” commodities, and the commission attempted to balance requests with expected supplies. However, plans were no longer compulsory for enterprises and were drawn up in variants to provide the Council of Ministers and the Sejm with a choice. The end of obligatory plan targets was a key feature differentiating the 1982 reform from past attempts.

The Ministry of International Economic Cooperation continued to have the same position within the new system as its predecessor, the Ministry of Foreign Trade, had had within the old. However, it became more active in terms of exchange-rate policy, providing information and supervising the increased number of firms with foreign-trade rights. Interview data indicate that the Ministry of International Economic Cooperation took a more active role in encouraging exports.\(^5\)

The Ministry of Defense (MoD) housed the armed forces, military research and development (R&D) institutes, and military-goods producers, although not all institutions doing military-related research or producing for the armed forces fell under its purview. Aside from supervising work by its own enterprises, the MoD also assigned military quality controllers to work in supplier enterprises to ensure a requisite level of quality for the military. Total military-goods production probably ran some 3 percent of total industrial output.

State-owned enterprise managers in Poland continued to be appointed and judged by the “founding organ”—usually the branch ministry or, in the case of smaller firms, the local government. The branch ministries—which included a superministry, the Ministry of Industry, founded in 1987—and the ministries of agriculture,

---

\(^5\) Of 56 enterprise managers in one survey, 14 gave this ministry positive marks; 8 criticized it for failing to react to the needs of the enterprises and to market exports more strongly; the rest did not comment (Wojciechowska and Lipinski, 1986, p. 225). The sample consisted of 16 enterprises in the electrical and machine-building sectors, 13 in light industry, 8 in the chemical industry, 7 in metallurgy, 5 in food processing, 3 in minerals, 2 in wood and paper, 1 in the fuel industry, and 1 in the “other” category.
communications, and transportation nominated and approved managers, dismissed them at will, and set their bonuses and salaries. They frequently demanded information from enterprises on their plans, production, and use of materials.\textsuperscript{6} Consequently, managers were beholden to the branch ministries. However, somewhat surprisingly, 24 of 31 enterprise managers who commented on their relations with the branch ministry evaluated them positively.\textsuperscript{7} These managers argued that their relationship was substantially different from that during the prereform period. Ministries often interceded with the Ministry of Finance on tax and subsidy questions and attempted to provide the enterprises with inputs. They were perceived more as partners than as opponents, especially because enterprise managers believed that the ministries' power to order particular actions had become much more limited since the reforms.

Under the ministries lay the associations. These organizations replaced the old \emph{zjednoczenie}, an intermediate trust. Most associations were voluntary. Voluntary associations were primarily concerned with allocating inputs and planning investment in the industry. Membership costs were paid from profits, so enterprises must have had a strong incentive to join, in view of the important uses to which profits could be put elsewhere. Cooperatives, technical institutes, and even private artisans joined voluntary associations to secure input supplies.

Associations in heavy industry, like that for military production, tended to be compulsory.\textsuperscript{8} They played a far different role. For example, the association for electricity generation was highly centralized and coordinated investment policy. It also had an important role in allocating inputs and determining production.\textsuperscript{9}

Most enterprise managers positively evaluated the associations' role. According to the managers, they represented the enterprises' interests to the center and also provided scarce inputs and additional investment funds.

\textbf{POLICIES AND POLICY INSTRUMENTS}

Aside from the goals of increasing economic efficiency, attaining market equilibrium, and improving foreign-trade performance, the center also attempted to lower the inflation rate to single-digit levels while preventing factory closures and unemployment and preserving

\textsuperscript{6}Wojciechowska and Lipinski, 1986, p. 193.
\textsuperscript{7}Wojciechowska and Lipinski, 1986, p. 207.
\textsuperscript{8}Wojciechowska et al., 1987, p. 241.
\textsuperscript{9}Wojciechowska et al., 1987, p. 241.
real-wage levels for sensitive political groups—workers in heavy industry and mining. The center found pursuing these goals simultaneously impossible, yet the Council of Ministers was highly sensitive to the possibility that economic dissatisfaction generated by the failure to attain them would lead to renewed strikes such as those of 1980–1981. In light of the fragile political situation in Poland in the 1980s, such strikes could threaten the government’s existence. Consequently, economic policy and reform measures were often dictated by immediate concerns about the popularity of particular decisions. This led to the introduction of ad hoc, often contradictory decrees, making economic policy instruments inconsistent with the reform’s principles. We analyze below economic policies, the instruments used to pursue them, and the ways they affected the reform’s implementation.

Monetary Policy

Despite the existence of plans for the supply of credit and the issue of currency, Polish monetary policy was accommodatory under the reform.\textsuperscript{10} If the government ran a budget deficit, the National Bank accommodated the increased demand for credit, increasing the money supply despite the existence of a target for the supply of credits. Consequently, when enterprises experienced unplanned losses and were subsidized from the budget or by new loans, the money supply rose, feeding the continued growth of nominal aggregate demand.

The government’s reluctance to adopt an active monetary policy was probably motivated by the desire to forestall plant closures. The government never allowed an important firm to close; most firms were protected from financial difficulties. Because of its reluctance to halt investment projects once started and its unwillingness to fight off special interests, the government did not adopt a harder policy.

Prices

The counterpart to monetary policy was price policy, a primary concern of the Council of Ministers. The council stipulated three types of prices: fixed, regulated, and contract. Fixed, government-set prices were used for a wide range of consumer goods and basic industrial inputs, such as food, public transport, utilities, ores, petroleum, and coal. Enterprises could change regulated prices only after consulting the Ministry of Finance. Contract prices were set between firms or by the market.

\textsuperscript{10}Interview data.
Neither regulated nor contract prices functioned well. Because the center was unwilling to control the money supply, it relied on price controls to limit the "reported" rate of inflation. These controls were extended from regulated and fixed prices to contract prices by stipulating that prices must be constructed on the basis of "justified costs"—that is, prices must be set on the basis of costs plus a markup. However, only part of "justified" cost increases could be passed along in these cost-plus prices.

None of these prices were tied to market demand, so they frequently failed to clear the market. Many of those that did clear the market contain a highly variable turnover tax. Consequently, prices failed to provide enterprises with accurate reflections of relative costs or changes in demand.

As we noted above, the government attempted to fight price rises by increasing regulation rather than competition. This fight also took place within the military sector. In 1988, the government changed pricing guidelines to force military-goods producers to lower costs. However, these guidelines did not result in substantial cost reductions; previous attempts to control costs administratively had been less than successful.

Allocation of Industrial Inputs

Because monetary policy has been accommodatory and prices were not permitted to rise to clear markets, enterprises faced excess demand for most of their products. Because markets were not allowed to function, some other method of allocating inputs had to be used. The Polish center fell back on a version of the old system in use in traditional Soviet-type economies. Approximately half of fuels and important raw materials and an even higher proportion of imports were centrally allocated through orders from the Planning Commission or branch ministries to enterprises.

Other formal and informal measures were instrumental in allocating much of the remainder. Producers of inputs such as steel products, coal, and electricity had to sell all or almost all their output to central wholesalers. The wholesalers did not operate as profit-maximizing enterprises. They chose their customers on the basis of instructions from the Planning Commission, branch ministry requests, and orders from the Council of Ministers. Branch ministry requests, in turn, were decided on the basis of requests from associations and large enter-

---

prises. Bargaining power and past patterns of resource allocation were, therefore, the primary means of deciding who got what in this system.

The problem of moving away from allocating inputs by central fiat rather than markets was exacerbated by the continued use of plans in quantity terms. Because the Planning Commission continued to use the balance method of drawing up plans, it naturally found that “needs” exceeded available supplies, especially during this period of high excess demand. The commission responded by emphasizing the attainment of production targets without paying much attention to costs and by lobbying hard against any changes in production that would reduce output. This slowed restructuring and reinforced the tendency to allocate resources administratively rather than through markets.

By introducing a system of “government orders” for products the government decided were priority items, the center attempted to better ensure that its preferences, rather than the branch ministries’ preferences, were enforced. Enterprises bid for these orders; if their bid was accepted, they were guaranteed the necessary inputs to manufacture the products.

In practice, the system replicated many features of the old Soviet-type economy. Most orders were not for government consumption. For example, the government contracted for almost the entire output of the shoe industry and then sold the shoes through the state wholesale network. Consequently, the enterprise faced a monopsony rather than multiple buyers. In addition, the government did not select its priorities carefully. Most enterprises received at least one government order for a large share of output. Input supplies were frequently less than the quantities promised by the government, so contracts could not be honored and the whole system of shortage was perpetuated.

The military had a preferred position in this system. Deliveries to military-goods producers were obligatory and part of state programs.\(^{13}\) This did not assure delivery, however. The army also continually suffered from shortages after the economic crisis of 1980: It had to begin production of some parts because suppliers stopped delivering them.\(^{14}\)

**Wage Policy**

As we noted above, excess demand was endemic to the system. This extended to the demand for labor as well. To keep the rate of increase in nominal demand from accelerating, the government adopted an incomes policy to control wages. This policy was exercised by levying a

---

\(^{13}\)Wojciechowska et al., 1987, p. 24.

\(^{14}\)Soroka, July 8, 1984, pp. 5, 9.
punitive tax on nominal wage increases above a specified level (12 percent in 1987, for example). This tax—Panstwowy Fundusz Actywizacji Zawodowej (PFAZ)—was paid from profits; it ran 200 or more percent of wage increases over the threshold level. However, to encourage firms to shed labor, the government taxed increases on the total wage bill, not individual wages. Consequently, firms that shed workers could increase wages by more than the threshold level by distributing the wage fund among the smaller pool of remaining workers.

Obviously, such a system penalized firms that wished to hire new labor and thereby slowed restructuring. Taxes were so high that the marginal production from an additional worker was rarely great enough to make paying the tax worthwhile. Price controls also prevented firms from increasing prices to raise profits and thereby increased the wage bill.

To encourage some restructuring, the government allowed partial exemptions to the PFAZ tax based on increases in value added, output or exports, and, in some instances, enterprise-specific exemptions. Thus, if an enterprise increased exports, it could offer higher wages to its employees without incurring the tax. However, exemptions were frequently granted for individual firms on the basis of petitions. Thus, PFAZ taxes varied widely and arbitrarily from firm to firm.

In general, the enterprise managers interviewed by Wojciechowska and Lipinski (1986) were highly critical of PFAZ. Although 46.5 percent argued that such a tax was necessary, even these individuals felt that the tax was too progressive, led to bargaining with the central authorities about tax relief, and in general did not achieve the purpose for which it was designed.

**Fiscal Policy**

Because the Polish government financed the budget deficit by printing money, fiscal policy consisted of tax and expenditure policies; internal debt management was not an issue. The Ministry of Finance set tax rates, subsidies, and many prices. Thus, it had a multitude of fiscal policy instruments from which to choose. The three main types of tax were PFAZ, profit taxes, and turnover tax. Enterprises also had to turn over a share of amortization, which was akin to a tax on capital.

Taxes commanded a very large share of enterprise resources. In 1985, PFAZ taxes in a sample of 2211 Polish firms averaged 15.9 percent of the wage bill, and profit taxes took an average of 47 percent of profits (the median was 52.7 percent) and ranged from 5.1 to 70 percent of total profits. Turnover taxes averaged 4.8 percent of produc-

---

tion sold.16 In this same sample, enterprises paid from 7.2 to 78 percent of amortization to the national budget in 1985.17 In other words, the government set highly variable, seemingly arbitrary tax and amortization retention rates.

Subsidy rates also varied greatly. Of the 2211 enterprises surveyed, 1063 received subsidies or tax relief. Subsidies averaged 345 percent and ranged from 0.1 to 1117 percent of the reported profits of these enterprises.18

The government gave subsidies to cover the costs of producing items with fixed prices. These products were usually either raw materials (coal, coke), agricultural inputs (fertilizer), or food products (milk products and meat). Some enterprises also received export subsidies.19 In some cases, high-cost producers also received subsidies to make up the difference between their costs and the official price based on costs of lower-cost producers.

The central government did not work out a coherent subsidy policy. In many cases, government organs individually tailored subsidies for enterprises. In general, enterprises that made the largest losses in an industry received the largest subsidies. Consequently, subsidies acted as an instrument for leveling out differences among enterprises. The enterprises that performed worst were rewarded; those that performed best were, in effect, penalized.

Investment Policy

Because the government took such a large share of profits and amortization from enterprises, only half of total investments in the state and cooperative sectors were provided by enterprises.20 The other half was determined by the central and local governments, social funds, and cooperative housing associations. However, the construction and machine-building industries also faced excess demand, so even when a decision was made to start an investment project, the materials and means to construct the project were frequently unavailable. Thus, the government faced a twofold decision: What should it invest in and which of the selected projects should actually be constructed?

---

16Wojciechowska, Pasznik, and Szeworski, 1987, p. 16. These authors conduct an annual statistical analysis of more than 2000 (of a total of 5496) Polish industrial enterprises based on data from the Polish Statistical Office. The firms in the sample produce most of Poland’s industrial output.


18Wojciechowski, Pasznik, and Szeworski, 1987, p. 16.


20In 1983, enterprises provided 48.6 percent of total investments in the state and cooperative sectors; in 1984, 51.6 percent; and in 1985, 52.4 percent (Rocznik Statystyczny, 1987).
These decisions were still determined by bureaucratic battles. Although the National Bank had a more important role in assessing investment projects, the actual choice of government-funded projects was still determined by the Council of Ministers, for whom rate of return was only one criterion. At lower levels, a manager's ability to obtain materials and construction workers for a project depended heavily on his bureaucratic clout and relations with the contractor. Thus, market forces played a very weak role in determining the allocation of capital.

**Foreign-Trade Policy**

Poland's balance-of-payments problems with both currency areas, dollar and ruble, had a major effect on the reform. One can argue about the extent to which the Polish government tried to solve its convertible-currency debt problem. As of 1987, convertible-currency exports had still not returned to their 1980 peak, even though output was approaching its former peak. Nonetheless, Polish trade had been in surplus since 1981 because of very large reductions in convertible-currency imports. These reductions had a severe effect on the efficient functioning of the economy. They were caused by Poland's lack of creditworthiness, which made obtaining trade credits very difficult, and by the Polish government's determination to make some interest payments on its convertible-currency debt.

The center managed its convertible-currency trade through exchange rates, subsidies, tax relief, convertible-currency retention accounts, and quotas. Ministerial suspicion was also used to motivate enterprises to export. The exchange rate was fixed against a basket of currencies but devalued as Poland's inflation rate diverged from that of its convertible-currency trading partners. Trade receipts had to be channeled through the Polish Foreign Trade Bank. The rate was fixed so that some 60–70 percent of Polish convertible-currency exports could be profitably sold by exporters. The approximately 30 percent of exporters who lost money on convertible-currency markets received subsidies. Subsidies were especially prevalent in agricultural trade.

The primary motivation for exports to convertible-currency areas was convertible-currency retention accounts. Of the 56 enterprises interviewed by Wojciechowska, 85 percent said that these accounts were the main reason they exported. In another survey of managers taken before a National Party Economic Conference, 90 percent of exporters to convertible-currency areas stated that the convertible-currency account was an important factor in the growth of exports. Of

---

this group of exporters, 84 percent believed that the funds in the account were efficiently used. The accounts were used to purchase inputs (60 percent of expenditures), spare parts, and machinery. Their importance reflects both the continued acute shortages facing Polish enterprises and the zloty's continued overvaluation.

In January 1987, the government froze sums accumulated in these accounts and set up a new system. Under the old system, enterprises earned entitlements to purchase convertible currency through exporting. The amount of the entitlement earned by a dollar of exports varied across enterprises. In the new system, enterprises supposedly own the hard currency. However, the new measures effectively froze several hundred million dollars of entitlements earned by Polish enterprises since 1982 that they had planned to spend in 1987, creating supply problems that disrupted production. Although enterprises would supposedly be able to use these entitlements in the following years, managers were skeptical of their ability to exercise their rights, and a subsequent diminution in incentives to export probably occurred.

Under the new system, enterprises could sell their hard currency on an interenterprise market run by the Ministry of Finance. In the initial auctions, enterprises were able to sell holdings at three to four times the official rate of exchange—prices similar to those prevailing on the black market. In 1989, enterprise retention funds purchased at auctions financed more than half of Polish convertible-currency imports.

Imports were primarily allocated on the basis of quotas. The Planning Commission and the Ministry of International Economic Cooperation generated a foreign-trade plan in which imports were allocated on the basis of past usage and the preferences of the Council of Ministers. Branch ministries and associations then allocated convertible-currency allotments among enterprises, although some enterprises were assured of some imports by the Planning Commission or the Ministry of International Economic Cooperation. This system made reallocating imports efficiently very difficult because neither the ministry nor the Planning Commission had the information necessary to make the most efficient allocation of convertible-currency imports.

In the first half of the 1980s, the Soviets allowed Poland to run large trade deficits, financed by ruble trade credits. The GDR may also have provided some assistance, but no other member of CMEA appears to have provided credits. However, in the 1986–1990 trade agreement with the Soviet Union, the Poles agreed to balance trade with the Soviets over the course of the five-year period. After running a large trade deficit in 1986, the Polish government was subsequently under

---

great pressure to increase exports to the Soviet Union. In 1987, Poland's trade was in surplus and began to pay back its ruble debts to the Soviets.

The mechanisms used in CMEA trade changed little under the reformed system. Exports under CMEA treaties were frequently compulsory; enterprises received compulsory orders to export particular items. The prices and quantities of imports were determined in negotiating sessions between the respective governments. Enterprise managers had little direct influence on these negotiations. Some loosening occurred, however. Enterprises that exported to ruble areas received part of their earnings in rubles, not zlotys. These rubles could be used to purchase particular components or machinery falling under broader trade quotas, thereby giving enterprises a claim on a share of ruble imports. However, trade with CMEA was still primarily governed by quantitative restrictions on imports and compulsory export orders.

THE ENTERPRISES

Up to this point, our analysis has focused on the composition and goals of the center and the ways in which it attempted to steer enterprises. The following discussion attempts to summarize how enterprises reacted to these measures.

Control of Managers

Workers’ Councils. In the original outline of the reform, published in 1981, workers were to have a deciding voice through workers’ councils in the enterprise’s management. These councils, in conjunction with the branch ministry, were to hire and fire the directors of firms and to take an active role in making major decisions.

Reality was quite different, with significant consequences for the operation of enterprises. Interviews with managers indicate that workers’ councils were listened to and played a role in the life of the enterprise. However, they functioned more as an advisory board than as an executive or legislative body. They tended to concentrate on wage- and work-related problems, but some also discussed investment issues. Representatives of active workers’ councils who attended seminars at the Institute of Sociology in Warsaw stated that they had some influence on personnel policy. In one case, they were able to force the resignation of an incompetent manager in charge of investment, but

\[\text{\textsuperscript{23}}\text{Wojciechowska and Lipinski, 1986, p. 259.}\]
they also noted that participation in the council took a great deal of time and that perseverance was vital.

In most enterprises interviewed by Wojciechowska, more than 50 percent of the members of workers' councils were workers, but in only one-quarter of the councils did workers constitute more than 60 percent of the council; management was thus well represented. The councils often tended to be dominated by party members. In 20 of the 56 enterprises, more than 40 percent of the members were party members. This contrasts with 8 percent of workers as a whole.

Workers' councils appear to have had an even more limited role in the defense sector. During the 1981 Solidarity heyday, the union affiliated with Solidarity at LOT, Polish Airlines, lobbied hard for the appointment of a long-time manager as LOT's president. The state refused and appointed an army general in his stead. The reason given was the important role LOT would play in military transport in the event of a war. The military establishment argued that the head of the corporation had to be trusted to follow orders.

**Founding Organs.** The power to hire and fire managers continued to lie with the "founding organs"—either the branch ministries, local governments, or, in some cases, other enterprises, although the choice was often influenced by the workers' councils. In 1985, ministries also received the power to dissolve workers' councils, "violating the legal order of fundamental social interest." Although we did not encounter instances in which this power was used, it tipped the balance of control to the ministries.

Managers' salaries and bonuses were also determined by these organs. Salaries were set at the national level and fell into different grades, like those in the civil service in the United States. The ministry decided into which grade a manager fell. Because the government changed these levels slowly, in recent years highly skilled workers were able to earn more than 20 percent more than directors in some enterprises. Salaries were not tied to the firm's profitability or performance, in contrast to workers' wages, which were highly correlated with profit per worker.

Bonuses were also determined by the founding organ. Enterprises in the light and chemical industries received a "complex evaluation" twice a year based on sales, exports, labor productivity, the average level of wages, capital productivity, capacity utilization, effectiveness of repair work, material intensity of production, energy intensity of

---

25Interview data.
26_Dziennik Ustaw_, No. 37, 1985, as quoted in Jozefiak, 1986, p. 35.
27Wojciechowska and Lipinski, 1986, p. 66.
production, costs, changes in financial indicators (such as changes in the development fund), profits and losses, absenteeism, and the accident rate. The ministry or trust assigned points for each category. Other enterprises were evaluated on an ad hoc basis. Of 22 enterprise managers who were evaluated using the complex method, 17 thought well of the exercise; others, however, criticized the method for being opaque.28

The inconsistency of ministerial control with the goal of increasing enterprise efficiency is illustrated by the case of the Pokoj Steelworks. The enterprise was threatened with bankruptcy in 1986 and lost its access to bank credit. After receiving credits from enterprises outside the sector, presumably clients, it was able to stave off bankruptcy and put together a recovery plan based on closing the steel-smelting shop and blast furnace and concentrating on producing shaped and rolled products. However, the ministry demanded that the works continue to produce 220,000 tons of steel each year because the Polish economy “required” the mill’s output to reach administratively set quantity targets, even though this mill was the highest-cost producer in Poland. The management and the local community wanted to close the 150-year-old steel-making section.29 The ministry argued that importing the shortfall in production would be more expensive than continuing to operate the steel works. In other words, exchange-rate and price policies were irrational in this sector; the highest-cost producer making large losses was assumed to produce steel at a lower cost than imports.30 The ministry was able to insist that the plant continue operating because it was the founding organ and because of a national resolution aimed at maintaining steel production.

Defense Committees. Poland was in the anomalous situation of being under martial law at the time the economic reform was introduced. During martial law, the regional defense committees that fell under the KOK’s purview held supreme local authority. In the first week of martial law, they dismissed five governors (voivods) and 81 mayors of small towns and villages.31

These committees also supervised the enterprises in their jurisdictions. In some cases they dismissed managers;32 in others, they demanded that enterprise managers draw up investment and production plans for the voivodeship.

29Zielinski, Apr. 10, 1987, p. 3.
30Jaworski, Apr. 10, 1987, p. 3.
The Defense Industrial Committee of the Council of Ministers also had special rights of control over enterprises and institutions under its jurisdiction. For example, it could place research institutes performing military R&D under its purview. In these cases, the institute was given a state research plan. The Ministry of Defense appointed its director without competition, and Ministry of Defense approval was necessary to disseminate findings. Special approval was necessary for imports and exports.

Management Objectives

Although the Wojciechowska survey did not ask enterprise managers to define their goals, the above discussion of the role of the ministry and the workers’ councils, coupled with newspaper accounts of enterprises, indicates that enterprise managers’ primary goal was to stay in the good graces of the branch ministries and, to a lesser extent, of the workers’ councils. As the entries in the complex evaluation show, the branch ministries had several goals. The weights of these entries varied over time as policies and personnel changed. However, because of the government’s emphasis on preserving labor peace, the ministry’s primary goal often boiled down to keeping the work force content. For the enterprise manager, this meant increasing workers’ wages.

Between 1982 and 1987, the second two most important goals of managers appear to have been increasing production and increasing after-tax, after-subsidy profits. These goals were products of the incentives provided by the center and the constraints under which enterprise managers operate.

Increasing Production. In 1982, the central government’s primary economic policy goal was to stop the fall in output. Branch ministers were under great pressure to increase production. They transmitted this pressure verbally to enterprise managers. Because of continued shortages, enterprise managers continued to be under great pressure from the branch ministries and customers to increase output throughout the 1980s.

After 1983, this pressure was applied through discussions of enterprise plans and through tax reliefs. In 1983, the government permitted enterprises to raise wages above the centrally stipulated threshold for each percentage-point increase in gross sales at comparable prices.33 The system was then transformed into tax relief based on increases in value added, measured in comparable prices.34 However, as the Pokoj

---

34Wojciechowska and Lipinski, 1986, p. 72.
Steelworks case shows, enterprise managers continued to be pushed to increase output through personal pressure and financial means.

**Increasing After-Tax, After-Subsidy Profits.** One major objective of Polish managers was to increase after-tax, after-subsidy profits. This objective was not so much imposed by the ministry as it was a necessary condition for maintaining the enterprise's solvency and increasing production.

Polish enterprises did not face a "hard budget constraint," as defined by Kornai. The government was willing to bail out all large loss-making firms with subsidies or by forgiving loans. However, enterprises that continued to post losses found that life became difficult. A few enterprises went bankrupt—the first, a small metal-working firm in Zabrze. However, the number of firms in financial difficulty rose—to more than 100 in 1987. Budapol, a large construction firm in Warsaw, went into bankruptcy proceedings and was the first large enterprise to be liquidated. Firms that fell into financial difficulty were overseen by an appointee of the National Bank and had to work out a program to restore themselves to financial health. In effect, the old manager found that his former power was curtailed or that he was out of a job. For these reasons, avoiding losses was an important objective for enterprise managers.

Profits were also important, because they facilitated maintaining the size of the labor force. After 1982, when the Polish government offered early retirement to many people in their fifties, Poland had an endemic excess demand for labor. Workers, especially highly skilled workers, moved quickly to enterprises that paid the highest wages. Consequently, enterprise managers had to increase wages to retain workers.

Profits and tax relief provided the two most important avenues for increasing the wage fund. As we noted above, relief on the payment of PFAZ, the wage-increase tax, was granted for increasing exports or value added or for reducing energy or raw-material usage. Of the 56 enterprise managers interviewed by Wojciechowska, 26.8 percent reduced payments to PFAZ by increasing value added, 7.1 percent

---

35Kornai, 1980.
36Interview data.
38Lipinski and Wojciechowska, 1987, p. 28.
39Wojciechowska and Lipinski, 1986, p. 64, 70.
40Enterprise managers primarily increased value added by changing the assortment of production from less-profitable to more-profitable goods. However, because of excess demand, profitability was often a function of the rigor of price controls, not changes in supply or demand. Enterprise managers shifted production from products for which the permitted profit margin is low to those for which it was higher (Wojciechowska and Lipinski, 1986, p. 73).
increased overtime (these payments are not subject to tax), 1.8 percent increased exports, and 1.8 percent reduced the use of energy or raw materials. The other enterprises either did not receive relief on the PFAZ tax or were granted individual relief by the Ministry of Finance. Almost half the enterprises requested individual relief in 1985, and more than half of these requests were granted. Relief had no correlation with financial results but was apparently determined by the force with which the enterprise manager argued for them.

More highly aggregated data also show the importance of tax relief in determining Polish firms' financial results. In 1986, income-tax reliefs were given for 21.3 percent of the gross taxes of the 500 largest Polish enterprises. Of those reliefs, 54.1 percent were granted because of increased exports. Energy savings and quality awards accounted for only 2.7 and 3.9 percent, respectively. Arbitary grants of individual reliefs constituted an important fraction of the remaining reliefs. Only 28 of the 500 largest Polish enterprises did not receive some form of tax relief.

Although managers actively pursued wage tax reliefs, profits were a more important determinant of wage increases. A strong positive correlation existed between profit margins and wage levels (see Table 2.1). However, the industrial branch in which the enterprise was located was an important determinant of wage levels as well.

Managers also pursued profits because they were an important source of investment funds. As Table 2.1 shows, profits were positively correlated with the rate of increase in funds available for investment. Of the enterprises interviewed by Wojciechowska et al. (1986), 41 percent financed their investments from the development fund, which was derived from profits. The second most important source of funding was subsidies from the national or local governments (30 percent of the enterprises); bank credit was used by only 14.2 percent. The remainder apparently did not respond to this part of the survey.

In the classic Soviet-type system, enterprise managers push for investments in new capacity because the larger the enterprise, the higher the manager's salary. Investments also tend to facilitate the fulfillment of plan targets because they can remove short-run bottlenecks.

The incentives for investment in the Polish reformed system are not much different. The enterprise managers interviewed by Wojciechowska et al. (1986) said they invested to increase production; improve product quality; develop exports; improve the technological

---

41Wojciechowska and Lipinski, 1986, p. 72.
42Wojciechowska and Lipinski, 1986.
43Dabrowski, June 1987, p. 44.
Table 2.1
THE RELATIONSHIP BETWEEN PROFIT MARGINS AND WAGES IN 1985

<table>
<thead>
<tr>
<th>Loss making</th>
<th>0–5</th>
<th>5–15</th>
<th>15–30</th>
<th>&gt; 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Wage (zlotys)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>17,900</td>
<td>18,100</td>
<td>19,100</td>
<td>19,600</td>
</tr>
<tr>
<td>Median</td>
<td>18,100</td>
<td>17,700</td>
<td>18,700</td>
<td>19,200</td>
</tr>
</tbody>
</table>

| Rate of Increase in the Development Fund |       |      |       |      |
| Mean (%) | -15.1 | 31.2 | 35.6 | 61.1 | 81.8 |
| Median (%) | -15.9 | 1.6 | 20.1 | 27.3 | 36.7 |
| Number of enterprises | 15 | 333 | 971 | 631 | 261 |


level of production; conserve on labor, energy, and materials; and protect the environment. Ministerial and customer pressure to expand production provided another incentive to invest, as did the desire to remove bottlenecks. Both these motives made increasing profits or expanding production possible. The former enabled the enterprise manager to keep his own job and keep his workforce happy; the latter pleased the ministry.

Other Goals. Profits can be pursued by increasing sales of profitable products, curbing production of loss-making products, raising prices under the assumption that sales will not decline, or reducing costs. Aside from pursuing profits, the branch ministry used the reduction of inputs of energy and materials in production as an additional indicator to evaluate enterprise managers. Enterprises also received wage tax reliefs for reducing costs.

Enterprise managers said that from 0.5 to 8 percent of increases in profits stemmed from reducing costs; the majority argued that cost reduction was a poor way to increase profits.44 They often found that the central authorities forced them to lower prices after cost reductions, thus eliminating the incentive to reduce costs. They also gave reducing material inputs in production as a reason for declines in quality.

Cost consciousness appears to have spread to both the military and enterprise managers. The Polish army found that production and development costs in the defense industry were rising. The army responded by pushing for better use of capacity and more effective cost accounting. Army officers argued that measures to improve management lead to reduced costs and better use of military assets. The Polish deputy quartermaster general (the person in charge of securing supplies for the Polish army) argued that the reform had a notable impact on supply operations. The Military Trade Administration, a system of army stores, earned a profit, became more cost conscious, and covered its investments from its own profits. On the other hand, the quartermaster’s performance was still evaluated in terms of exceeding plan targets, and military supply groups were still geared toward plan targets.

Cost minimization in the military was not a new phenomenon. A system to induce quartermasters and commanders to minimize waste was introduced in the mid-1970s. Bonuses were introduced for drivers to conserve fuel, and quartermasters received training on efficiency and conservation.

Increasing exports was another goal of enterprise managers. Of the managers interviewed by Wojciechowska, 85 percent cited hard-currency accounts as the primary reason for exporting, although they also mentioned tax relief. These accounts gave managers a great deal of freedom because they could use the monies to purchase inputs, machinery, or spare parts in short supply. The resulting removal of the bottleneck permitted production to run more smoothly and resulted in higher profits.

Of the managers interviewed by Wojciechowska, 65 percent said exports to CMEA countries were more profitable than sales on the domestic market or hard-currency exports. This difference in profitability constituted an incentive for direct exports to the East. Despite a widening differential between the dollar/ruble cross-exchange

45Lukaszewski, July 1, 1987, pp. 1, 5.
46"Interview with General Stanislaw Fryn, Chief of Staff, Deputy Quartermaster General of the Polish Armed Forces," July 1987, p. 5.
47Colonel Waldemar Makowiecki "Interview with Chief of Staff, Deputy Chief Quartermaster of the Armed Forces, General Stanislaw Fryn, "Practical School of Economica" Zolnierz Wolnosci, January 4-5, 1986, p. 3, JPRS-EER-86-056, April 11, 1986, p. 50.
48Although enterprise managers are rewarded for import-substituting production, no particular rewards appear to be given for reducing the use of hard-currency imports per se. Possibly this is because of the enterprise’s limited ability to determine the quantity of imports received.
50Wojciechowska and Lipinski, 1986, p. 79.
rates, this difference in the profitability of hard-currency and ruble exports did not diminish.

Management Constraints

Although after-tax, after-subsidy profits were important for Polish firms, Polish managers faced several avenues along which they could be pursued. To some extent, managers followed the path of reducing costs and innovation. Because of the many obstacles they faced in adapting production, managers found that lobbying the center for tax relief, investment grants, and subsidies could be of greater importance in determining the financial health of their enterprises. Enterprise managers devoted a great deal of their energy to lobbying, partly because the rate of return was high, but also because of the multiplicity of constraints that limited their freedom of action.

Prices. Price controls had a debilitating effect on profitability and on more rapid enterprise response to changes in demand and input costs. In general, the larger the share of fixed-price goods in total sales, the lower the profitability of the enterprise.\(^{51}\) Neither subsidies, tax relief, nor annual increases in fixed prices compensated enterprises for the greater profitability possible from selling goods with contract prices.

Of the 56 enterprises Wojciechowska interviewed, 51 faced excess demand for their products. On average, managers said that in 1985 they could have sold 50 percent more than they were able to produce.\(^{52}\) Enterprises in the most advantageous position were purveyors of inputs. Investment-goods producers had faced saturated markets at times in previous years. Some consumer-goods producers faced more equilibrated markets in 1985 as well.

The center also constrained enterprises in their choices of clients. Of the enterprise managers, 82 percent said that they did not have any choice of clients—they were either forced to sell all their output to a central wholesaler or constrained by traditional ties or multiyear sales agreements with other enterprises.

Because the military was a priority client, it fared better than others. However, excess demand in so many markets also affected it. Many units began to grow their own food. In the Warsaw Military District, for example, soldiers grew half their annual pork consumption; they also bred cattle, sheep, and poultry.\(^{53}\) The military raised 54 percent of all pork consumed. Office and barracks furniture was

---

\(^{51}\)Wojciechowska, Pasznik, and Szeworski, 1987, p. 35.

\(^{52}\)Wojciechowska and Lipinski, 1986, p. 15.

\(^{53}\)Reperowicz, July 19, 1984, p. 4.
constructed by the soldiers themselves. These measures were aimed at self-sufficiency, not necessarily economic efficiency. Quartermasters also started to produce clothing by hiring soldiers' wives to sew garments, usually at home. In short, economic stringencies forced military commanders to become more economically autarkic.

**Labor.** Half the enterprise managers Wojciechowska interviewed claimed that they lacked sufficient workers in 1985, especially skilled workers.\(^5^4\) Indeed, according to 70 percent of the enterprise managers, lack of workers was the primary constraint on output levels.\(^5^5\) Because of labor shortages, capacity utilization averaged 72.5 percent and was especially low in the machine-building sector (62.4 percent), where the average number of shifts was 1.44, as compared with more than 2 in other industries.\(^5^6\)

The reasons for excess demand for labor are easily traceable to Polish monetary policy and wage controls. As we noted above, almost all enterprises faced excess demand for their products. Because of wage controls, the marginal product of labor exceeded wage levels, so enterprises sought workers. Even in cases in which enterprises lost money because of price controls, the pressure to increase output, coupled with ministerial willingness to cover losses, increased the demand for labor. However, in most cases, price regulations were lax enough that enterprises could raise prices to ensure a profit, even though the resulting prices did not clear the market. Consequently, labor shortages persisted.

The military also suffered from labor shortages. As more attractive possibilities opened up in the private sector, the military experienced a decline in applicants to military academies.\(^5^7\) This could have resulted from political disenchmentment with the military but was more likely to be the consequence of differences in remuneration; Polish opinion polls indicate that the army continued to have a great deal of respect despite its role under martial law.

The military attempted to mitigate labor shortages. Many sectors of the economy employed conscript labor. Soldiers worked on the construction of the Warsaw metro, laid railroad tracks, and worked at the Ursus Tractor Factory, the Pharmaceutical Plant at Tarchomin, in Stomil Tire Factory, and other labor-short plants. Although this labor was probably productive, its employment reflected the labor market's inefficiencies in allocating labor. If these inefficiencies had not existed, there would have been no need to employ conscripts in these jobs.

\(^{54}\)Wojciechowska and Lipinski, 1986, p. 9.

\(^{55}\)Wojciechowska and Lipinski, 1986, p. 76.

\(^{56}\)Wojciechowska and Lipinski, 1986, p. 35.

Capital Stock. Polish enterprises complained of decapitalization—that is, their capital stock was wearing out and not being replaced. According to enterprise managers, this reached substantial proportions (see Table 2.2).

Enterprise managers complained that they lacked both financial and physical resources for investment. Although not as important a constraint on production as labor and input shortages, 20 percent of managers interviewed cited the capital stock’s quality and size as a binding constraint on the volume and quality of production. Moreover, because of the lack of development funds or limitations on importing machinery, enterprises were restricted to repairing older machinery, even though the cost of the repairs was greater than the cost of replacing the older machinery with new machinery.

Inputs. Of the managers Wojciechowska interviewed, 50 percent stated that problems with supplies constituted an important, binding constraint on production. Most enterprises received almost all their inputs through obligatory deliveries ordered through the center. They often obtained these deliveries under central government programs or through government orders. For example, in metallurgy an average of only 14.5 percent of supplies were contracted for on a free basis; the rest came from obligatory deliveries by suppliers.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage of Total Capital Stock Fully Depreciated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1983</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>60.2</td>
</tr>
<tr>
<td>Machine building</td>
<td>44.4</td>
</tr>
<tr>
<td>Chemical</td>
<td>45.5</td>
</tr>
<tr>
<td>Textiles</td>
<td>64.4</td>
</tr>
<tr>
<td>Food processing</td>
<td>43.0</td>
</tr>
</tbody>
</table>


Despite preferential treatment or government orders, more than half the enterprises that participated in government programs (half the sample) reported that they had great problems with quantity, delivery times, and quality of supplies. Most enterprise managers said their contacts with government institutions in charge of supplies were poor. Poor supply was blamed for production disruptions, deterioration in the quality of output, and forced substitution. Supply irregularities made changing output assortment very difficult and led to very large inventories because enterprise managers feared that they would be unable to procure inputs on time in the future.

The military also complained about input problems. The National Defense Commission of the Sejm issued a communiqué on the 1988 annual plan and the military sector in which it emphasized the need to improve the quality of military equipment. They noted the problems military-goods producers had in procuring quality components and subassemblies.

**Imports.** Imports continued to be a major constraint on production. Several enterprise managers stated that in 1985, lack of funds to purchase parts and Western machinery curtailed production and efficiency.

Like other inputs, imports were in short supply. The bulk of expenditures on hard-currency imports (more than 80 percent) were determined by the Ministry of International Economic Cooperation in conjunction with the Planning Commission, the branch ministries, or the associations. Funds were budgeted and then distributed according to "need," not willingness to pay. Moreover, in times when the Foreign Trade Bank faced shortages of hard currency, imports were delayed, leading to production delays because necessary components did not arrive on time.

Hard-currency accounts provided a way around shortages. Not surprisingly, enterprise managers who had these funds appeared to use them in a highly efficient manner. They purchased goods that removed bottlenecks in production—that is, they had very high marginal rates of return. These enterprises sometimes sold suppliers hard currency in exchange for guaranteed supplies.

---

63 Wojciechowska and Lipinski, 1986, p. 100.
ASSESSING THE REFORM

Managerial Assessment

Wojciechowska also asked the Polish managers for their opinions about the reform—in particular, for their opinions on the independence of enterprises, the degree to which the enterprises were self-financing, and the role of self-management. The survey concluded with a general evaluation of the reform.

Although 18 of the 56 managers said that they had more independence under the reform and only 6 argued that independence had not increased, even those who evaluated their independence positively said that it was severely constrained. Thirteen directors stated that the government issued too many regulations and changed them too often, 11 said that the government prohibited them from expanding, 9 said that their independence was curtailed because they were not permitted to set their own prices, and 7 saw their independence curtailed by financial instruments.\(^{65}\) Several enterprise managers also offered the opinion that the center had gained decisionmaking power at the expense of the enterprises and that this situation would continue to worsen.\(^{66}\)

Of the respondents (22 enterprises), 39 percent said that they were self-financing; 58 percent stated that possibilities in this area had become very restricted. In general, enterprises argued that they were unable to be self-financing because of lack of funds (14 enterprises), the tax system (10), the price system (10), increases in raw materials and input prices (6), credit policy (5), the PFAZ tax (3), and payment problems stemming from clients’ failure to pay promptly (4).\(^{67}\) Although one could argue that tax policies made covering their own investment costs extremely difficult for enterprises, managers seemed somewhat confused over what constituted self-financing. According to the survey responses, they generally sought explanations for their financial problems in outside forces. However, that many firms actually had financial problems (not a serious difficulty in traditional Soviet-type systems) indicates that in a general sense enterprises had to be self-financing—that is, profitable.

An interview within the Polish National Bank added force to the argument that enterprises had become self-financing. The interviewee said that many enterprises did not apply for bank credits for investment but preferred to finance investments out of current profits. In

\(^{65}\)Wojciechowska and Lipinski, 1986, p. 252.


\(^{67}\)Wojciechowska and Lipinski, 1986, p. 256.
many cases, this led to very long construction times, since construction proceeded as funds became available. He explained that enterprises disliked bank financing, because managers put a very high premium on assuring future profits so they could continue to raise wages. Bank finance tied down part of this uncertain future stream of profits that might be needed to increase workers' wages. By investing as funds became available, the enterprise manager maintained his freedom to control future profit flows.

This interview also demonstrated the high level of uncertainty enterprise managers faced. If a profit stream was likely to be highly profitable, one would think managers would borrow to finance the investment, but in the face of shifting regulations on price formation and input availability, the payback to most investments was so uncertain that managers appeared unwilling to incur the debts necessary to finance it.

Twenty-two enterprise managers criticized the lack of possibilities to finance their own development; only 1 cast a positive light on the possibility of self-finance. The criticisms focused on the confiscatory nature of taxation and the tight controls on prices. High profit taxes and the payment of a large portion of amortization to the national budget sharply limited managers' own resources.

**Self-Management.** Forty enterprise managers evaluated enterprise councils positively, 13 had mixed views, and only 1 evaluated them negatively. Most disagreements concerned wages. Councils voted on the enterprise accounting balance, the division of profits, the annual plan, and the system of wages. Workers' councils had a very limited role in selecting managers. Most of their influence was confined to promoting the consideration of several candidates. The ultimate decision was made by the enterprise director or the branch ministry.

Workers' council representatives and managers both argued that the influence of a workers' council was directly proportional to the level of activity of its members. Enterprise managers credited the councils with substantial authority. When asked who made the key decisions for the enterprise, 33 managers said the management, 18 said the management in cooperation with the workers' council, 4 said the workers' council, and only 1 said the proprietary organ (the branch ministry). Forty-three managers said they consulted the party organization, and 33 consulted the labor unions as well. Managers were divided about the councils' role. Some argued that they should fulfill their

---

70 Wojciechowska and Lipinski, 1986, p. 262.
statutory role, which made them a decisionmaking body; others argued
that they should be only a consultative group.

The second and third elections for workers' councils indicated a
decreasing level of interest by the workers themselves. Ministerial
reports found voter participation down in 1986 in comparison with pre-
vious years, and some elections had to be held two or even three times
because of low voter turnouts. Workers were frequently reluctant to
serve on the councils because the councils took up too much time and
brought neither benefits nor satisfaction to participants.\textsuperscript{72}

**General Managerial Evaluation.** Of the 56 managers, 14
evaluated the reform positively; the rest were critical. The critics
argued that the reform had not been implemented as planned, and
many fundamental features did not yet exist. The sharpest criticism
was directed at the center, for its unwillingness to trust decisions made
by enterprise managers. One manager criticized the center for con-
stantly changing regulations and for being too soft—not making enter-
prises suffer the consequences of the decisions their directors made.
He argued that there was a lack of freedom to make decisions and a
lack of responsibility for those that were made.\textsuperscript{73} Another manager
argued that the center was pleased with the reform but enterprise
managers were not. The enterprise manager still approached the
center as a supplicant, pleading for materials, imports, investments,
and tax relief.

When asked which social group most opposed the reform's expan-
sion, 28 managers placed the blame on the central administrative
bureaucracy, and 7 argued that production workers were the greatest
barrier. Eleven managers said the major problem was the ineffectiv-
ness of the instruments employed to steer the economy. In general,
managers stated that because of outside constraints, improvements in
economic efficiency were impossible.\textsuperscript{74} If efficiency was to be
improved, constraints on hiring labor, investing, and procuring inputs
had to be removed.

**Economic Performance**

Although illuminating, the opinions of enterprise managers are not
the most unbiased means of evaluating the reform. The reform may
have functioned well, despite enterprise managers' comments, if it
redirected investment and labor to more productive sectors and
induced increases in factor productivity.

\textsuperscript{72}Dryll, May 31, 1987, pp. 1, 4.
\textsuperscript{73}Wojciechowska and Lipinski, 1986, p. 265.
\textsuperscript{74}Wojciechowska and Lipinski, 1986, p. 265.
The Polish statistical yearbook, *Rocznik Statystyczny*, contains information on investment and employment by industrial sector and on capital and labor used in industry as a whole. Below, we use these data, coupled with data on profitability provided in Wojciechowska, Pasznik, and Szeworski (1987), to assess the reform’s effectiveness in improving Polish economic efficiency.\(^7\)

We compared factor productivity growth for two periods: 1975–1978, the years before the economic crisis (but also years when the government began to try to tighten its belt); and 1983–1985, the first three years after the reform. We defined factor productivity growth as the change in the ratio of net industrial output to three inputs—the stock of fixed capital, hours worked in industry, and electricity consumption by industry.

Table 2.3 compares factor productivity growth for these two periods. Although capital productivity growth and the improvement in the

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Output/ Capital</th>
<th>Net Output/ Labor</th>
<th>Net Output/ Electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>0.401</td>
<td>0.343</td>
<td>0.038</td>
</tr>
<tr>
<td>1976</td>
<td>0.401</td>
<td>0.371</td>
<td>0.038</td>
</tr>
<tr>
<td>1977</td>
<td>0.388</td>
<td>0.397</td>
<td>0.039</td>
</tr>
<tr>
<td>1978</td>
<td>0.364</td>
<td>0.412</td>
<td>0.039</td>
</tr>
<tr>
<td>1979</td>
<td>0.330</td>
<td>0.407</td>
<td>0.038</td>
</tr>
<tr>
<td>1980</td>
<td>0.303</td>
<td>0.395</td>
<td>0.036</td>
</tr>
<tr>
<td>1981</td>
<td>0.249</td>
<td>0.367</td>
<td>0.033</td>
</tr>
<tr>
<td>1982</td>
<td>0.232</td>
<td>0.383</td>
<td>0.032</td>
</tr>
<tr>
<td>1983</td>
<td>0.238</td>
<td>0.384</td>
<td>0.032</td>
</tr>
<tr>
<td>1984</td>
<td>0.242</td>
<td>0.406</td>
<td>0.032</td>
</tr>
<tr>
<td>1985</td>
<td>0.242</td>
<td>0.422</td>
<td>0.035</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>Average Annual Rate of Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975–1978</td>
<td>-2.42</td>
</tr>
<tr>
<td>1983–1985</td>
<td>0.64</td>
</tr>
</tbody>
</table>

\(^7\)Because of distorted prices, profitability may have been a very poor guide for investments in Poland. However, by the system’s rules, enterprises that were profitable for whatever reason should have had better access to investments. To the extent that they did not, the system was not working as planned.
efficiency with which electric power has been used increased more rapidly in the reform period, the figures mask the tremendous declines in factor productivity in absolute terms. The ratio of net material product (NMP) produced by socialized industry to capital was 65 percent lower in 1985 than in 1975, implying an enormous decline in capital productivity. The ratio of NMP produced by socialized industry to electrical consumption by socialized industry was 20 percent lower in 1985 than in 1977, again indicating a decline in efficiency (although this ratio may merely reflect a change in the composition of energy consumption). On the other hand, the ratio of NMP produced in socialized industry to hours worked was 3 percent higher in 1985 than in 1979, showing an absolute rise in the productivity of labor. In sum, socialized industry has not become notably more efficient since the introduction of the economic reform.

A second indicator of the reform's success is whether resources have been reallocated to more efficient sectors. Wojciechowska, Pasznik, and Szeworski (1987) provide information on profits as a percentage of gross sales and on profits per worker. Although these categories are not equivalent to rates of return and are heavily influenced by capital/labor ratios, they provide a rough indication of relative profitability. Comparisons of sectors ranked by profitability with their shares in total employment and investment in socialized industry provide some indication of the reform's success in reallocating resources toward more profitable sectors.

Table 2.4 shows the average share, by industrial sector, of investment and employment in socialized industry for the 1975–1978 and 1983–1985 periods, gross profit margins, and profits per worker. The industries are arranged in descending order.

The table shows that capital and labor flows have been the reverse of what one would expect, based on profitability considerations. The coal and food industries have had the worst profitability performance, yet these two industries and electricity generation have registered the largest gains in the shares of investment. Both industries have also registered strong increases in their shares of employment at the expense of apparently more profitable industries. These figures may merely reflect the irrational Polish price system, in which goods facing high excess demand, such as meat and coal, have relatively lower fixed prices and therefore are not profitable. They also reflect industry-specific technologies—for example, the relatively fixed capital/labor ratios in electricity generation. Perhaps the low profitability of the sectors to which capital and labor are being reallocated also reflects the

---

76For example, the electricity-generating industry registers the highest profits per worker because it is very capital intensive.
Table 2.4
INVESTMENT AND EMPLOYMENT SHARES AND THE PROFITABILITY OF SOCIALIZED INDUSTRY

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Light</td>
<td>33.5</td>
<td>248.8</td>
<td>5.1</td>
<td>5.2</td>
<td>17.7</td>
<td>15.2</td>
</tr>
<tr>
<td>Other</td>
<td>30.5</td>
<td>296.0</td>
<td>1.5</td>
<td>1.6</td>
<td>2.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>generation</td>
<td>27.3</td>
<td>3460.1</td>
<td>8.7</td>
<td>15.5</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Machine bldg.</td>
<td>27.1</td>
<td>348.3</td>
<td>25.1</td>
<td>22.3</td>
<td>33.4</td>
<td>34.0</td>
</tr>
<tr>
<td>Chemical</td>
<td>19.4</td>
<td>502.1</td>
<td>11.1</td>
<td>10.0</td>
<td>7.1</td>
<td>6.6</td>
</tr>
<tr>
<td>Minerals and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wood prod.</td>
<td>17.4</td>
<td>203.7</td>
<td>10.9</td>
<td>7.4</td>
<td>12.1</td>
<td>10.6</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>9.8</td>
<td>550.9</td>
<td>16.8</td>
<td>5.8</td>
<td>5.4</td>
<td>5.0</td>
</tr>
<tr>
<td>Coal</td>
<td>2.5</td>
<td>141.9</td>
<td>8.4</td>
<td>16.2</td>
<td>7.9</td>
<td>10.0</td>
</tr>
<tr>
<td>Food</td>
<td>-2.6</td>
<td>332.5</td>
<td>9.2</td>
<td>11.9</td>
<td>11.3</td>
<td>11.8</td>
</tr>
</tbody>
</table>

high costs of old production technologies; new investment may be more profitable. However, the figures indicate the very limited role of profits in determining the allocation of investments and labor. Prices in Poland continued to do a poor job of reflecting relative efficiency and scarcity, a consequence of the central government’s pricing policies.

CONCLUSIONS

Overall

Neither the data nor the interviews provide favorable indications of the reform’s efficacy. Markets, an important mechanism for the reform’s proper functioning, had very limited roles in resource allocation. The signals enterprise managers received were of very poor quality. The combination of controlled prices and accommodatory monetary policy led to excess demand in almost all markets. Tighter controls on input prices than on output prices preserved a highly distorted price system. Consequently, planners appeared to use relative rates of return to a very limited extent when choosing investment projects and providing wage subsidies. The reform did little to restructure the Polish economy toward an output mix that would more efficiently use available resources.
Wojciechowska notes that a major problem in the reform was the frequency with which regulations were changed and the poor flow of information between the center and enterprise managers. Even the large-enterprise managers Wojciechowska interviewed frequently did not understand or were not aware of new directives. In addition, very little coordination existed between the central plan and enterprise plans. Because the state allocated such a large share of inputs directly, this lack of knowledge led to large efficiency losses and poor planning, according to Wojciechowska.\textsuperscript{77}

The major problem enterprise managers faced was supply uncertainty. Production was frequently constrained by shortages of labor and intermediate goods, especially imports. These shortages reflected the excess demand endemic to the system and the absence of a price system that reflected relative scarcities and permitted the highest bidder to purchase scarce goods and services.

Excess demand in the system stemmed from the central authorities’ unwillingness to impose hard-budget constraints on enterprises. The ad hoc grants of subsidies and tax reliefs that increased the budget deficit (and excess demand) rewarded poorly performing enterprises and provided substantial incentives for enterprises to lobby for these reliefs rather than focus on changing internal operations.

The interviews reveal enterprise managers’ quick responses to changes in incentives and the close attention they paid to trade-offs. For example, the authorities provided tax relief for conservation of energy and materials and also for products that were deemed deserving of “quality symbols.” Enterprise managers claimed that the costs of producing higher-quality products were greater than the benefits of the tax reliefs or the increases in prices permitted for products that were given the quality sign.\textsuperscript{78} In other words, managers calculated the program’s relative costs and benefits and decided against participation.

One can also see enterprise managers’ quick response in the acracy with which they responded to operational programs. Enterprises participating in these programs received higher priority in the allocation of inputs than those that did not. Consequently, despite the narrow thrust of some of these programs, most enterprises participated in one or more.\textsuperscript{79}

In view of these two examples, the hypothesis that the mentality of consumers, producers, and especially managers must be changed before a reform can function appears false. The argument, somewhat akin to the argument that the Soviet-type system will work well when people

\textsuperscript{77}Wojciechowska and Lipinski, 1986, pp. 275–292.
\textsuperscript{78}Wojciechowska and Lipinski, 1986, p. 21.
\textsuperscript{79}Wojciechowska and Lipinski, 1986, p. 21.
have developed a Socialist mentality, masks the real problems with the reform: the many constraints on production and investment the center imposes on enterprise managers. Whether state-owned enterprises would still function poorly in a market system is an open question. However, the argument that they failed under the reforms reflects the center’s inability to introduce market conditions in the economy, rather than attitudinal problems of managers and consumers.

This leads to the question, Why did the center fail to introduce these conditions? We argue that macroeconomic policy concerns other than efficiency have led to the introduction of numerous policy instruments (PFAZ, individual subsidies, tax reliefs, and so on) that sharply reduced effectiveness of measures to improve efficiency. If monetary and fiscal policy had been less accommodating, there might have been less pressure to introduce these efficiency-reducing measures. However, the Polish central authorities were unwilling to bear the political costs of some loss of power and of antagonizing certain interest groups by implementing sterner measures. This unwillingness was the primary reason for the reform’s failure to improve markedly economic efficiency.

**Implications for the Military**

The Polish reform and the military were, even if unintentionally, at cross-purposes since the reform’s initiation. The reform was introduced immediately after the declaration of martial law, a period when both political power and economic power was being centralized within the voivodship defense committee. At a time when managers could be fired summarily and enterprise assets such as trucks, cranes, and other machines could be redeployed at a word from the Defense Committee commander, enterprise directors were supposed to begin operating much more independently than in the past, making decisions on inputs, prices, wages, new products, and internal organization. The two were incompatible and, we argue, entrepreneurial freedom suffered.

Even long after the repeal of martial law, the military sector fit uneasily into the reformed system. Membership in the military producers’ association was compulsory for enterprises producing military goods. These enterprises received priority in receiving inputs, and the law compelled suppliers to fulfill orders from them. Although support for more efficient uses of resources was strong in the military press, one author argued that radical changes in organizational structure motivated by the reform should not disrupt the Socialist state’s organizational stability. He argued that not all areas of the economy could be administered in a decentralized manner: Transport, power, and
communications required centralized administration for reasons of national defense.  

The military did not benefit from the reform. The economic stringencies preceding the reform did not disappear; the military still continued to operate on a very tight budget. Because of supply shortages, the military tried to produce more of its own food, consumer goods, and parts. Excess demand on the labor market and the higher salaries available in the private sector made recruitment more difficult. The army had to construct more of its own housing because of civilian construction enterprises' failure to fulfill contracts. In short, the military sector in Poland was apparently an island operating much as it did under the old system, uneasily sitting in the new economic environment.

---

III. HUNGARY

INTRODUCTION

Hungary’s reform had a longer, if not more tortuous, history than did Poland’s; hence, more has been written about how it progressed and where it failed.¹ This section will not replicate these studies. Instead, it assesses how the reform functioned in Socialist industry, what role the military played in it, and what implications it had for the military. We focus on the period from 1979 (the year following a Politburo decision to make a renewed attempt to change the economic system) to 1989, the year after former first party secretary Janos Kadar’s ouster and the beginning of Hungary’s move toward parliamentary democracy. Despite this concentration on the 1980s, many phenomena we identify pertain to the whole period since the reform’s implementation. Kornai and others have argued that many behavior patterns of enterprise managers and policymakers emerged shortly after the reform’s implementation in 1968.² These have endured despite frequent alterations in regulations and bureaucratic reorganizations that have taken place since the reform’s inception. For this reason, many of our assessments hold for the entire reform period, not just for the 1980s.

THE SYSTEM

The reform’s purpose was to improve economic efficiency. The large economic losses Hungary suffered in the 1950s because of development policies focusing on import substitution and rapid development of heavy industry provided an impetus for creating a more open, rational economic system that would indicate areas of comparative advantage to Hungarian producers. By the same token, Hungary’s hard-currency balance-of-payments problems of the late 1970s and throughout the 1980s provided renewed impetus for changes in the economic system.

¹An interesting recent article about the reform is a series of interviews with leading economists and policymakers (Bela Csikos-Nagy, Resso Nyers, Tamas Nagy, Otto Gado, and Janos Marton) who participated in the reform’s original design and implementation. They often stressed the lack of democracy and the failure to introduce market prices as major factors inhibiting the realization of the 1968 reforms (Heti Vilagzasdasag, Dec. 26, 1987, pp. 39–44). Other excellent studies of the reform include Kornai (1986) and Marer (1986).
²Kornai, 1986.
The central authorities concluded that economic growth and continued solvency would be impossible without sharp improvements in economic efficiency. As in Poland, poor economic performance was the spur for change. This appears to be a precondition for reform in all centrally planned economies.

Like their Polish counterparts, the Hungarian authorities sought to improve economic efficiency by decentralizing authority and changing the ways in which resources were allocated. Under the reform's outlines, enterprises were to be independent, self-financing entities. Generating profits was to become a major goal of enterprise management. As in Poland, the state remained the principle owner of industrial enterprises.

In contrast to workers' councils in Poland, those in Hungary were not initially used to guarantee enterprise independence. Legal guarantees, coupled with the elimination of centrally determined plan targets, were considered adequate by the government. However, in 1985 workers' councils were set up in most enterprises to oversee enterprise managers. These groups were to hire and fire the enterprise director and approve enterprise plans, but the ministry maintained the right to dismiss enterprise directors and approve the council's choice. Managers had an important influence on the council: They could choose up to 50 percent of the members. The manager's important role in determining the council's composition imparted a more managerial cast to the Hungarian reform than to the Polish.

In this system, goods and services were to be distributed through markets, although the center was to continue to play a preeminent role in allocating investments and regulating prices of politically sensitive goods. Enterprises were, however, to be free to decide what and how much to produce and whom to sell to on the domestic and hard-currency export markets, making their choices on the basis of profitability. Exports to CMEA countries falling under bilateral trade accords remained compulsory. Enterprise managers were also to decide from where to purchase inputs. However, CMEA trade agreements and the stipulation that hard-currency imports must be accompanied by permits issued by the Ministry of Foreign Trade significantly limited this freedom. Also, as in Poland, enterprises had to fulfill orders for goods deemed necessary for defense.

The thrust of the systemic changes implemented by the Hungarian government was toward increasing economic efficiency by forcing enterprise managers to economize on inputs and by seeking more profitable product lines. However, as in the Polish case, conflicting policy goals limited and distorted moves toward greater use of markets and greater rewards for increasing productivity. These conflicts and the policy instruments developed in pursuit of them were the primary
explanation why the Hungarian system functioned the way it did. The following subsection focuses on the actors who chose these policy instruments, their goals, and how they sought to achieve them.

ACTORS

Economic policy was determined in the Politburo and Council of Ministers. The Politburo set policy guidelines, but the council issued the actual decrees and set the course of policy. The Hungarian Parliament began to take a more aggressive role in the mid-1980s, but still played a minor role in determining economic policies. It was gadfly and critic, not a source of new policies.

The most important functional organs included the Ministry of Finance, the National Planning Office, the National Bank, the National Materials and Price Office, the Economic Council, and the Ministry of Trade, which included both domestic and foreign sections. The Ministry of Finance was the most powerful economic organ in Hungary, although the National Materials and Price Office and Economic Council were also of great importance. These institutions “massaged” the Hungarian economy by setting and remaking regulations on tax rates, price setting, and subsidies. They took over much of the micromanagement in which the branch ministries used to engage.

The National Planning Office was somewhat of an anomaly in the Hungarian reform. Although plans were no longer obligatory, and intermediate goods (except for imports) were primarily allocated through direct sales between enterprises, the Planning Office continued to employ the balance method to construct plans. Potential imports and domestic production were checked against exports and domestic consumption in order to generate balances for important commodity groups. If an imbalance seemed likely, the office attempted to reduce demand by pressuring enterprise managers to rethink their planned usage in the coming year and to increase supply by pushing managers of producing firms to raise planned production levels. This pressure was applied during bilateral conversations between representatives of the Planning Office or the Ministry of Industry and enterprise managers.

\[3\text{For example, the Parliament conducted a very sharp debate on the 1987 budget and on the 1988 tax reforms. Increases in the military budget received particular criticism. Representatives protested the lack of information provided concerning military expenditures. They complained that the military received a real increase in funds in 1988 while other budgetary categories, such as health and education, experienced cuts. Minister of Finance Peter Medgyessy explained that a significant part of military expenditures were determined by international obligations ("Vekonyodo tarzak," Dec. 19, 1987, pp. 50–52).}\]

\[4\text{Crane, 1983.}\]
The National Bank of Hungary played an increasingly important role in the reformed system in Hungary. After 1968, loans began to replace grants as the primary source of investment for industrial enterprises. The bank began to play an important role in vetting investment projects. The bank directed investment flows to projects favored by the central authority by granting subsidized credits to enterprises participating in preferred government programs and by rationing funds.

In 1987, the bank's functions were divided among several new commercial banks and a single, money-issuing central bank. The new commercial banks were expected to assess enterprise investment plans with an eye to expected rates of return, and the central bank was to control monetary policy. The commercial banks could be joint stock companies owned by enterprises and the central bank or directly controlled by the central government. Private individuals were not permitted to own shares. Although the new banking system was substantially different from the monobank characteristic of most other centrally planned economies, the ownership of the new banks (enterprises and the central bank) took into consideration factors other than risk and rate of return in determining the bank's operation. However, during their first year of operation, the banks took a much harder-nosed attitude toward loss-making enterprises than the old monobank did.\(^5\)

In 1980, Hungary combined the Ministry of Heavy Industry, the Ministry of Light Industry, and the Ministry of Metallurgy and Machinery into a single Ministry of Industry and simultaneously halved the number of employees.\(^6\) After the merger, branch industrial interests generally did not have a spokesman at the ministerial level, although the Ministry of Industry was organized according to industrial branches. The Ministry of Agriculture and Food, the Ministry of Public Construction and Urban Development, the Ministry of Transportation, and the postal service also supervised industrial enterprises.

In contrast to Poland and other CMEA members, Hungary did not have an intermediate level of associations between the ministries and the enterprises. This was in part because of the very large size of many Hungarian enterprises in relation to the market's size, a product of a series of centrally directed mergers that began in the mid-1960s and continued throughout the 1970s.\(^7\) So few large enterprises remained that ministry officials could maintain direct contact with directors without the need for an intervening level. Some trusts, which

---


\(^6\)Communiqué from Tamas Toth, professor of marketing, Karl Marx University, Budapest.

\(^7\)Revez, 1979.
operated more like large enterprises than industrial associations, continued to operate, but most were liquidated in 1980; only seven remained in the late 1980s.\(^8\)

The Ministry of Defense oversaw total armed forces of 106,000 and a 22,000-man air force. Until 1987, the army consisted of six divisions but was then reorganized into a brigade structure. The ministry’s budget stagnated in real terms of constant prices during the first half of the 1980s.\(^9\)

**POLICIES AND POLICY INSTRUMENTS**

As in Poland, the central authorities in Hungary pursued a variety of often contradictory policy goals: full employment, low inflation, regional development, maintenance of the current pattern of income distribution, increases in real wages, foreign creditworthiness, and, of course, economic growth. These goals were dictated in part by ideology (such as the goal of no unemployment) but primarily by the desire to maintain popular acquiescence to continual one-party rule. Also as in Poland, many often incompatible policy instruments were adopted in pursuing these policy goals. We discuss below the particular goals and the manner in which they have been pursued.

**Monetary and Fiscal Policy**

Hungary was one of the first CMEA countries to accept open inflation; with the exception of Poland, it had higher reported rates than did the other countries. Nonetheless, low inflation rates were also an important policy goal, partly because policymakers believed that market equilibrium was more difficult to maintain in a period of rapid inflation\(^10\) and partly because of memories of the hyperinflation Hungary experienced after both world wars. Consequently, monetary policy has been less accommodating in Hungary than in Poland.

This said, until 1987 and the breakup of the Hungarian National Bank, monetary policy in Hungary was more passive than active. Although the central authorities raised interest rates to reduce investment demand, they relied more on incomes, fiscal policies, and credit rationing to control aggregate demand.

This preoccupation with fiscal and income policies stemmed from enterprise behavior in the reformed system. Kornai (1980, 1986) notes

\(^8\)Crane, 1983.

\(^9\)Crane, 1987, p. 50.

that Hungarian enterprise managers faced very strong incentives to invest, which he calls *investment hunger*. Pushed by their superiors in the branch ministries to increase output and exports and improve quality, managers viewed investment as the principal means for achieving these goals. They also faced few disincentives to invest. The central authorities provided a large share of investment funds in the form of grants or loans at concessionary interest rates so investment was relatively cheap for many managers. The central authorities were also willing to bail out enterprises experiencing difficulties repaying loans. Consequently, enterprises faced what Kornai calls a "soft budget constraint"—they did not suffer the financial consequences of poor investment decisions. Demand for investments, although not infinite, exceeded available resources; it was not constrained on the enterprise side.

The central authorities, on the other hand, apparently went through cycles in which constraints on investment were tightened and relaxed. These investment cycles, identified by Bauer (1981) and other scholars, closely followed five-year plans: During the first years of the plan, the central authorities increased pressure on enterprises to attain plan goals and simultaneously relaxed curbs on investment. Investment demand rose. Because of controlled prices, shortages of construction materials and services appeared and the trade balance deteriorated as imports of machinery rose. Subsequently, the central authorities deemphasized growth in favor of equilibrium and placed constraints on investment. New investments were curtailed and shortages somewhat eased.

In Hungary, the government imposed these constraints through administrative and fiscal policies. During periods of rising investment, it accommodated increased demand for goods and services by borrowing from abroad to finance increased imports, and the central bank accommodated increased demand for cash balances. Austerity was imposed by reducing enterprise assets through confiscatory measures. The Ministry of Finance frequently levied retroactive taxes and expropriated reserve and investment funds from enterprises. For example, despite a law promulgated in the 1970s forbidding the state to take capital from an enterprise, in 1983 the government took 27 million forints from the 45 million–forint reserve fund of the Egyesult Vegyimuvek (a chemical company), levied taxes of 5 million forints on previously taxed income, and forced the enterprise to purchase government bonds with the remaining 13 million forints. In 1985, the enterprise director requested the bonds from the Ministry of Finance and was informed they had yet to be printed. Furthermore, the bonds were to pay only 4 percent interest, while the firm was paying 14 percent on
bank loans. In other words, the government had confiscated part of the enterprise's savings. Of course these occurrences had a detrimental impact on the enterprise managers' faith in the long-term nature and consistency of government regulations.

Because of the soft budget constraint, the government tried not to allocate investment funds through interest rates alone. Enterprise managers were fairly insensitive to changes in interest rates because they could often successfully bargain for concessionary rates. Consequently, credit rationing was an important instrument for controlling the supply of money. Enterprises investing in areas favored by the central authorities or deemed important by the authorities were granted credits; enterprises without these connections were denied them. Thus, projects offering higher rates of return might be refused credits, while well-placed enterprise managers were able to procure funding for investments promising lower rates of return.

This somewhat strange set of policy instruments apparently enabled Hungary to avoid the very high rates of inflation in Yugoslavia and Poland and the severe shortages in Poland. Hungary did a better job than these two countries in drawing off liquidity and balancing the national budget through taxes. However, as we discuss below, the price was inefficient allocation of investment.

**Tax Policy**

Until 1988, the government collected the bulk of Hungarian taxes from enterprises either in the form of profit taxes or taxes on factors (capital and labor). Enterprises faced charges on their capital stock, wage bill, and profits. Profits taxes varied according to the funds for which they were to be used. Funds going into the revenue fund (savings) were taxed at much lower rates than funds placed in the development fund (investment) or funds for increasing wages. In addition, the government placed strictures on the share of profits that could be allocated to these funds. Until 1985, 40 percent of depreciation allowances were also taken by the state. Other major sources of revenue were social security taxes, turnover taxes (product-specific sales taxes), and tariffs.

In 1988, factor taxes were abolished and taxes on profits reduced. Lost revenue was replaced by imposing income taxes and value-added taxes (VAT). The former system leveled out enterprise performance: Profitable enterprises found that such large shares of their profits were

---

taken in taxes that little was left for increasing wages or investment. Loss-making enterprises were generally exempt from taxes. Consequently, restructuring slowed. Moreover, as the private sector and second jobs expanded, the state wanted to tax these additional incomes to mitigate income disparities. By replacing business taxes with an income tax and VAT, the state could impose a greater share of the tax burden on individuals with multiple incomes or who had higher-than-average levels of consumption.

**Incomes Policy**

For containing inflation, the counterpart to fiscal policy was incomes policy. Like Poland, Hungary attempted to control inflation by curbing wage increases through tax policies. It did so because the soft budget constraint, coupled with excess demand, greatly weakened incentives for managers to hold down wages. These policies were implemented through regulations concerning national ranges for wage rates for particular skills and skill levels.

Another mechanism was punitive taxes (such as PFAZ in Poland) ranging between 300 and 1500 percent on wage increases above levels administratively tied to increases in enterprise profitability. For example, if profits increased by 4 percent, average wages could be increased by a proportionate amount. If wages were increased by more than this amount, the increment was heavily taxed. Exemptions were frequently granted for enterprises that had increased hard-currency exports, conserved energy, or contributed to some other policy goal. In some cases, individual enterprises received exemptions if they faced financial problems.

In the 1970s, enterprise managers found regulations on increases in average wages the most troublesome. They frequently hired unskilled workers and other low-wage employees to drive down average wages and thereby make providing substantial wage increases to workers with scarce skills possible. Subsequently, the government permitted all enterprises to enter a different regime whereby the total wage bill, not average wages, increased in accordance with increases in profitability. If the number of workers declined, up to 30 percent of savings could be used to increase the remaining workers' wages without paying tax.

This new wage system sometimes generated perverse wage differentials. Enterprises with higher productivity and profit levels in an

---

industry often found generating further increases more difficult. Less profitable enterprises, on the other hand, were sometimes able to adopt new technologies and increase productivity levels and profits more rapidly. Because the enterprises had similar wage levels before the new system’s introduction, sometimes wages in less productive, less profitable enterprises became higher than wages in more productive, more profitable enterprises in the same industry. Furthermore, the system was set up so that two small increases in profits over two years would yield a higher overall increase in wages than if the entire increase came in one year. Consequently, enterprise managers tended to hoard “reserves” (possibilities for increasing productivity and profits), introducing changes slowly over time. Thus, this system of wages reintroduced the “ratchet” principle, so pervasive in Soviet-type systems, that slows efficiency improvements.

By 1988, the system had undergone several modifications, including the creation of a “wage club.” Enterprises meeting certain strict criteria—such as a 13 percent rate of return, disavowal of all subsidies, adherence to central price regulations, and substantial increases in hard-currency exports—could increase wages as they saw fit, subject to informing the National Board of Wages and Labor if the wage bill was to increase by more than 10 percent. Some 200–300 enterprises became members. However, despite more freedom for these enterprises, the other enterprises (and thus, most state employees) continued to be subject to central controls. In 1988, increases were limited to 2.5–3 percent.\textsuperscript{15}

\textbf{Price Policy}

The other half of an effective incomes policy is price policy. As we noted in the discussion on monetary and fiscal policy, the central authorities tried to control aggregate demand primarily through fiscal policies: by increasing tax revenue or cutting government expenditures, especially on investment. However, the government also attempted to control relative prices. The instruments it used in this case were price regulations.

It split retail prices into three groups: fixed prices, a group of flexible prices subject to central control, and market prices (which mainly existed in the private sector). As the private sector expanded, this third group of prices increased in importance, but the largest share of household income was still spent on goods falling under the second group of price regulations.

\footnote{National Bank of Hungary, 1988.}
Until 1980, most prices in the second group were set de facto on a
cost-plus basis. The government adopted this method because it was
unwilling to allow competition from imports for fear of bankrupting
domestic enterprises, while the monopolistic structure of many indus-
trial branches tended to preclude competition among them.

After 1980, the government introduced a new system for these goods.
Under this system, exporters received the export price for products sold
on both CMEA and hard-currency markets. For other products, things
got murkier. Products sold on the domestic market by firms that
exported more than 5 percent of total output to hard-currency markets
were priced at cost plus a profit margin determined by the average
profit margin the firm received on its hard-currency sales. Enterprises
in the same industry that did not export had their profit markups tied
to those of exporting enterprises. Producers producing import substit-
tutes could charge up to the substitute's import price. In effect, this
system tried to mimic market prices without a market.

Producer prices were also primarily determined in this way. How-
ever, raw materials were priced at world-market prices, and hard-
currency imports were priced at purchase price plus tariff and shipping
charges. Construction services and other products that did not have
internationally traded counterparts were priced at cost plus a profit
margin. Prices of agricultural goods were set centrally and designed to
make most farms profitable. On both producer and consumer-goods
markets, products that faced internal competition were generally traded
at market-clearing prices. However, price increases had to be
announced to the Materials and Price Commission, which in some
instances could postpone the increase for up to six months.

Investment Policy

As we noted above, excess demand for investment was a perennial
problem in Hungary, and in Kornai's view, a primary feature of a shortage
economy. Because resources for investment are finite, some mechanism
had to be devised to allocate them in the absence of markets.

The reform's original outline set three criteria for deciding upon in-
vestments: the enterprise management's desires, presumably determined
by what they saw as contributing to the enterprise's future profitability;
attainment of rates of return set by the national government (an exter-
nally imposed efficiency constraint); and investments that would contrib-
ute to the central authorities' preferences for economic development.16

Enterprise demand for investment was not infinite. Managers faced
a budget constraint imposed by past profits, a portion of which were

---

assigned to a development fund (60 percent of amortization also went into this fund), and by their ability to obtain bank loans. Moreover, managers of loss-making enterprises tended to be dismissed, so managers also faced potential sanctions if investments went awry. However, the wish to increase the enterprise's size or assure sources of supply frequently led to investments by enterprises with low rates of return, although centrally mandated rates of return excluded some marginally profitable investments by enterprise managers.

One mechanism the central authorities used to channel investments was central development programs. In these programs, specific industries or product lines were targeted for development. Enterprises that could insert themselves in the program were eligible for investment grants and bank credit. More important, they received priority in investment decisions, so when supply bottlenecks appeared, these enterprises had priority.

Priority was enforced through a system of import quotas and by tailoring taxes and subsidies to individual firms. Hungarian firms needed approval for imports from both ruble and dollar areas. Consequently, if an investment project involved importing machinery from one or the other trading areas, the enterprise could not proceed with the project unless it obtained import approval. Because a large share of machinery (some 50 percent) was imported, this policy instrument was effective. Enterprises involved in central development programs received approval easily; those outside the program had to queue. One Hungarian cooperative was unable to pursue a planned investment for several years because of its inability to get an import permit for the necessary machinery; the investment funds were in-house for the whole period.\footnote{Crane, 1983, p. 224.}

Taxes and subsidies differentiated by enterprise imposed priorities by confiscating development funds from low-priority enterprises and providing funds to high-priority users. Enterprises involved in central development programs frequently had their funds restored either through tax exemptions, investment grants, or access to bank credits.

Queueing was also important for construction services, as well as for import permits. Although materials were not as great a problem as in Poland and most other centrally planned economies (CPEs), Hungarian investment projects experienced the same long completion times. As elsewhere, construction projects were constrained by labor shortages and poor construction management.

The central authorities directly determined the other half of total investments.\footnote{Halmay, 1987, p. 55.} Decisions on centrally determined investments were
frequently determined by perceived needs or political criteria (regional development, CMEA obligations, favored industrial sectors) rather than by a thorough analysis of relative rates of return.

The National Planning Office in particular frequently focused on ensuring the supply of particular quantities without great regard for the costs of producing these quantities. This was partly an artifact of the office's brief: ensuring that planned allocations matched supplies. The emphasis on quantities had detrimental effects on investment policy. The National Planning Office focused on creating production capacities that would satisfy perceived quantity targets, rather than on choosing investments based on relative rates of return. Among other things, this led to expensive decisions to develop domestic energy resources in which Hungary did not have a comparative advantage, rather than to invest in manufacturing industries that could create the exports that would pay for expanded energy imports.

Employment Policy and the Reallocation of Labor

The major policy debates in Hungary in the late 1980s pertained to the mechanisms and policies by which factors of production were to be allocated. Of crucial importance were discussions on the allocation of labor, because employment policies struck at the core of the socialist economy.

From the late 1940s on, the Hungarian government followed a policy of full employment. This was defined as assuring each worker that he could retain his current job as long as he wished. Despite high rates of labor turnover in many industries, layoffs were almost unheard of.

The policy was implemented by generating permanent excess demand for labor. This was accomplished in part by keeping the relative price of labor low, both through the incomes policies we discussed above and through ministerial pressure not to allow layoffs. The converse of this was ministerial acceptance of poor profitability performance, if an enterprise argued that it was an important employer. For example, Ganz-Mavag (a locomotive producer), the steel works at Ozd, and the Csepel Trust (located in the working-class district south of Budapest) had long histories of endemic losses that were covered to forestall layoffs.

This state of affairs changed in the mid-1980s. The government made a commitment to restructure industry; job changes for up to 20 percent of the population were mentioned in the press. Although negligible by Western standards, unemployment was likely to grow worse as coal and steel centers faced substantial layoffs if the government continued to implement its plans to restructure industry.
Trade Policy

As Hungarians are prone to say, Hungary is a small country. This has meant that gains from trade are large and that Hungary can incur enormous opportunity costs by making mistakes in terms of comparative advantage. Consequently, the Hungarian government was much more concerned with gains from trade than was the Polish government. This is traceable to the larger role of trade in relation to output: exports were 33 percent of gross domestic product (GDP) in 1986; imports, 35.3 percent. In terms of net material product (NMP), these figures were 48 and 50 percent, respectively. Poland's corresponding figures for NMP were 25 percent for exports and 23 percent for imports. However, like Poland, Hungary's balance-of-payments problems, both ruble and hard currency, were a major policy concern. Stabilizing hard-currency debt and preserving foreign creditworthiness were important policy goals of the Hungarian government.

The central government recognized that successfully implementing the economic reform was a precondition for attaining this policy goal. Nonetheless, the foreign-trade sector presented it with several quandaries. First, Hungarian trade was split almost 50–50 between convertible-currency and ruble areas. Relative prices, quality demands, even contacts with customers differed in the two currency zones. Consequently, the government developed two sets of policy instruments for trade in the two areas.

Convertible-Currency Trade. In convertible-currency trade, exporters received the price at which their products were sold and importers paid the cost of importing the goods plus tariffs. In some cases (most notably agricultural products), exporters received subsidies as well. Consequently, the exchange rate was an important instrument for regulatory trade flows.

The Hungarians used a fixed exchange rate pegged against a basket of currencies. The rate was periodically devalued as the Hungarian government struggled to close the convertible-currency current account deficit.

The pursuit of the policy goal of full-employment weakened the exchange rate's efficacy in regulating the convertible-currency current account. In pursuit of full employment, the government propped up large employers by providing subsidies to loss makers and restricting imports of competing goods. Consequently, devaluation of the forint had a limited effect on the demand for imports for three reasons. First, most imports had few domestic substitutes, so little substitution occurred. Second, most imports were industrial inputs. The government had been unwilling to close production facilities. Import-
intensive production lines were not closed, even if a devaluation made
them unprofitable. Consequently, pressure on producers to reduce pur-
chases of imports was attenuated. Third, exporters often faced excess
demand on the domestic or CMEA markets. Despite a devaluation,
these markets frequently remained more profitable than hard-currency
markets, especially because relative prices did not diverge for long:
Enterprises could frequently raise prices charged on the domestic
market to the same level as prices on hard-currency markets after
devolution. Consequently, the government used other instruments to
control foreign trade.

In a 1982 survey of 28 enterprises, 23 managers cited bonuses tied to
increases in hard-currency exports as the most important reason for
exporting to hard-currency markets. Pressure from the Ministry of
Industry was the second most often cited reason. Of 28 interviewed
managers, only 5 cited profits as a reason to export.\textsuperscript{19}

In contrast to Polish enterprises, those of Hungary easily obtained
and exercised foreign-trade rights in hard-currency trade.\textsuperscript{20} By 1987,
hundreds of state-owned enterprises possessed foreign-trade rights for
convertible-currency markets. These enterprises engaged in direct con-
tacts with Western buyers and freely marketed and sold their wares.
In some instances, they were able to make their own purchases of
Western imports. However, these enterprises were usually limited to
specific product groups and given a convertible-currency quota; they
could not import more than a stipulated amount.

Some products, such as ferrous metals, intermediate chemical prod-
ucts, and agricultural products specified on a nationally published list
had to be traded through particular foreign-trade organizations (FTOs).
Military goods were one such item. According to the list, explosives
had to be exported through only one specified FTO. Military goods
could only be imported by one designated FTO. All other organiza-
tions were prohibited from trading in these products.\textsuperscript{21}

Despite the freedom Hungarian enterprises had to handle their own
convertible-currency exports, Hungary was a highly protectionistic
country. Tariffs were sometimes steep, but the most important mechanism for
controlling hard-currency imports was permits. Enterprise managers had
to apply for import permits. The Ministry of Foreign Trade, later a
branch within the Ministry of Trade, vetted these applications through a
panel composed of representatives from the relevant FTO and technical

\textsuperscript{19}Crane, 1983, p. 205.

\textsuperscript{20}Many Polish enterprises that possess foreign-trade rights did not make use of these
rights because rights are frequently granted only for incremental exports; exports to tra-
ditional clients and markets must be exported through former channels.

\textsuperscript{21}Barta, Sept. 26, 1987, p. 53.
representatives from the industry. Although requests were rarely formally turned down, enterprise managers found it difficult to convince the panel to approve an import request for any products for which nominal substitutes were available from domestic or CMEA sources. Screening times were also stretched out in periods when the central authorities were attempting to limit imports.22 Thus, enterprises were highly constrained in terms of suppliers.

**Ruble Trade.** Like weapons and ammunition, products going to CMEA markets were also controlled by the central authorities. Enterprises received export quotas to CMEA markets. In most cases, the foreign purchaser had a specific product or supplier in mind. In these cases, the Hungarian enterprise frequently faced a legal obligation to fulfill the quota. In other cases, a general quota for the product group was set and enterprises vied with one another to obtain a contract within the quota.

The selling country determined what Hungary was allowed to buy in intra-CMEA trade. Consequently, surpluses in ruble trade could not generally be converted into goods in demand. For this reason, the central authorities discouraged above-plan exports for transferable rubles. Such exports were rare—they entailed separate meetings by Ministry of Foreign Trade representatives to negotiate additional sales.

**Allocation of Inputs**

A major success of the reform was the center’s retreat from direct allocation of inputs with the exception of imports. Inputs were distributed through direct ties between enterprises. Products facing excess demand because of price controls or having only one domestic producer (many such products existed) were allocated by the supplier. The buyer queued for the product, but important customers or those willing to provide the supplier with additional services or payments could sometimes jump the queue. In general, buyers found suppliers unresponsive to their delivery and quality demands; others in the queue were willing to accept the product despite shortcomings, so buyers were in a poor position to bargain.

**THE ENTERPRISES**

The above section sketched the Hungarian central authorities’ major policy goals and the instruments they devised and distorted to achieve

---

these goals. Below, we examine how enterprises and their managers responded to these instruments.

Control of Managers

In contrast to the Polish reform, enterprises in Hungary were, for all intents and purposes, under the manager’s complete control, although the party committee also had an important voice. Trade unions functioned more like a transmission belt than a representative of workers’ interests, and until 1985, workers had no formal role in the enterprise’s control.

Workers’ Councils. A policy change occurred in 1985. Enterprises were divided into three classes. In small, state-owned enterprises (enterprises with approximately 100 employees), the employees elected the manager directly at a general assembly held at least once a year. These enterprises functioned much like cooperatives, although the workers had no direct property rights in the enterprise. In enterprises composed of many small shops, each shop elected delegates at a general assembly; the delegates then attended an assembly of delegates. The assembly elected the enterprise’s directors; the president became the chief executive officer (CEO).

In larger enterprises, the director was chosen by an enterprise council composed of employee representatives (at least half) and representatives of management (approximately two-thirds of whom were plant or division managers who had received their appointments based on their positions, and the rest of whom had been chosen by the director [see Table 3.1]). Representatives served a five-year term. The councils, which existed in 70 percent of all state-owned enterprises, could make decisions about the issue of bonds, transfer of assets, mergers, and important employment problems, in addition to choosing and evaluating the director. They had dispositional rights over the enterprise’s property. Aside from elected members, the secretaries of the enterprise’s party organs, of the trade union, and of youth organizations were nonvoting members of the council.

23 Although somewhat dated, a series of in-depth interviews about workers’ attitudes toward trade unions conducted by the Seventh and Eighth District Party Organization in Budapest in the early 1970s indicated that workers perceived the union as a transmission belt. In the words of one interviewee, “Under present circumstances I see no reason for a trade union.... We have a party, and a workers’ party, right, that represents the workers. We have a government that represents the workers’ state, then what is a third organization for, a decorative battalion... which can do nothing else than what they tell it to do?”

24 Mako, March 1987, mimeo.


26 Mako, March 1987, mimeo.
Table 3.1

ENTERPRISE COUNCIL COMPOSITION
(In percent)

<table>
<thead>
<tr>
<th>Responsibilities</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial total</td>
<td>Technical worker 52</td>
</tr>
<tr>
<td>High level</td>
<td>Economist 10</td>
</tr>
<tr>
<td>Medium level</td>
<td>Administrative worker 17</td>
</tr>
<tr>
<td>Low level</td>
<td>Manual worker 21</td>
</tr>
<tr>
<td>Nonmanagerial</td>
<td>21</td>
</tr>
</tbody>
</table>


The councils have a heavily managerial cast in practice as well as design. At the end of 1985, the first year in which they functioned, managers made up almost 80 percent of the membership (Table 3.1). Economists, administrative workers, or employees with technical backgrounds made up four-fifths of council membership. The remaining fifth was composed of workers, of whom three-fourths were foremen.27 Thus, the role of nonmanagement employees in the councils was very small.

Mako (1987) traced this low participation rate to the high opportunity cost of participation,28 the lack of information, and the consultative role of these councils. Major decisions were still made by the manager.

**Government Institutions.** Although workers’ councils ought to have weakened the central authorities’ role, Hungarian managers were still beholden to their branch ministries and other party and governmental organs. The branch ministries and parties could nominate management candidates; the ministries could still veto the appointment of managers and dismiss them once appointed. The central authorities could withhold or grant tax reliefs, subsidies, and import permits. Thus, the central authorities continued to wield much power over enterprises.

Control by these institutions extended beyond that stipulated in Hungarian law. Part of their control was exercised through the mass

---


28As noted above, most Hungarian workers have second sources of income (jobs, gardens, or workshops). Active participation in an enterprise council took time away from these activities, yet remuneration was poor.
media and the party. Enterprise managers were notified about new policy objectives through campaigns orchestrated through the mass media and party meetings. They paid attention to them in part because positive mention in the press was career enhancing, while negative comments were not. More important, campaigns indicated to enterprise managers what was important to their superiors in the ministry and other government organizations. Decisions made in conformity with these goals would be rewarded with better performance reviews, easier access to investments, and easier approval of requests for imports. Consequently, the whole apparatus of the party and the media influenced and controlled enterprise managers.

Some progress occurred in reducing the role of the ministry and nomenklatura in determining who filled management positions. Positions were supposed to be advertised openly and applicants were welcome; the councils ostensibly were to choose the most qualified individual.

**Stockholders.** After 1982, several twists were added to the Hungarian system. Enterprises began to issue stock. These moves were initiated by the leadership’s desire to lower barriers to entry and increase competition. In traditional CPEs, the formation of a new enterprise is an onerous process. In general, new enterprises are only formed when new factories are built, and the new facility sometimes receives a bureaucratic identity of its own. This has meant that new enterprises enter the economy only upon the completion of large investments.

Several scholars have traced the low rate of innovation and structural transformation in Hungary to the paucity of enterprises. The government chose to combat the slowdown in growth and convertible-currency balance-of-payments problems by encouraging the entry of new enterprises into markets. It hoped that the new entrants would force the whole industry to become more innovative and efficient through the force of competition.

At a time of investment cutbacks, however, the traditional method of creating new enterprises through investment was too slow. Instead, enterprises were encouraged to set up subsidiaries and joint ventures, thereby accelerating the rate of entry. The government permitted the creation of joint stock companies to encourage this process. In many instances, the parent company entered the new business in conjunction

---

29Sooä, 1986.
30For example, Revesz, 1979.
31The slowdown in factor productivity increases and Hungary's limited success in exporting machinery and manufactured goods have been traced to the lack of innovation and the low efficiency of Hungarian industry (Koeves, 1986, p. 209).
with other companies. The new company issued stock and each participant purchased a share, with a corresponding right to the new enterprise’s profits and capital. Sales of stock to private individuals were prohibited; many bonds, however, another new innovation, could be purchased by the public.

The program’s initial success led to its wide-scale adoption across Hungarian industry. The new banks, for example, took equity stakes in companies, and companies took equity stakes in the banks. The spate of joint ventures with Western firms consisted almost entirely of joint-stock companies.

Even established enterprises began to use this form of ownership. Medicor, a medical-supply company and one of Hungary’s two most successful enterprises (the other is RABA, a manufacturer of axles and diesel engines), split itself into ten companies. The parent enterprise became a holding company. Each subsidiary had at least seven owners, although most (about 95 percent) of each company’s capital was held by the holding company.

The parent planned to sell off 49 percent of each subsidiary’s stock over the following few years to raise capital. The enterprise’s director believed that the enterprise needed an infusion of capital. Current bank debt was too high, and modernization was essential; the current product line was not being modernized fast enough.32

Stock ownership determined who ran the company, although joint-stock companies had workers’ councils. Thus, this form of ownership ran counter to the introduction of workers’ councils, because worker control was attenuated by the existence of a legal proprietor. Some enterprises attempted to surmount this problem by issuing a species of preferred stock to employees. The stock granted the holder a share of profits but no voting rights; it also, however, generated a closer link between employees and enterprise ownership.

Managerial Objectives

Managerial incomes are the sum of three components: salaries, bonuses, and perquisites. In most cases, salaries were increasing functions of the enterprise’s size and the manager’s position in the enterprise hierarchy, not of enterprise profits. The central authorities categorized enterprises by size; the enterprise director’s salary was limited by the category into which his enterprise fell.33 This rule provided a partial explanation of Kornai’s observation of investment hunger:

\[33\] Interview data.
the enterprise increased output, managerial incomes rose, even if profits did not.

Bonuses, on the other hand, were not tied to gross output. Some 50–70 percent of the bonus was determined by an indicator tied to enterprise profits. The rest was determined by a complex evaluation made by the branch ministry, which determined how well the enterprise had responded to criteria the central authorities deemed important (such as increases in convertible-currency exports, reduction in energy usage, plant safety, and so on). The enterprise director set up similar schemes for his subordinates.

Bonuses were important. Hungarian managers received a much higher percentage of their income in the form of bonuses than did Polish managers. According to responses given in a series of 40 interviews with Hungarian managers, in 1982 bonuses averaged more than 50 percent of gross salaries. In 1988, the Hungarian Chamber of Commerce stated that on average, bonuses accounted for 57 percent of Hungarian enterprise directors' gross pay.

Perquisites were more important in Hungary than in the West, but because shortages were less prevalent in many consumer-goods markets than they were in Poland and elsewhere in the bloc, they were of lesser importance than in traditional centrally planned economies. Nonetheless, perquisites associated with position (such as a company car, contacts with individuals in the elite who could confer favors, and a well-located apartment) were also important incentives. Popper (1985) argues favors could best be pursued by maintaining cordial relationships with important members of the state bureaucracy, implying that managers faced strong incentives to acquiesce to ministerial pressures. The strength of this pressure was demonstrated in a study by the National Management Training Center, which found that both enterprise managers and ministry officials expected the director to fulfill the supervising agencies' demands at all times; economic results were of secondary importance.

Job tenure in Hungary was affected by performance. Enterprise managers were likely to be dismissed if their enterprises produced losses. Hungarian enterprise managers we interviewed stated that

---

34 The indicator is \( P/(W + K) \), where \( P \) = profits, \( W \) = the total wage bill, and \( K \) = fixed assets (Csikos-Nagy, 1982, p. 304).
38 Popper, 1985, p. 38.
losses led to management changes.\textsuperscript{40} According to articles in the Hungarian press, managers of several large loss-making enterprises have been replaced.\textsuperscript{41} These are significant sanctions.

Thus, Hungarian enterprise managers might face severe sanctions (job loss) if their enterprises lost money. Good profit performance was also an important determinant of the manager's bonus (a substantial part of total remuneration). On the other hand, half (or somewhat less) of the bonus depended on attaining objectives the central authorities deemed important (actual targets were set by the enterprises themselves), and the preservation of perquisites also depended to great degree on keeping ministry officials happy. Managers, therefore, apparently pursued profits subject to keeping their ministerial superiors pleased.

**Managerial Constraints**

This objective function appears similar to one that could be ascribed to managers of West European parastatals. Hungarian managers, however, operated in a far different environment than West European managers. Because of multiple constraints on obtaining input and output decisions, their responses to changes in markets tended to be much slower than those of their Western counterparts. Moreover, enterprise managers faced an unstable regulatory environment: new taxes were frequently applied retroactively. Consequently, like their Polish counterparts, Hungarian managers received a high payoff from successful lobbying efforts.

Managerial efforts, both those targeted at the market and the bureaucracy, were geared toward easing the constraints facing the enterprise. The most important constraints were:

**Labor.** In a 1982 survey of Hungarian exporters, labor shortages were the most important constraint on increases in exports and output.\textsuperscript{42} Managers would have willingly hired more labor at prevailing wage rates. Although unemployment was not a policy goal of the Hungarian reformers, continual excess demand for labor indicated that aggregate supply and demand were in disequilibrium and therefore that the problems of shortage and its accompanying efficiency costs were pervasive. After the severe reductions in investment in the 1980s and tight controls on incomes, Hungary finally saw a reduction in excess

\textsuperscript{40}Crane, 1983, p. 200.


\textsuperscript{42}Crane, 1983.
demand for labor. Between 1986 and 1987, unemployment increased, from 4613 to 9188. Although this number represented only 0.25 percent of the work force, in some regions (especially the northeast) both skilled new entrants and unskilled workers had difficulty finding jobs.43

Most of this group consisted of unskilled labor and individuals with poor employment records: Employers became more choosy and were reluctant to hire job applicants who showed several job changes in their employment books; this introduced implicit sanctions for workers with high rates of absenteeism.44 Workers from the countryside, often gypsies, no longer migrated to Budapest to the same degree. Employment bureaus and unemployment compensation schemes were set up. Retraining became of increasing importance. In the first half of 1987, 6100 more workers attended training courses than in the same period in 1986. However, most job changes were still voluntary; layoffs by employers ran only 10–12 percent of all quits.

The military contributed in a minor way to easing labor-market shortages. As in Poland, many Hungarian draftees worked in construction and heavy industry.45 Although not a popular move with the officer corps, hiring draftees provided unskilled labor in occupations that had been difficult to fill at prevailing wage rates.

Though excess demand for labor declined, some peculiar features of the market, stemming from the economic reform, made recruiting young people for career officer positions more difficult for the military. During the 1980s, an enormous expansion in moonlighting occurred. Many people maintained a job in the socialist sector to maintain health and vacation benefits while starting a business or working part-time in the private sector. Socialist enterprises encouraged the formation of internal cooperatives to perform maintenance or to produce after hours. The money paid these cooperatives (VGMK) was considered payment for services (a cost), not wages. In this way, the enterprise was able to sidestep wage regulations by farming out production.

Military personnel had no such opportunity to form cooperatives for maintenance and other work. They were also forbidden from taking a second job outside the military. Consequently, according to the director of the Hungarian People’s Army Career Guidance Department, they had problems recruiting young people. This problem was compounded by the retirement of commissioned and noncommissioned officers who had joined in the 1950s, a period in which recruiting was easy, as they

44“A legfrissebb adatok,” Jan. 9, 1988, p. 54.
reached the age 55 limit. The military responded by trying to make military life less strict, opening up new military high schools to widen the pool of applicants, and recruiting more aggressively. These efforts did not produce significant results. Thus, the reform significantly curtailed the army's ability to attract high-quality personnel.

**Capital.** Enterprises faced tight restrictions on access to capital. Although official figures indicate that enterprises decided on the allocation of 50 percent of Hungarian investment, one scholar found that enterprises could autonomously dispose of only 10 percent of the total volume of investment. The portion not directly determined by the central authorities was determined collaboratively by enterprise managers, the banks, and the Planning Commission. Until 1985, 40 percent of depreciation allowances went directly to the state. Profitable enterprises found expanding production very difficult and hence lost profitable opportunities. For example, a Hungarian manufacturer of plastic toys had difficulty in quickly procuring the necessary machinery to expand exports.

**Hard-Currency Imports.** A 1982 survey of exporters found that after labor shortages, the second most important constraint on increasing export production was the lack of convertible-currency imports. In light of continued convertible-currency balance-of-payments pressures and the decline in excess demand for labor, convertible-currency imports appeared to have become the most important economic constraint on increasing production in many enterprises. Hungarian appliance manufacturers complained of delays in procuring components. The manager of Medicor, a major hospital-supply company, stated that shortages of convertible-currency imports were a major problem.

**Other Inputs.** The Hungarian “background” industry (component and materials suppliers) was a major constraint on increasing hard-currency exports and output in the early 1980s and continues to be so today. Problems exist in obtaining parts on time and of appropriate quality and assortment. This problem has resulted from de facto quotas on imports. The government effectively denied enterprises the right to import components if the components were produced domestically. Consequently, domestic producers frequently faced excess

---

46"Exclusive Interview with Comrade Brigadier General Desso," March 1986, pp. 4-5.
47Fink, 1982, p. 375.
49Crane, 1983.
demand and had little need to make delivery deadlines or improve quality. In many cases, although pressed, they were unable to satisfy the demand for various components, although ministerial and customer pressure forced them to produce a wider range of products than they would have preferred. Consequently, they have frequently run high-cost, low-volume production lines. As noted by a manager in a foreign-trade organization, sales volume in the Hungarian textile industry has been approximately equivalent to domestic consumption, but too many products are produced. Manufacturers need to specialize. More should be exported, and more should be imported so unprofitable product lines may be dropped.

**Technology.** Hungarian enterprise managers have also complained of administrative barriers in procuring and introducing new technologies. In the 1970s, the Lehle Refrigerator Enterprise succeeded in exporting significant numbers of refrigerators to Western markets after purchasing several licenses from Western companies. Licenses have not been renewed in recent years because obtaining ministerial approval for the necessary hard currency has been impossible. Not surprisingly, this has had detrimental consequences for hard-currency exports. Hungarian exports of appliances, including refrigerators, fell from $40 million in 1985 to $27 million in 1986.\(^{53}\) New legislation to encourage joint ventures was implemented to partially circumvent these barriers by encouraging Hungarian enterprises to obtain technologies and equipment directly from foreign partners.

**Regulatory Constraints.** Kornai (1986) has shown that regulations, especially on taxes and subsidies, markedly constrained managerial freedom and distorted incentives. One major problem was the redistribution of income from profitable enterprises to loss makers, which served to level out posttax, postsubsidy enterprise performance. Successful enterprises and enterprise managers received few rewards for their efforts, while unsuccessful ones were not effectively penalized. The extent of this redistribution is evident in Table 3.2. As we can see, more than three-quarters of loss-making firms became profitable after tax rebates and subsidies, while 40 percent of highly profitable enterprises became loss makers or low-profit enterprises.

Some enterprise managers were also bound by directives. In general, plan targets were nonbinding. However, enterprises were legally bound to fulfill military-goods orders. These orders were issued in the form of directives. Enterprises could also be issued legally binding directives to export products to the CMEA market.\(^{54}\)

---


\(^{54}\) Bacskai.
Table 3.2

TRANSITION PROBABILITIES RESULTING FROM FISCAL REDISTRIBUTION IN THE STATE SECTOR OF MANUFACTURING IN 1982

<table>
<thead>
<tr>
<th>From Original Profitability</th>
<th>Loss Maker</th>
<th>Low Profitability</th>
<th>Medium Profitability</th>
<th>High Profitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss maker</td>
<td>0.233</td>
<td>0.500</td>
<td>0.122</td>
<td>0.145</td>
</tr>
<tr>
<td>Low profitability</td>
<td>0.038</td>
<td>0.853</td>
<td>0.103</td>
<td>0.006</td>
</tr>
<tr>
<td>Medium profitability</td>
<td>0.000</td>
<td>0.734</td>
<td>0.206</td>
<td>0.060</td>
</tr>
<tr>
<td>High profitability</td>
<td>0.008</td>
<td>0.394</td>
<td>0.515</td>
<td>0.063</td>
</tr>
</tbody>
</table>


NOTE: Transition means the proportion of firms in any given original profitability class that became members of a given final profitability class because of fiscal redistribution. The transition from "original" to "final" profitability means the transition from the pretax and presubsidy position to the posttax and postsubsidy position.

ASSESSING THE REFORM

Managerial Assessment

Hungarian managers are an outspoken group. Their opinions on the reform have been published in various journals. Although we were unable to obtain recent surveys of enterprise managers' opinions on the reform like those conducted by Wojciechowska in Poland, we have used newspaper interviews and a series of in-depth interviews conducted in 1982 to present a managerial assessment of the reform.

The director of Medicor voiced the most telling criticism of the reform. He said he was unable to resign himself

... to the fact that economic regulation, despite all protests to the contrary, retains its base-period approach and continues to favor the average enterprise whose performance is mediocre. And that informal contacts may count more than economic results.66

The frustrated manager of the pharmaceutical company Chinoin, who had turned his own enterprise around, held a similar view:

It is unfortunate that professional arguments and the play of market forces are not sufficient to settle matters. Personal connections occasionally prove to be more effective. When I see such two-faced

behavior on the part of a central agency, I ask, "How long can enterprise independence last?" 56

These problems were cited by Hungarian economists, government officials, and other enterprise managers as well.

Another common criticism of the reform voiced by enterprise managers was regulatory instability. 57 Managers complained about the ex post imposition of taxes and regulations. In effect, they argued that they played the game by the rules and then the rules were retroactively changed. Managers of well-performing companies found no way they could win.

Another major complaint was the lack of fund fungibility. The central authorities ruled that profits and depreciation had to be placed in various funds, which could only be used for specific purposes. Taxes were levied at differential rates on the funds. Consequently, managers found their hands tied when they wished to restructure their operations.

Another frequently voiced complaint was the stipulation to satisfy the domestic market with products. 58 Enterprise managers frequently complained that this provision prevented them from profitably changing their production profiles. This provision was antithetical to the reform and greatly constrained managerial freedom.

Enterprise managers continued to identify the import permit system as a major deficiency of the reform. 59 The manager of Chinoind pointed out that the inability to import packaging machinery and materials constrained export and other sales. 60 He also wished to expand capacity but stated that would be impossible.

Another major management complaint was the poor quality of Hungary's component and materials industry. 61 This was a consequence of strictures on imports, which effectively closed off competition because of government desires to maintain production of loss-making lines. Enterprises were loath to invest in these activities. Consequently, output tended to be of lower quality, and both buyers and sellers were unhappy with the forced marriage.

57 "A jo fokonyvelo annyi nyeresget hozhat mint ezer munkas: Valasztol egy Valla-
On the other hand, not all the faults of Hungarian industry may be laid at the feet of the central authorities or the reform's design. Several managers sharply criticized their predecessors' management; they did not attribute their enterprises' problems to the reform. For example, managerial assessments of financial problems at the Lang Machinery Factory, Tungram, Ganz-MÁVAG, Csepel Industries, and elsewhere focused on overinvestment, disregard for costs, and tardy introduction of new products. Of course, this assessment offers an implicit criticism of the reform: The mechanisms designed to forestall these problems did not function properly. Consequently, the enterprises developed severe financial problems.

**Economic Performance**

**Increasing Productivity.** The primary purpose of the reform in Socialist industry was to increase productivity—or, in CMEA parlance, to move from extensive to intensive sources of growth. Consequently, the reform's success must be measured in part by the Hungarian economy's relative performance in terms of productivity.

In contrast to the measures of change in Polish factor productivity, comparisons of prereform and postreform factor productivity growth did not seem very illuminating: The reform was in existence too long, the pre-1968 data were too poor, and the world economy changed too much from the mid-1960s to allow revealing comparisons of factor productivity growth in the 1950s and early 1960s with those in the 1970s and 1980s. Consequently, we chose a comparative approach to make this test: We compared Hungarian productivity growth with that of three other CMEA countries, two that had centrally planned economies and that had chosen not to introduce economic reforms—Czechoslovakia and the GDR—and Poland. We argue that if Hungary had not adopted the economic reform, its development pattern could well have mimicked that of one of these countries. If the Hungarian reform was successful, its productivity growth should have been superior to that of these countries operating under alternative models.

We restricted the comparison to these three countries for three reasons. First, Romanian (and, to a lesser extent, Bulgarian) data are so poor and output series contain such upward biases that comparisons would be deceiving. Second, all three countries are fairly similar to Hungary in terms of level of economic development. Third, Czech and Polish data are fairly reliable, although GDR net output figures are

---

biased upward because of unrealistic price indexes that mask real inflation.\textsuperscript{63}

We used four measures for the test: average annual changes in labor productivity, capital productivity, total factor productivity, and energy usage. We computed labor and capital productivity measures by dividing NMP produced by industry by the industrial labor force and capital stock, respectively. We were unable to divide either the capital stock or NMP into Socialist and private components, so we have lumped these together; the labor force is for the Socialist sector only. The private sector had such a small role in industry in these countries (less than 2 percent) that this distortion is unlikely to have affected the results. We computed total factor productivity growth by estimating factor shares in net output through a Cobb-Douglas production function (see App. A.). The models for the four countries provided very different estimates.\textsuperscript{64} Poland and Czechoslovakia generated negative or very small coefficients. Consequently, we used only East German and Hungarian weights to estimate total factor productivity increases for the four countries.

The results are interesting. Despite the Hungarian economy's relatively slow growth in recent years, the country compares very favorably with Czechoslovakia and, less surprisingly, Poland in terms of total factor productivity growth. Using both Hungarian and East German weights, we found that Hungary outperformed both countries. Hungary also outperformed the GDR when we used East German weights (see Table 3.3).

The key to this performance is apparently the more efficient use of Hungarian labor; Hungarian labor productivity growth was the best of all four countries. The disturbing trends were for capital productivity. Hungarian industry apparently employed capital more poorly than did Czechoslovakia, and much more poorly than did the GDR.

The figures for energy usage are somewhat misleading. Czechoslovakia, the GDR, and Poland had very energy-intensive economies. Their economies became more efficient during the 1970s, but all three countries continued to have very high per-capita rates of energy consumption.\textsuperscript{65} Moreover, on an absolute scale, Hungary obtained some 25 percent more output per unit of energy than did Czechoslovakia in 1982. On the other hand, the GDR obtained 29 percent more output.

\textsuperscript{63}Vanous, 1987; Kosta, 1988, p. 8.

\textsuperscript{64}After we imposed the constraint that the sum of the coefficients on capital and labor equaled one, labor shares for Czechoslovakia, the GDR, Poland, and Hungary were 0.94, 0.74, 0.33, and 0.54, respectively.

\textsuperscript{65}Rostowski, 1988.
### Table 3.3

**COMPARATIVE PRODUCTIVITY GROWTH IN EASTERN EUROPE: 1968–1985**

(Average annual figures, in percent)

<table>
<thead>
<tr>
<th></th>
<th>Czechoslovakia</th>
<th>GDR</th>
<th>Poland</th>
<th>Hungary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreases in energy usage&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-1.73</td>
<td>-2.44</td>
<td>-0.29</td>
<td>-0.26</td>
</tr>
<tr>
<td>Changes in capital productivity</td>
<td>-1.42</td>
<td>-0.30</td>
<td>-2.16</td>
<td>-1.72</td>
</tr>
<tr>
<td>Changes in labor productivity</td>
<td>3.54</td>
<td>4.54</td>
<td>3.26</td>
<td>5.35</td>
</tr>
<tr>
<td>Changes in total factor productivity (East German weights)</td>
<td>2.23</td>
<td>3.26</td>
<td>2.01</td>
<td>3.47</td>
</tr>
<tr>
<td>Changes in total factor productivity (Hungarian weights)</td>
<td>1.23</td>
<td>2.28</td>
<td>0.80</td>
<td>2.04</td>
</tr>
</tbody>
</table>

<sup>a</sup>Vanous, 1987. The figures for energy usage are per unit of total NMP, not per unit of NMP produced by industry.

than did Hungary.<sup>66</sup> Rostowski also argues that various measures indicate that Hungary used 82–95 percent of the materials per unit of output that Czechoslovakia used in the mid-1970s (at adjusted factor prices).<sup>67</sup> In short, by several measures Hungary outperformed its neighbors in increasing total factor productivity.

**Capital Allocation.** As Table 3.3 shows, Hungary’s capital output ratio rose steadily after the introduction of the reform and at higher rates than did those of the GDR or Czechoslovakia—two small, unreformed, centrally planned economies. In other words, Hungarian planners made poor use of investments.

These figures reflect a major failure of the Hungarian reform: improving the allocation of investment. Despite central intentions, even after the reform’s introduction, most investments were still determined by the center. For example, in the first two decades of the reform, of the 50 percent of investments enterprise managers were to determine, only 20–30 percent were financed by retained earnings, and approximately 20 percent were financed by state grants (the rest was provided by the banks).

<sup>66</sup>These estimates are, of course, very rough. They were taken from Rostowski (1988), who calculates them using purchasing-power exchange rates.

<sup>67</sup>Rostowski, 1988.
Consequently, the central authorities had a voice, if not the overriding say, in determining investments even in areas nominally under enterprise control. In fact, the 10–15 percent of total investments determined solely by enterprise management was approximately equivalent to the share decided independently before the reform's introduction.\textsuperscript{68}

Fink (1982) argues that the pattern of investment in Hungary reflected incentives at both the enterprise and the national levels to invest in expanding capacities of existing enterprises—that is, few incentives to restructure existed. He tested his model on Hungarian investment and output data between 1960 and 1980 and found that investment was uncorrelated with either capital and machinery costs or output prices but was highly correlated with both increases in output in previous years. He argued that because factory managers were rewarded on the basis of enterprise size and for increasing output, investment was oriented toward expanding output rather than increasing economic efficiency.

Fink's results indicate that the existing structure of output was the primary determinant of the allocation of investment in the 1970s. We have conducted another test to determine whether rate of return has become an important factor in determining investment flows in the 1980s. In 1987, Figyelo, a Hungarian business and news magazine, ranked the 100 largest Hungarian enterprises by rate of return. To test whether rate of return appears to affect investment allocation, we divided these enterprises by industry and summed their ranks to construct an indicator of relative rates of return by industry. We then compared these average rankings with changes in investment shares between the last half of the 1970s and the pattern in the first half of the 1980s. Our hypothesis was that the more profitable industries should have experienced an increase in their shares of investment and less profitable industries a corresponding decline if investment was allocated on the basis of rate of return in the 1980s.

Table 3.4 contains the industries, investment shares, and rankings by rate of return. As we can see, machinery and chemicals (which include pharmaceuticals) showed the best performance; mining, metallurgy, and electric-power generation showed the worst. To test our hypothesis, we conducted a Spearman Rank Order test on changes in investment shares and rankings by rate of return. To reject the null hypothesis that investment is not allocated on the basis of rate of return, a significant negative correlation should exist between rank order and change in investment.\textsuperscript{69}

\textsuperscript{68}Halmay, 1987, p. 57.

\textsuperscript{69}Rankings range from 1 to 100, with 100 representing the enterprise with the worst rate of return. Consequently, the higher the industry's score, the more its share of investment should have declined.
Table 3.4
DISTRIBUTION OF HUNGARIAN INVESTMENT IN INDUSTRY

<table>
<thead>
<tr>
<th>Industry</th>
<th>Shares of Investment 1975–1980 %</th>
<th>Shares of Investment 1981–1985 %</th>
<th>Difference %</th>
<th>Rates of Return (average ranking out of 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>11.3</td>
<td>17.5</td>
<td>6.2</td>
<td>71.3</td>
</tr>
<tr>
<td>Electric energy</td>
<td>15.8</td>
<td>20.5</td>
<td>4.7</td>
<td>72.6</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>9.0</td>
<td>8.1</td>
<td>–0.9</td>
<td>72.3</td>
</tr>
<tr>
<td>Machinery</td>
<td>18.4</td>
<td>15.0</td>
<td>–3.4</td>
<td>28.5</td>
</tr>
<tr>
<td>Construction materials</td>
<td>6.2</td>
<td>3.7</td>
<td>–2.5</td>
<td>49.3</td>
</tr>
<tr>
<td>Chemicals</td>
<td>15.1</td>
<td>15.4</td>
<td>0.3</td>
<td>28.1</td>
</tr>
<tr>
<td>Light</td>
<td>9.0</td>
<td>7.8</td>
<td>–1.2</td>
<td>41.2</td>
</tr>
<tr>
<td>Other</td>
<td>1.1</td>
<td>0.9</td>
<td>–0.2</td>
<td>44.7</td>
</tr>
<tr>
<td>Food</td>
<td>14.1</td>
<td>11.1</td>
<td>–3.0</td>
<td>55.8</td>
</tr>
</tbody>
</table>

NOTE: The higher the number, the poorer the performance in terms of rate of return.

The correlation was positive, 0.395, with a p-value of 0.2928. In other words, if anything, industries with the worst rates of return increased their share of total investment. Industries with the best rates of return did not see an increase in their share of investment, reflecting Hungary’s continuing problems with the efficient allocation of investment in industry.

Kornai and Matits (as noted in Kornai [1986]) also found little relationship between profits and investments. They analyzed the results of all state-owned enterprises between 1975 and 1982 and found no relationship between rate of return or profits and subsequent investment levels. They also found no relationship between investments and subsequent profits. As Table 3.2 shows, a major reason for the lack of a link between the two is the state’s enormous role in redistributing profits from profitable firms to loss makers.70

Central pronouncements indicate that the goal of output growth has been replaced by the drive to push the convertible-currency current account into surplus, primarily by increasing exports. In pursuit of this goal, the Hungarian government set up a special fund for financing investments geared toward increasing exports. The program was generally considered a success: Enterprises participating in the program expanded exports 10 percent faster than the average increase in Hungarian convertible-currency exports. Most participants were able to

---

fulfill the terms of the loans concerning rate of return, profitability levels for the exports, and the fairly short repayment periods. The program had the additional benefit of making enterprises compete for funds. Before the program, investment funds tended to be allocated sectorally—each branch received an investment allocation, which it then allocated among the enterprises in the branch. In the case of the export program, enterprises competed against each other on an equal footing. On the negative side, enterprises participated in the program not to increase profits, but to procure scarce investment resources—that is, during this period, capacity expansion took precedence over profitability. Moreover, the increased exports recorded by participating enterprises were frequently generated from existing capacity, not new investment. In some instances, the investments were not even operational when the enterprise had to begin repaying the loan. Consequently, the investment program often worked more as a stimulus to export than to generate new, profitable export capacities in a short period of time.

Despite its successes, the program did not result in a reallocation of investment from nonexport to export sectors (see Table 3.5). In fact, the reverse occurred. The table indicates that the share of nonexport sectors such as mining and electricity production increased, while the shares of traditional hard-currency export sectors such as chemicals and food processing fell in the 1980s.

The funds’ failure to affect the reallocation of investment toward export industries in part resulted from the small share of total investment the funds represented—only 5 percent in the 1976–1980 period. But this leaves open the following question: If the Hungarian central authorities were no longer allocating investments to increase output uniformly across branches and were not allocating them on the basis of profitability (as Table 3.4 shows above) or export growth, what criterion did they use to allocate investments?

Table 3.4 provides an answer. As we noted above, despite the reform, Hungarian planners continued to use material balances for important commodities to guide the economy. Although enterprises were able to purchase freely most domestically produced inputs (though not imports), thereby ignoring these balances on an ongoing basis, investment decisions were based on the central authorities’ desire to eliminate balance shortfalls. For example, when the Soviet Union notified the Hungarians that petroleum supplies would not be increased during the 1980–1985 plan period and then unilaterally reduced these supplies by 10 percent in 1982, Hungarian planners were faced with

---

Table 3.5
SECTORAL NONRUBLE EXPORTS AND SECTORAL INVESTMENT

<table>
<thead>
<tr>
<th></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>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ing</td>
<td>Energy</td>
<td>urgy</td>
<td>neering</td>
<td>ing</td>
<td>ical</td>
<td>Ind.</td>
<td>Ind.</td>
<td>Ind.</td>
<td>estry</td>
</tr>
<tr>
<td>Sectoral export in % of sectoral production 1976-1980</td>
<td>1.9</td>
<td>0.5</td>
<td>21.9</td>
<td>11.7</td>
<td>7.0</td>
<td>12.8</td>
<td>11.2</td>
<td>12.6</td>
<td>8.7</td>
<td>20.3</td>
</tr>
<tr>
<td>Sectoral export in % of industrial and agric. export 1976-1980</td>
<td>0.7</td>
<td>0.1</td>
<td>14.6</td>
<td>20.9</td>
<td>1.6</td>
<td>14.6</td>
<td>13.7</td>
<td>16.5</td>
<td>17.5</td>
<td>33.9</td>
</tr>
<tr>
<td>Sectoral investment in % of ind. and agric. investment 1970-1978</td>
<td>7.0</td>
<td>9.6</td>
<td>5.4</td>
<td>12.3</td>
<td>5.2</td>
<td>12.8</td>
<td>8.9</td>
<td>8.8</td>
<td>29.8</td>
<td>38.6</td>
</tr>
<tr>
<td>Sectoral investment in % of ind. and agric. investment 1979-1985</td>
<td>11.5</td>
<td>14.2</td>
<td>6.6</td>
<td>11.3</td>
<td>3.0</td>
<td>10.3</td>
<td>6.2</td>
<td>8.5</td>
<td>28.5</td>
<td>37.0</td>
</tr>
<tr>
<td>Shift of the above proportions between the two periods</td>
<td>4.5</td>
<td>4.6</td>
<td>1.2</td>
<td>-1.0</td>
<td>-2.2</td>
<td>-2.5</td>
<td>-2.7</td>
<td>-0.3</td>
<td>-1.3</td>
<td>-1.6</td>
</tr>
</tbody>
</table>


NOTE: Proportions do not add up exactly to 100 percent because figures are rounded.

Growing imbalances in the energy sector. Simultaneously, convertible-currency balance of payments pressures made importing petroleum for convertible currency as originally planned in the 1970s very difficult. Planners responded by investing in coal mines and nuclear energy with little regard for rates of return; they were fixated on increasing domestic energy output in order to eliminate the energy shortfall. Consequently, investments were diverted from sectors with higher rates of return and from convertible-currency export producers to the mining and power-generating sectors. The cost of these decisions was continuing increases in the capital/output ratio, little progress in energy conservation (because funds were used to produce energy rather than to invest in energy conservation equipment), and continued loss of
Hungary’s share of Organization for Economic Cooperation and Development (OECD) markets for manufactures as Hungarian products failed to keep pace with the competition.

Restructuring. One way to improve economic efficiency is to restructure: to transfer labor and capital from industries in which a country fails to have a comparative advantage to ones in which it does. This has been a major goal of the Hungarian reform. Traditionally, income differentials and investments have been the primary mechanisms by which centrally planned economies reallocate labor and capital. Another mechanism, closing down plants, has been looked at askance because it implied layoffs. A major tenet of socialism has been that unemployment would be eliminated. Avoiding layoffs has been one means by which this goal has been pursued.

As economic growth in Hungary slackened and improvements in economic efficiency declined, policymakers paid increasing attention to closing factories as a way to restructure more rapidly. They also viewed the threat of closure as a stick by which to encourage enterprises to improve efficiency. Consequently, in September 1986 a new law on bankruptcy was passed permitting creditors, not just legal owners (the ministries), to initiate bankruptcy proceedings.

Results after the first year were modest. Of 212 enterprises that lost a total of 9.8 billion forints in 1986, only eight bankruptcies occurred, and only three enterprises were actually liquidated and had their assets sold to other enterprises or the public. In the other five cases, the government or creditors provided the enterprises with a new lease on life through cash infusions or extensions of current loans.

These five enterprises were the Lang Machinery Factory, the Tata-banya Coal Mines, the Mecsek Coal Mines, the Soroksar Foundry, and Ganz-MAVAG. In most cases, subsidiaries were carved out of the parent firm and significant layoffs have ensued.

Creditors were reluctant to initiate bankruptcy proceedings because they were afraid the authorities would look on them with disfavor and retaliate against them in the future. Moreover, once proceedings were initiated, loans made to a bankrupt company were considered uncollectable and had to be deducted from the creditor company’s profits, thereby reducing management bonuses and workers’ wage raises. Moreover, many firms were dependent on troubled firms for supplies or sales. If the firms went bankrupt, the creditor could face serious problems in Hungary’s quota-filled economy importing the lost inputs from other sources because of not being able to obtain the necessary permits. In most cases, alternative domestic suppliers did not exist.

---

72 In 1987, approximately 5–10 percent of all enterprises lost money in any one month.
The government was reluctant to initiate proceedings because it was then called upon to provide support for restructuring. Consequently, no one pulled the plug.\textsuperscript{74} The government could also decide not to liquidate enterprises for reasons of international contracts, problems of too much unemployment, or reasons of national defense.\textsuperscript{75}

**Convertible-Currency Trade Performance.** We have evaluated Hungarian industry's performance against other members of the CMEA using the capital, labor, and output series provided by the statistical offices of these countries. As we noted above, some of these series—GDR output statistics in particular—are less than reliable. As an alternative test, we have employed changes in the shares of OECD markets for manufactured goods taken by exports from these countries and China. Because all four CMEA countries applied administrative pressure and substantial incentives for enterprises to increase exports of manufactures, we hypothesize that changes in OECD market shares should have reflected the competitiveness of that country’s industry. If the Hungarian reform was successful in making Hungarian industry more efficient and adaptable than that of its fellow members in the CMEA, Hungarian industry should have done a better job of maintaining or increasing its share of OECD markets than Czechoslovakia, the GDR, and Poland.

We compared OECD market share for chemicals (Standard International Trade Classification [SITC] 5), manufactured goods (SITC 6), machinery (SITC 7), and consumer goods excluding foodstuffs (SITC 8). (See Table 3.7, below.) Some articles in SITC 6, such as refined copper and silver, are not as heavily processed as articles in SITC 7 and 8. For this reason, we ascribed more importance to changes in market share in the latter two categories because CPEs have traditionally had greater difficulty in exporting manufactures to hard-currency markets than commodities.

We chose the OECD rather than the non-Socialist world market because the East European countries sell the bulk of their hard-currency exports to OECD countries, especially Europe, and because the OECD is considered the most competitive export market. Moreover, by using OECD import data to measure trade flows, we eliminated (with one caveat) the problem of converting the East European currencies into a single denominator and also ensured that all commodities were grouped according to the same classification system.

The one problem we encountered was the exclusion of East German trade with the Federal Republic of Germany (FRG) from OECD

\textsuperscript{74}Babus, Sept. 12, 1987, pp. 50–51.
statistics. We dealt with it by converting FRG-GDR trade as reported by the FRG into dollars and adding in this nonreported trade. Because in many years the GDR conducted more than half its hard-currency trade with the FRG, omitting this trade would have severely biased our results. This correction should have solved the problem.

The results of our study are shown in Table 3.6. As can be seen, the East European CMEA slightly increased its share of total OECD imports between the 1970–1975 period and the 1981–1985 period. However, the entire increase was accounted for by the Soviet Union. The four East European countries all lost market share. Of the four, the GDR fared best, losing less than 5 percent of its 1970–1975 share (0.02 percentage points of the OECD market). Hungary lost approximately one-fifth of its market share; Czechoslovakia, one-third; and Poland, almost one-half.

These changes partially stemmed from shifts in relative prices. The large increase in the value of oil in the early 1970s accounted for the increase in Soviet market share, as well as that of the Middle East. However, the major reason for the decline in East European shares was competition from other non-OECD suppliers, especially the newly industrialized countries (NICs). The share of CMEA exports to the OECD in total exports to the OECD from outside the region fell from 11.3 to 10 percentage points. As Poznanski (1986) shows, the NICs have taken market share from the European CMEA in manufactured goods. Declines in consumer goods (SITC 8) and machinery and transport goods (SITC 7) were even more marked. The European CMEA share of the OECD import market for consumer goods fell from 16 to 7 percent and 27 to 8 percent of the machinery market between 1970–1975 and 1981–1985.

The East European members of the CMEA did not lose corresponding shares of all OECD imports because of their exports of petroleum and other primary energy forms. Because only Poland—and, to a lesser extent, Czechoslovakia—has large reserves of coal or other energy carriers, this trade presents a puzzle. In the case of East Germany, Hungary, and to some extent Czechoslovakia, it represented reexports of oil or the export of petroleum products refined from imported crude oil. The importance of this trade is staggering. In 1985, 24 percent ($1192 million) of GDR's exports to the OECD (including West Germany) consisted of energy. Similar figures for Czechoslovakia and Hungary were 15 percent ($393 million) and 12 percent ($316 million), respectively. Because the profitability of exporting refined products is highly variable depending on fluctuations in the price of crude oil and refined products, these three countries were very vulnerable to sudden changes on the international oil market.
<table>
<thead>
<tr>
<th>Years</th>
<th>Total</th>
<th>Non-OECD CMEA</th>
<th>GDR</th>
<th>Hungary</th>
<th>Czecho-lovakia</th>
<th>Poland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1965 only</td>
<td>27.93</td>
<td>3.25</td>
<td>0.46</td>
<td>0.22</td>
<td>0.34</td>
<td>0.51</td>
<td>0.46</td>
</tr>
<tr>
<td>1970–1975</td>
<td>27.10</td>
<td>3.02</td>
<td>0.41</td>
<td>0.24</td>
<td>0.30</td>
<td>0.50</td>
<td>0.41</td>
</tr>
<tr>
<td>1976–1980</td>
<td>33.07</td>
<td>3.23</td>
<td>0.37</td>
<td>0.21</td>
<td>0.24</td>
<td>0.47</td>
<td>0.49</td>
</tr>
<tr>
<td>1981–1985</td>
<td>32.92</td>
<td>3.25</td>
<td>0.39</td>
<td>0.19</td>
<td>0.21</td>
<td>0.28</td>
<td>0.93</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>4.52</td>
<td>0.24</td>
<td>-0.02</td>
<td>0.05</td>
<td>-0.10</td>
<td>-0.22</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>Fuels and Lubricants (SITC 3)</td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970–1975</td>
<td>74.99</td>
<td>4.98</td>
<td>0.18</td>
<td>0.03</td>
<td>0.21</td>
<td>0.91</td>
<td>0.19</td>
</tr>
<tr>
<td>1976–1980</td>
<td>79.17</td>
<td>5.76</td>
<td>0.25</td>
<td>0.04</td>
<td>0.13</td>
<td>0.59</td>
<td>0.51</td>
</tr>
<tr>
<td>1981–1985</td>
<td>71.26</td>
<td>7.65</td>
<td>0.43</td>
<td>0.08</td>
<td>0.14</td>
<td>0.32</td>
<td>1.22</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>-3.74</td>
<td>2.67</td>
<td>0.25</td>
<td>0.04</td>
<td>-0.07</td>
<td>-0.59</td>
<td>1.03</td>
</tr>
<tr>
<td></td>
<td>Chemicals (SITC 5)</td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970–1975</td>
<td>7.38</td>
<td>2.42</td>
<td>0.68</td>
<td>0.21</td>
<td>0.27</td>
<td>0.33</td>
<td>0.44</td>
</tr>
<tr>
<td>1976–1980</td>
<td>7.82</td>
<td>3.04</td>
<td>0.62</td>
<td>0.27</td>
<td>0.25</td>
<td>0.27</td>
<td>0.42</td>
</tr>
<tr>
<td>1981–1985</td>
<td>9.58</td>
<td>2.96</td>
<td>0.74</td>
<td>0.30</td>
<td>0.30</td>
<td>0.18</td>
<td>0.78</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>2.20</td>
<td>0.55</td>
<td>0.06</td>
<td>0.09</td>
<td>0.04</td>
<td>-0.15</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>Manufactures (SITC 6)</td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970–1975</td>
<td>15.98</td>
<td>2.52</td>
<td>0.41</td>
<td>0.25</td>
<td>0.50</td>
<td>0.43</td>
<td>0.43</td>
</tr>
<tr>
<td>1976–1980</td>
<td>18.09</td>
<td>2.88</td>
<td>0.37</td>
<td>0.24</td>
<td>0.45</td>
<td>0.50</td>
<td>0.56</td>
</tr>
<tr>
<td>1981–1985</td>
<td>20.07</td>
<td>2.46</td>
<td>0.46</td>
<td>0.22</td>
<td>0.39</td>
<td>0.35</td>
<td>1.03</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>4.09</td>
<td>-0.06</td>
<td>0.05</td>
<td>-0.04</td>
<td>-0.10</td>
<td>-0.07</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>Machinery (SITC 7)</td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970–1975</td>
<td>4.09</td>
<td>1.06</td>
<td>0.29</td>
<td>0.07</td>
<td>0.22</td>
<td>0.18</td>
<td>0.01</td>
</tr>
<tr>
<td>1976–1980</td>
<td>6.26</td>
<td>1.14</td>
<td>0.25</td>
<td>0.10</td>
<td>0.15</td>
<td>0.29</td>
<td>0.01</td>
</tr>
<tr>
<td>1981–1985</td>
<td>9.08</td>
<td>0.72</td>
<td>0.19</td>
<td>0.09</td>
<td>0.10</td>
<td>0.13</td>
<td>0.04</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>4.99</td>
<td>-0.34</td>
<td>-0.09</td>
<td>0.02</td>
<td>-0.11</td>
<td>-0.06</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Consumer Goods (SITC 8)</td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970–1975</td>
<td>18.79</td>
<td>3.18</td>
<td>1.17</td>
<td>0.43</td>
<td>0.46</td>
<td>0.43</td>
<td>0.54</td>
</tr>
<tr>
<td>1976–1980</td>
<td>27.04</td>
<td>3.09</td>
<td>0.98</td>
<td>0.44</td>
<td>0.37</td>
<td>0.50</td>
<td>0.82</td>
</tr>
<tr>
<td>1981–1985</td>
<td>32.32</td>
<td>2.22</td>
<td>0.72</td>
<td>0.31</td>
<td>0.27</td>
<td>0.28</td>
<td>1.99</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>12.53</td>
<td>-0.96</td>
<td>-0.45</td>
<td>-0.12</td>
<td>-0.20</td>
<td>-0.15</td>
<td>1.44</td>
</tr>
</tbody>
</table>
Table 3.7
EUROPEAN CMEA AND CHINESE SHARES IN OECD IMPORTS FROM NON-OECD AREAS
(Percent)

<table>
<thead>
<tr>
<th>Years</th>
<th>CMEA</th>
<th>GDR</th>
<th>Hungary</th>
<th>Slovakia</th>
<th>Poland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1965 only</td>
<td>11.65</td>
<td>1.65</td>
<td>0.79</td>
<td>1.21</td>
<td>1.84</td>
<td>1.65</td>
</tr>
<tr>
<td>1970–1975</td>
<td>11.30</td>
<td>1.55</td>
<td>0.91</td>
<td>1.15</td>
<td>1.87</td>
<td>1.50</td>
</tr>
<tr>
<td>1976–1980</td>
<td>9.76</td>
<td>1.13</td>
<td>0.65</td>
<td>0.73</td>
<td>1.41</td>
<td>1.49</td>
</tr>
<tr>
<td>1981–1985</td>
<td>10.03</td>
<td>1.20</td>
<td>0.59</td>
<td>0.64</td>
<td>0.96</td>
<td>2.89</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>-1.27</td>
<td>-0.35</td>
<td>-0.32</td>
<td>-0.51</td>
<td>-1.01</td>
<td>1.39</td>
</tr>
</tbody>
</table>

Fuels and Lubricants (SITC 3)

<table>
<thead>
<tr>
<th>Years</th>
<th>CMEA</th>
<th>GDR</th>
<th>Hungary</th>
<th>Slovakia</th>
<th>Poland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970–1975</td>
<td>6.67</td>
<td>0.25</td>
<td>0.05</td>
<td>0.28</td>
<td>1.22</td>
<td>0.24</td>
</tr>
<tr>
<td>1976–1980</td>
<td>7.28</td>
<td>0.32</td>
<td>0.05</td>
<td>0.17</td>
<td>0.74</td>
<td>0.65</td>
</tr>
<tr>
<td>1981–1985</td>
<td>10.80</td>
<td>0.61</td>
<td>0.11</td>
<td>0.19</td>
<td>0.45</td>
<td>1.73</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>4.13</td>
<td>0.36</td>
<td>0.06</td>
<td>-0.08</td>
<td>-0.77</td>
<td>1.49</td>
</tr>
</tbody>
</table>

Chemicals (SITC 5)

<table>
<thead>
<tr>
<th>Years</th>
<th>CMEA</th>
<th>GDR</th>
<th>Hungary</th>
<th>Slovakia</th>
<th>Poland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970–1975</td>
<td>32.73</td>
<td>9.15</td>
<td>2.83</td>
<td>3.62</td>
<td>4.54</td>
<td>6.02</td>
</tr>
<tr>
<td>1976–1980</td>
<td>38.89</td>
<td>7.90</td>
<td>3.42</td>
<td>3.21</td>
<td>3.50</td>
<td>5.32</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>-1.67</td>
<td>-1.37</td>
<td>0.26</td>
<td>-0.45</td>
<td>-2.66</td>
<td>2.11</td>
</tr>
</tbody>
</table>

Manufactures (SITC 6)

<table>
<thead>
<tr>
<th>Years</th>
<th>CMEA</th>
<th>GDR</th>
<th>Hungary</th>
<th>Slovakia</th>
<th>Poland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970–1975</td>
<td>15.90</td>
<td>2.56</td>
<td>1.59</td>
<td>3.12</td>
<td>2.67</td>
<td>2.71</td>
</tr>
<tr>
<td>1976–1980</td>
<td>15.94</td>
<td>2.07</td>
<td>1.34</td>
<td>2.49</td>
<td>2.76</td>
<td>3.12</td>
</tr>
<tr>
<td>1981–1985</td>
<td>12.27</td>
<td>2.28</td>
<td>1.08</td>
<td>1.97</td>
<td>1.77</td>
<td>5.14</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>-3.66</td>
<td>-0.28</td>
<td>-0.51</td>
<td>-1.15</td>
<td>-0.90</td>
<td>2.42</td>
</tr>
</tbody>
</table>

Machinery (SITC 7)

<table>
<thead>
<tr>
<th>Years</th>
<th>CMEA</th>
<th>GDR</th>
<th>Hungary</th>
<th>Slovakia</th>
<th>Poland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970–1975</td>
<td>27.12</td>
<td>7.57</td>
<td>1.70</td>
<td>5.68</td>
<td>4.44</td>
<td>0.12</td>
</tr>
<tr>
<td>1976–1980</td>
<td>18.44</td>
<td>4.09</td>
<td>1.61</td>
<td>2.50</td>
<td>4.64</td>
<td>0.18</td>
</tr>
<tr>
<td>1981–1985</td>
<td>8.16</td>
<td>2.17</td>
<td>0.98</td>
<td>1.16</td>
<td>1.44</td>
<td>0.44</td>
</tr>
<tr>
<td>Difference between 1970–1975 and 1981–1985</td>
<td>-18.96</td>
<td>-5.41</td>
<td>-0.72</td>
<td>-4.52</td>
<td>-3.01</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Consumer Goods (SITC 8)

<table>
<thead>
<tr>
<th>Years</th>
<th>CMEA</th>
<th>GDR</th>
<th>Hungary</th>
<th>Slovakia</th>
<th>Poland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976–1980</td>
<td>11.46</td>
<td>3.56</td>
<td>1.63</td>
<td>1.86</td>
<td>3.60</td>
<td>3.02</td>
</tr>
<tr>
<td>1981–1985</td>
<td>6.91</td>
<td>2.24</td>
<td>0.97</td>
<td>0.83</td>
<td>0.86</td>
<td>6.12</td>
</tr>
</tbody>
</table>
Notwithstanding the region's poor performance as a whole, the four countries we examined performed markedly differently during this period. Hungary increased its market share in chemicals by almost half, more in relative and absolute terms than the GDR or Czechoslovakia (Poland lost market share). Hungary was also the only one of the four to increase its share of OECD machinery import markets—by 30 percent. The GDR lost one-third of its shares, and Czechoslovakia one-half over this period. All four countries lost shares of OECD consumer-goods markets to the NICs, although Hungary's losses were smaller than those of its CMEA competitors. Manufactured articles classified chiefly by material of origin (SITC 6)—which consists of iron and steel products, refined metals, paper, and other semiprocessed manufacturing—were the only market in which Hungary's performance was surpassed by a CMEA competitor: the GDR. In short, over the life of its reform, Hungary had substantially greater success than Czechoslovakia or Poland in retaining OECD market share; in three of four categories, including the most sophisticated (machinery and transport goods), its performance was better than the GDR's.

Even though the GDR and Czechoslovakia started the period with a more sophisticated industrial base and, in the GDR's case, better market access, these figures provide strong evidence that in this area the reformed Hungarian economy outperformed the traditional centrally planned economies. To some extent, they also support the tourist's assessment of living standards in these countries. Tourists have frequently been struck by the greater variety and quality in Hungary than in Czechoslovakia. These differences did not show up in national income accounts, but should have made competing on OECD markets easier for Hungarian exporters. The figures indicate that these differences in quality and flexibility may have enabled Hungary to maintain its share of OECD markets more successfully than its CMEA rivals.

**Overall Assessment**

Both the qualitative and quantitative analyses above show that Hungary had some success with its reform. Hungary increased total factor productivity more rapidly than did Czechoslovakia and Poland—and the GDR, by some measures—over the life of the reform. This relatively good performance resulted from increases in labor productivity; capital productivity declined. Hungarian industry did a much better job of retaining market share in OECD markets for manufactured goods than did Czechoslovakia, the GDR, or Poland.
This being the case, why was the Hungarian economy in, or close to, a crisis in the late 1980s?\textsuperscript{76} The most immediate problem—Hungary's difficulty controlling its hard-currency balance of payments—was the consequence of poor policy decisions and the economic system. Between 1974–1978 and 1985–1987, the Hungarian government failed to control aggregate demand. Consumption and investment were allowed to rise, even though output did not keep pace. The government did too little too slowly to control imports.

Part of this reluctance to act stemmed from the economy's sluggish reaction to the reform instruments. Devaluations frequently spilled over into price increases and were not followed by major export drives. Campaigns, ministerial pressure, and bonuses tied directly to hard-currency export increases still worked better than changes in relative profitability to induce enterprises to export. This in turn resulted from protectionism. Enterprises faced little or no import competition; domestic competition was weak because of the home market's small size. Consequently, enterprises were able to hide behind Hungary's borders, focusing on the CMEA or domestic market, and failed to produce the hard-currency exports necessary to service Hungary's foreign debt.

A major related bottleneck in the effective functioning of the reform was Hungary's participation in the CMEA. Pecsi (1981) has shown that a substantial share of inputs in Hungary's ruble exports was imported from hard-currency areas, in many industrial branches more than the share in hard-currency exports.\textsuperscript{77} Yet the CMEA, especially the Soviet Union, supplied the bulk of Hungary's imports of primary products. Planners were so concerned with maintaining these shipments, and the political leadership was so desirous of furthering economic integration with the Soviet Union, that much of Hungary's industrial capacity was constructed to serve the Soviet market.\textsuperscript{78} Almost all the target programs were geared toward expanding production of products for these markets. Hungarian enterprises faced an entirely different set of incentives and institutions in ruble trade. For example, there was little premium for technological innovation or for marketing. Consequently, enterprises found marketing products geared for this market very difficult in the West. Hungary constructed an industrial plant with Western machinery directed to the East, dependent on hard-currency imports, yet incapable of generating hard-currency exports. The division of Hungarian commerce between the

\textsuperscript{76}"Riziko-faktor," July 23, 1988, p. 4.
\textsuperscript{77}Pecsi, 1981, p. 129.
\textsuperscript{78}Marer, 1988.
CMEA and the world market reduced the reform's effectiveness and slowed restructuring.

A second major problem was Hungary's poor capital productivity performance. This resulted from the reform's failure to improve the allocation of investments. Investment allocations were uncorrelated with the enterprise's or industry's rates of return. Even if many enterprises improved their performances under the reform, the squandering of investment on enterprises and industries in which Hungary lacked a comparative advantage greatly reduced reform measures' positive benefits.

THE MILITARY AND THE HUNGARIAN REFORM

Hungarian military-goods production is very small in comparison with that of Poland—possibly a third to half a percent of gross industrial output versus 3 to 4 percent. Not surprisingly, evidence of the economic reform's effects on the military-goods producing industry was hard to find because the industry itself was so small. However, we can draw certain conclusions about the reform's effect on the military.

First, as in Poland, military-goods producers in Hungary continued to be subject to commands from the center concerning what to produce. Prices were also apparently controlled by the center.

Second, the growth of cooperatives and the private sector made competing for labor more difficult for the military. As moonlighting became the norm for many Hungarian workers, regulations prohibiting military personnel from supplementing their incomes led to declining interest in military careers.

Third, the military was unable to protect its budget during times of economic stringencies. Whether this would have occurred without the reform is an open question, but the sharp debates about the military budget's size and the lack of information on the composition of expenditures initiated in 1987 continued in 1988.\(^79\) One delegate, Ferenc Kiraly, vociferously argued that during times of austerity the military budget ought to be reduced, not increased.\(^80\) This attack came after a decade in which the reported military budgets increased by less than 1 percent annually in real terms and shrank as a percentage of GDP.

Thus, although the linkages between reform and the military appear less clear in Hungary than in Poland, the military was not protected from austerity under the reform. More interestingly, political liberalization apparently progressed as economic reforms expanded. Increased political


liberalization, especially the Hungarian Parliament’s expanded role, has led to direct attacks on the military budget and attempts to reduce the military’s share of economic resources. Economic reform may have had a powerful indirect effect on the military’s role in Hungary.
IV. ECONOMIC REFORM IN CHINA, 1979–1989

Since 1978, the Chinese economy has undergone a series of drastic policy and institutional reforms. At this juncture, the reform movement is far from complete. In fact, in the wake of the political upheaval in mid-1989, economic restructuring has virtually slowed to a halt, repeated official statements to the contrary notwithstanding. Nonetheless, a decade of reform has brought significant changes in both the economy and the military system. This section takes stock of the progress and the economic consequences of economic reform and assesses its impact on China's military modernization.

Specifically, it addresses the following issues: Why did the Chinese leadership decide to restructure the economic system, and what is the model system it aims to develop? What specific progress has occurred so far? What are the results, problems, and prospects of economic reform? And how have economic reforms affected the military system?

CHINA'S ECONOMIC REFORM: BACKGROUND AND OBJECTIVES

At the Third Plenum of the Chinese Communist party's 11th Central Committee in December 1978, the Chinese leadership under Deng Xiaoping made the momentous decision to reform the economic system that had been operating in China for the preceding three decades. What drove the leadership to take such a drastic step was apparently the grim reality that the system had failed to bring China rapidly out of poverty. As of 1980, China's per capita GNP ranked low even among the developing countries, regardless of whether GNP in U.S. dollars was measured by exchange-rate conversion or by purchasing-power parity. To be sure, moderate economic growth had occurred since 1949, but GNP growth was achieved mainly through large increases in capital and labor inputs rather than through productivity increase. This was evidenced by the rather low growth of total factor productivity in the state-owned industry, the fastest-growing sector

\[1\] According to World Bank estimates, China's per capita GNP in 1980 was U.S. $220, compared to the average of U.S. $680 for the developing countries (World Bank, 1989, pp. 15, 17). A rough estimate based on purchasing-power parity for China in 1980 was U.S. $573—again, way below the average of U.S. $846 for developing countries (Block, 1981, pp. 61, 73).
during the period 1952–1978.\textsuperscript{2} Other indicators of widespread inefficiencies include large consumption of energy per unit of output, low agricultural yields, high incremental capital-output ratios, and large shares of increase in stocks in total capital formation, compared with those of other developing countries.

To a large degree, the causes of these inefficiencies are traceable to the fundamental defects of China's economic system. Essentially, the Chinese command economy is a highly centralized, planned economy in which economic activities are coordinated mainly by direct administrative decrees, its management is divided among ministries and regions, and income is distributed largely on an egalitarian basis. Prices and markets play virtually no role in resource allocation. This system is patterned after the Soviet model but also has its origin in China's own wartime experience; both emphasized centralized decisionmaking and direct allocation of resources. These structural and institutional characteristics have generated inefficiencies in four key ways:

First, the incentive structure in a command economy provided no effective inducement to work. The wage system in the state-owned enterprises and the remunerative system in the communes were primarily based on egalitarian principles of income distribution and the use of ideological indoctrination rather than material reward to motivate workers. The link between laborers' efforts and their income was rather remote. An individual's income would hardly increase if he produced more than others. Nor would he be penalized if he worked less, since the state guaranteed employment. Hence, there was no incentive to work hard, particularly in agriculture.

Second, the command system inhibited the enterprises' or communes' vitality because the managers were not motivated to manage them efficiently or to innovate. The most important success indicator in measuring managers' performances was the extent to which they fulfilled or overfulfilled their output quotas. Their efforts were therefore geared primarily toward this goal, disregarding production costs and quality control. The system's tensions and rigidity put additional pressure on managers to accelerate growth of output, encouraging them to hoard more raw materials, labor, and capital than necessary. They were not motivated to innovate because there was little reward for innovation—and a development program might actually jeopardize their fulfilling the production quotas. If they made profits, all of it went to the state budget. If they incurred losses, the state subsidized

\textsuperscript{2}Net output in constant prices grew at 11.7 percent per year during 1952–1978, to which the growth of total factor productivity contributed 0.96 percentage points, or only 8 percent of total output growth (World Bank, 1986, p. 187).
them. In short, there was no reward or penalty insofar as efficiency was concerned.

Third, the command system de-emphasized the role of prices, and resources were largely allocated centrally in physical terms. Consequently, resource use was less than optimal either because factor prices were totally overlooked or because the distorted prices induced waste. For example, funds for investment were provided by the state interest-free. As a result, the gestation of construction was unduly long, inventory accumulation was excessively large, and the rate of equipment use was low. Moreover, investment decisions were biased toward large, capital-intensive projects that might well be uneconomical in a labor-surplus, capital-poor economy such as China’s.

Another example of inefficiency was that the output structure arbitrarily determined by the planners in the absence of any market price guidelines often did not match the demand structure. Such errors by the central planners were common. When that happened, the consequences were quite pronounced, because the erroneous decisions the center made were carried out systemwide, resulting in enormous waste in the form of accumulation of unsold products or bottlenecks. The Great Leap Forward in the late 1950s that called for constructing backyard furnaces to produce useless steel is one striking example; the Cultural Revolution in the late 1960s, which led to losses of human capital, is another.

Fourth, the administrative system in the command economy was characterized by a hierarchical network of departmentalized controls. Each enterprise belonged either to a ministry or to a local government. Direct contacts between enterprises of different departments hardly existed. Resources could not freely flow from one enterprise (locality) to another except through the center. In essence, the common land economy in China before the 1980s consisted of a set of subsystems dependent on the center but independent of each other. All organizations were encouraged to become self-sufficient, so many facilities were duplicated and usage rates were low. Furthermore, self-sufficiency at the national level was also a deliberate policy. The outcome was that the economic benefits from specialization and economies of scale were lost.

In sum, the system was highly inefficient because it provided no effective incentive structure to motivate individual workers to exert their efforts or directors of enterprises and communes to manage their units efficiently. This was because the distorted price system misguided resource allocation, and the economy’s fragmentation into pockets of self-sufficient subsystems sacrificed economies of scale and specialization.
These shortcomings are prevalent in Socialist economies. However, China's case was probably worse and more difficult to reform than others, for several reasons. First, the leaders in China are the first generation of revolutionaries long accustomed to the mentality, organization, and operation of a centralized military system. Hence, the first three decades after the party came to power witnessed the emergence of a system more centralized, more rigidly controlled, and more oriented toward egalitarianism and self-sufficiency than those in the East European countries. Second, China's land size is greater, its population is much larger, and regional differences in natural, social, and economic conditions are much greater than those in the East European countries, so implementing any reform measures in such a heterogenous economy is more difficult. Third, per capita income in China is much lower than in East European countries. For example, according to World Bank estimates, China's per capita GNP in 1980 was U.S. $260, compared to U.S. $2020 in Hungary and U.S. $3090 in Yugoslavia in the same year. This means that the low per capita income in China leaves very little margin for errors in policy decisions. At the same time, economic reform is all the more necessary because China has a long way to catch up, and, given the much larger population than in 1950s and its continued growth, China could not continue to sustain economic growth by increasing capital and labor inputs alone, as it did in the past. Fourth, the East European countries have had some experience in economic reform to begin with, whereas China never really had any significant restructuring of its economy before 1978.

The Chinese leaders in the late 1970s were divided in their assessment of the existing economic system. Some believed that the current system had nothing wrong with it. Whatever problems China then faced were legacies of the Cultural Revolution. With the leftists now removed from power, China's economic difficulties could readily be resolved. Reforms were therefore unnecessary. A second group recognized the current system's many shortcomings but insisted that the system needed only some modifications, not major reforms. A third group, including Deng Xiaoping, believed that institutional reforms were absolutely necessary. Correspondingly, the three policy options were: no reform, minor modifications, and major changes of the economic system. In late 1978, the party decided to adopt the third option. Having done so, the leadership now faced another set of

---

4In the late 1950s when the Great Leap Forward turned into a disaster, the mortality rate in China rose sharply from 10.8 per thousand in 1957 to 25.4 per thousand in 1960 (State Statistical Bureau, 1989, p. 88).
questions: Which economic system should the existing one be transformed into, and how should China bring about these changes?

The model system to be developed has not been clearly defined; it has only loosely been referred to as a "planned commodity economy" in which the state, the enterprises, and the market all have their roles to play. The state regulates the market largely through economic and legal means, the market guides the enterprises and farm households through the price system, and the enterprises and farm households compete in the market and support the state. Table 4.1 contrasts six characteristics of the model system with those of the existing system, to bring out its distinctive features: the ownership structure (public versus private property rights), decisionmaking power (centralized

Table 4.1

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Command Economy</th>
<th>Model System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership structure</td>
<td>Public ownership only</td>
<td>Public ownership predominant; limited private and foreign ownership</td>
</tr>
<tr>
<td>Decisionmaking power</td>
<td>Highly concentrated in the center; decisions based on planners' preferences</td>
<td>Enterprises, households, and state share power; decisions based on multilevel preferences</td>
</tr>
<tr>
<td>Coordination mechanism</td>
<td>Mandatory planning and direction by the state</td>
<td>Allocation through guidance and mandatory planning and prices and markets</td>
</tr>
<tr>
<td>Incentive systems</td>
<td>Based on ideological motivation; egalitarianism in income distribution</td>
<td>Based on material reward; let some people become rich first</td>
</tr>
<tr>
<td>Economic organization</td>
<td>Enterprises as subsidiaries of government hierarchical structure under various departments and local government</td>
<td>Enterprises as independent economic entities; lateral economic ties among enterprises</td>
</tr>
<tr>
<td>Relation with outside world</td>
<td>Relatively closed</td>
<td>Relatively open</td>
</tr>
</tbody>
</table>

---

versus decentralized decisionmaking), coordinating mechanism (plan versus market), incentive system (ideological versus material incentives, and more equal versus more unequal income distribution), economic organization (enterprises and farms as administrative organs of the state or as independent economic entities), and external economic relations (closed or open to the external world).

The comparison indicates that the model system will be drastically different from the existing command economy in that entirely new elements and operating mechanisms will appear, such as undistorted prices and markets, independently managed enterprises, and active participation in the world economy. But it will also be different from a free market economy in that planning will remain an important allocative and coordinating mechanism. Indeed, Chen Yun, an aging but influential leader, compares the model system to birds in a cage. The birds, representing enterprises and farms, are free to fly, but only within the confines of the cage, which represents the state plan. Moreover, mainly for ideological reasons, public ownership will be predominant, so the private sector’s size will be limited.

To define a target model is merely the first step; to design a program and implement it is much more difficult, because reforming the economic system involves changes in virtually every aspect of the economy and because the leaders lack the experience in institutional reforms. Not surprisingly, so far the leadership has no comprehensive blueprint for reform. It has also decided to adopt a trial-and-error approach. It will first make experiments with institutional innovations at various selected localities or enterprises, subsequently evaluate the results, and finally draw up a program to be implemented across the country. That the reform process will be protracted is clear, with the old and the new systems coexisting and often in conflict. Furthermore, the reform movement’s pace, direction, and focus will vary with the nature of the problem confronting the leadership at a given time and the leadership’s political orientation at that time.

ECONOMIC REFORMS, 1978–1989

China’s reform in the period 1978–1989 has three milestones that separate the reform movement into three distinct phases of development. The first major turning point was the party’s decision to restructure the economic system in December 1978; the second was the Third Plenum of the party’s 12th Central Committee in October 1984,

which adopted a broad program for urban reform; the third was the Third Plenum of the 13th Central Committee in September 1988, when the party reoriented its effort toward “improving the economic environment and rectifying the economic order.” In each phase, the focus of reform, its progress, and its effect on the economy and the military sector were markedly different.

**Rural Reform, 1978–1984**

During the first stage, the reform’s main thrust was restructuring the farming system. The party’s primary concern with agriculture is understandable. Among the many problems confronting the leadership in the immediate post-Mao era, perhaps the most serious was the agricultural stagnation from 1952 to 1978, when net agricultural output grew at only 1.8 percent per year, lower than the average population growth rate of 2 percent over the same period.8 Per capita grain output increased by only 11 percent in 26 years, and per capita cotton and oilseed output actually declined.9

We can see what happened in the agricultural sector from Table 4.2, which shows average annual growth rates of net agricultural output, labor, and fixed capital for the period 1957–1978. Both labor and capital grew more rapidly than output, so regardless of the weights we assign to labor and capital input, the growth of total factor productivity was negative. In short, growth of output was slow not because inadequate increases in labor or capital input had occurred, but because the use of the inputs was highly inefficient. The primary reason for the inefficiency was the commune system, under which the peasants’ incomes were only remotely tied to their effort; hence, they were not motivated to produce more.

In the early 1980s, the party replaced the commune system with household farming.10 Since then, the farm households have managed their own farming operations. They “lease” the land from the state and the means of production (farm tools, equipment, and draft animals) from the collectives and are responsible for a fixed amount of payments to the state and collectives, but they keep the rest of the output for their own use or sale at rural free markets. This greatly enhances the peasants’ incentive to work, because their marginal income is now directly linked to their

---

10The decision was made only after several years of experimentation. See Wang Jiye and Ju Yuanjen, 1987, pp. 823–826. For discussions of rural reform, see China’s Rural Development Problems Study Group, 1984, and Research Institute of the Center for Rural Development, State Council, 1988.
Table 4.2
GROWTH OF AGRICULTURAL OUTPUT, LABOR, AND FIXED CAPITAL, 1957–1978

<table>
<thead>
<tr>
<th></th>
<th>Average Annual Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1957</td>
</tr>
<tr>
<td>Index of net output</td>
<td></td>
</tr>
<tr>
<td>(1952 = 100)</td>
<td>120.1</td>
</tr>
<tr>
<td>Labor (million)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>193.1</td>
</tr>
<tr>
<td>Fixed capital</td>
<td></td>
</tr>
<tr>
<td>(billions of yuan)</td>
<td>15.5</td>
</tr>
</tbody>
</table>


NOTES: Index of net output is based on totals in constant prices. Fixed capital excludes land. Whether the figures for fixed capital are gross or net of capital consumption, and whether they are in current or constant prices, is not clear. But the price index for rural producer goods during 1957–1978 did not change much. See State Statistical Bureau, 1989, p. 702. Even if a rise in the price of capital goods had occurred (which is not at all certain), it would have had to be rather large to affect the growth rate of factor productivity appreciably.

marginal efforts. At the same time, the state raised the procurement prices and opened rural markets. The liberalization of state control over factor mobility led to the development of farm households specializing in producing certain products for market, and more significant, to a rapid increase in employment in nonfarm activities, particularly small industries in villages and towns.

A second major reform during this period was the decentralization of financial power to local governments and state-owned enterprises. Beginning in 1980, most provincial governments were permitted to collect funds from specific sources of revenue to cover their expenditures. Any revenue collected in excess of set quotas would be shared by the central and provincial governments, and with increased revenue, a provincial government could then increase its expenditures.\(^1\) At the same

time, the profits retained by enterprises were permitted to increase rapidly. The purpose was to revitalize the local governments and enterprises by providing them with some financial resources at their disposal.

A third major reform during this period was the opening of the hitherto mostly closed economy to the outside world. In addition to institutional changes to increase foreign trade, the government introduced various measures to attract foreign capital on a large scale. In 1979, two coastal provinces, Guangdong and Fujian, were designated areas open to foreign capital. In 1980, the government established four special economic zones (Shenzhen, Zhuhai, Shantou, and Xiamen) to facilitate the movement of offshore manufacturing facilities from abroad. And in 1984, 14 more coastal cities opened up.\textsuperscript{12}

Reforming the Enterprise System, 1984–1988

In the second stage of the reform that began in late 1984, the party shifted attention from rural to urban areas. The urban reform program as outlined in the Decision of the party and in the seventh five-year plan had three main tasks: to transform the state-owned enterprises from being the administrative subsidiaries of the state into independent business firms making their own management decisions and responsible for their own profits and losses, to develop a competitive market system, and to institute macroeconomic controls to replace the mandatory planning system.\textsuperscript{13}

The reform movement’s focus was on enterprise reform. As former party chief Zhao Ziyang pointed out, inefficiency in the state-owned enterprise was a widespread problem, and the underlying cause was the enterprise manager’s lack of initiative.\textsuperscript{14} Whether the enterprise was efficiently run or not was no concern of the manager because his primary responsibility was to implement the state’s mandatory production plans, and any profit or loss incurred in the operation would not affect the evaluation of his performance.

The goal of enterprise reform was to revitalize the enterprises by granting enterprise managers decisionmaking powers to provide them with incentive, responsibility, and authority to operate efficiently. In principle, the manager has the power to work out his own production

\textsuperscript{12}See Wang Jiye and Ju Yuanjen, 1987, pp. 868–874. Other reforms besides the three major ones we note here also took place. See Gao Shanquan, 1987, pp. 17–69.


and sales plans within the framework of the state's mandatory plans, to hire and dismiss workers, to decide on the size of bonuses, to set prices within limits, and to merge with other enterprises for economic reasons. The enterprise could keep a portion of its profits in proportion to those turned over to the state, for use in investment or in the workers' welfare programs. In short, the manager was expected to play the role of an entrepreneur, independent of control by the party or government.

The reform measures to achieve this goal included the director responsibility system, which granted the enterprise director management authority and responsibility formerly belonging to the enterprise party secretary; the contract management system, under which the enterprise director or manager entered into a contract with the state which obligated him to deliver a fixed amount to the state, thus linking the enterprise's marginal returns to management performance; and a bankruptcy law, to penalize managers who performed poorly.

Outwardly, much progress in enterprise reform has occurred. By the first half of 1988, more than 80 percent of the state-owned enterprises had adopted a director responsibility system designed to separate ownership and management and reduce party and administrative intervention in enterprises. Furthermore, under the new system, 90 percent of the large- and medium-sized state-owned enterprises were now under contract with the state. However, the reform failed to revitalize enterprises, for several reasons. First, the new system itself had many shortcomings. The contract period was relatively short (usually three to four years), and the evaluation of enterprise performance was based solely on achieving the profit objective. Therefore, managers tended to maximize short-term profits at the expense of the enterprise's long-term interests, such as wearing down the equipment, boosting the workers' bonuses, and avoiding investments with no immediate payoffs. Most enterprise managers were appointed by the government departments, making management vulnerable to intervention by government officials. Moreover, the contracted amount to be delivered to the state was based on actual profits before the contract system's introduction. As a result, enterprises that were making good profits were penalized with heavier obligations to the state than were poorly run enterprises.

Whatever defects the new system might have have not really been established. The enterprises have been granted only limited autonomy. Very often, an enterprise's party secretary refused to relinquish power;
The bankruptcy law was promulgated in 1986 but was never really put into effect.

The most fundamental reason for the sluggish progress in enterprise reform was the lack of price reform. The enterprises could not really operate independently and efficiently until the price system was also free of government control and a competitive market system was in place. Prices in China before 1978 were administratively set and rigidly controlled, so the price remained fixed for decades. Worse still, they did not reflect marginal references and relative scarcities. Given a set of distorted prices, there could be no meaningful measures of efficiency, and the managers were not motivated to become efficient. Poorly managed enterprises could produce huge profits if prices of their outputs were set high enough. For the same reason, others might lose money no matter how efficiently they operated. Nor could the distorted prices provide useful guidelines on how managers could maximize efficiency for the economy as a whole. When the prices of some resources were too low or too high relative to supply and demand, they resulted in waste. The provision of capital at no cost to the users resulted in relatively high capital-output ratios, a case in point.

There was little dispute among the Chinese leaders that prices in China were seriously distorted. For example, the procurement prices for agricultural products were too low. So were the charges for transportation, public utilities, services, and rent. The prices of some processing industries (for example, watches, bicycles, dyes and paints, and rubber products) were high compared with those for energy and raw materials (for example, coal, iron ore, and cement). At issue was how to establish a price system with minimal distortions, and how fast China should proceed with price reform. The leadership's decision was to go slow, adjusting and decontrolling prices of a few products step-by-step.

Up to the mid-1980s, price reform consisted mainly of price adjustments. Subsequently, the emphasis shifted to “decontrol.” The outcome was a mixed-price system. By 1988, prices of farm products (except grain, cotton, and oilseeds) and minor daily-use manufactured goods had been decontrolled. Prices of some manufactured goods (textiles and machinery) were allowed to fluctuate within a certain range. Prices of others (coal and raw materials) had a dual-track system: that portion of output under mandatory planning was priced at fixed planned prices; prices of extraplan output could vary according to market conditions. However, the prices of certain products, factor prices, and exchange rates were still under strict government control.

---

The mixed system was actually a transitional measure in a deliberately protracted process. The leaders' intent to reform the price system gradually is understandable. To them, the shift to a system of market-determined prices requires, first, a fundamental change in economic philosophy. Instead of issuing commands based on their own preferences, they must now accept the idea of individual producers' and consumers' freedom of economic choice. Contrary to the Marxist doctrine of exploitation, capital and labor must now be treated as commodities to be traded in markets. Private-property rights must be defined clearly and allowed to exist alongside public ownership. Such a drastic ideological transition will take time, for these are alien concepts and are leading the economy into uncharted waters. But apart from ideological changes, price reform also calls for a redistribution of political power and economic benefits. The market takes over the price-determining power and thus renders some bureaucrats and organizations useless—and therefore redundant. The market is also ruthless and impersonal. A rise in the price of coal would raise the income of coal products and lower those of the coal users. Such change would inevitably cause political conflicts. A gradual process would provide more time for the adjustment.

Whatever rationale the leaders might have for the gradual approach to price reform, the piecemeal process created problems of economic disorder and corruption. The dual-price system has motivated the enterprises to bargain for lower output quotas so they can produce more for sale at higher market prices, to substitute poor-quality products for high-quality ones in their delivery to the state, and to hoard (as much as possible) raw materials supplied by the state at planned prices. Even more serious, the system also created opportunities for people with connections to reap high profits. For example, the state buys a planned quota of chemical fertilizer from a producer at controlled prices lower than the market prices. It then sells the fertilizer to farmers at about the same low prices to compensate the farmers who sell their grain to the state at below-market prices. In reality, state-distributed fertilizers do not go to the farmers directly. The factory sells at government-set prices, while farmers pay market prices. The state subsidy goes to the middlemen, mainly officials who are able to get fertilizers at low official prices. As a result, neither the factory nor the farmer has an incentive to produce.13

Another economic consequence of price reform was inflation. In theory, price reform changes the relative prices, which does not necessarily lead to a rise in general price level. In China's case, however, several factors complicated the situation.

---

First, for decades, latent or repressed inflation had existed, as reflected in the long queues of consumers and shortage of key commodities. Because of the pent-up demand, price adjustments were almost always upward, and decontrol was followed by price increases. Once people associated price reform with price increases, price adjustments and decontrol of prices could trigger panic buying.

Second, on the supply side, because of long-term bottlenecks in the supply of energy, transportation, and certain raw materials, an upward adjustment in price often did not bring about an increase in supply and lower the price in a subsequent period. Instead, it reduced the profits of the downstream industries and induced them to raise prices of their products to the extent possible, thus spreading the price increase from one industry to the other.

Third, price reform, even on a limited scale, required complementary institutional changes to make the price system work. For example, markets had to be institutionalized. Although some progress occurred, the market system, particularly factor markets, remained undeveloped. The legal system too was inadequate to protect the enterprises from government officials’ abuses of power, from monopolies, and from arbitrary levies local governments imposed. Insofar as inflation was concerned, the most serious deficiency was the lack of fiscal discipline and financial control. Delegating financial power to the local governments and enterprises resulted in sharp increases in investment expenditures by these units, financed largely with bank loans. At the same time, the central government ran large and persistent government budget deficits. Consequently, money supply increased by leaps and bounds, partly because of a rapid increase in demand, but mainly because no effective monetary mechanism to control money supply existed.

By early 1988, the party had to decide whether to push ahead with price reform in the face of mounting inflation. In May 1988, the Politburo conference decided to proceed with price reform. But in September 1988, an abrupt change in policy took place. The policy focus shifted to the “improvement of the economic environment and rectification of the economic order,” meaning essentially curbing inflation and corruption. Both price reform and other reform measures were now put on hold.

**Slowdown of the Reform Movement, 1989–1990**

In October 1988, Li Peng, the new premier, announced that in the next two years, reform movements would be slowed down, because the overriding task was to control inflation.\(^\text{19}\) By February 1989, the official year-

\(^{19}\) *Wen hui bao* (Wen hui daily), Oct. 14, 1988, p. 2.
on-year inflation rate reached 30 percent—the highest since 1949. Thus, the government understandably decided to attack the inflation first of all.

What happened at Tiananmen Square in June 1989 further complicated the situation and significantly changed the principal goal, the approach, and the pace of economic reform. By mid-1989, the dispute over reform policy had developed into a power struggle. The Tiananmen incident led to the political downfall of the pro-reform group. At the same time, it strengthened the conservative group’s belief that the free-market solution to China’s economic problems not only created economic instability but also undermined the Socialist state and threatened the party’s very legitimacy. Accordingly, the new leadership tightened state control of the economy, apparently not merely as a temporary measure but as a permanent feature of the model system. Addressing a national meeting in January 1990 on economic reconstruction, Li Peng emphasized that reform’s basic purpose was to perfect the Socialist system and not to alter socialism fundamentally. He called for greater effort to “better combine the planned economy and market regulation.”20 The message was clear: The market mechanism was to play a subsidiary role in a system dominated by central planning.

The retreat from reform actually began before the June 4 incident. In early 1989, the leadership had already decided to increase the number of commodities under strict government control from 19 to 32.21 The inflation and political upheaval simply accelerated the process. Several reform programs that began under the former party secretary have now been scrapped, including selling state-owned enterprises and strengthening the private sector.22 New measures to tighten government control over a wide range of economic activities have been introduced. For example, the state set a ceiling for the floating prices of some commodities.23 Newly built state-financed factories have to turn over part of their output to the government so the government can control more sources for overall planning.24 A power shift from managers of enterprises to party officials has occurred.25 New regulations exist to bar unplanned exports and imports of key materials.26

21FBIS-CHI-89-052, Mar. 20, 1989, p. 27.
Another significant change in reform policy during this period was that the new leadership decided to take a firm stand against political liberalization. Once again, China stressed the need to uphold the four cardinal principles: "adherence to the Socialist road, the people's democratic dictatorship, the Communist party leadership, and Marxism, Leninism, and Mao Zedong thought."²⁷ The four principles boil down to party dictatorship, because whoever controls the party also, by definition, represents the people and has the authority to interpret what Marxism really means. The party's decision against political reform may sow the seeds of political instability in the future. Where China's reform movement is concerned, whether economic reform will be feasible without political liberalization in the long run is still in question.

In the meantime, the reform movement has slowed but not totally stopped. The ongoing reforms consist largely of experiments in the 14 cities that enjoy provincial status in state plans and in three provinces: Guangdong, Fujian, and Hainan. Specifically, the reforms will focus on enterprise-management mechanisms, market construction, tax regulations, and the urban legal system.²⁸ But the pace will be slow. As Li Peng warned, China's economic restructuring will be a long process.²⁹ But whether the reform movement will continue—and if so, at what pace—the crucial question in assessing China's economic future is how significant economic reform will be in its contribution to economic growth. To provide some clues to this question, we examine how significant economic reform has been in the past decade.

**ECONOMIC REFORM AND PRODUCTIVITY CHANGE**

In assessing the accomplishments of economic reform, officials and economists in China have followed two approaches. The first focuses on the institutional changes that have occurred. For example, Gao Shanquan and Ma Hong point to the emergence of nonstate enterprises, the decline in the number of products under mandatory planning or centralized distribution, the development of lateral economic ties, and the rising proportion of agricultural industrial outputs whose prices are now regulated by the market.³⁰ The major shortcoming of this assessment is that it does not go beyond listing the institutional

---

²⁷*Beijing Review*, Nov. 6–12, 1988, p. 7.
changes that took place to address the question of what impact these changes had on the economy.

The second approach simply lists virtually all the major economic changes during the period of reform, including changes in the ownership structure, growth and structural changes in output, rise in employment and living standards, and so on. The implicit assumption is that all these achievements are attributable to economic reform. Apart from the question of the assumption's plausibility, this approach, like the first, misses the crucial point that led to economic reform in the first place: Has economic restructuring raised productivity?

Statistical data to measure productivity change in China are hard to come by. Table 4.3 presents some indexes of productivity growth in 1978–1988 compared to that in the two decades before economic restructuring. The data suggest several findings: GNP per worker shows a markedly higher rate of growth in the period of reform than in the pre-1978 period. The same is true of output per worker in agriculture and industry. In particular, output per worker in agriculture has been growing at a respectable rate of 4 percent per year, in sharp contrast to a stagnant growth under the commune system.

Available data do not permit calculation of total factor productivity for the economy as a whole. For the agricultural sector, however, some inferences are possible. In the pre-1978 period, both labor and capital inputs have been growing faster than output. Total factor productivity growth was clearly negative, regardless of the relative weights of the labor and capital input growth. In the reform period, the reverse was true. Both labor and capital inputs grew more slowly than did output. Total factor productivity growth must have been positive, indicating an increase in efficiency of resource use in the agricultural sector.

In the industrial sector, however, the picture is somewhat different. An independent study of factor productivity growth in China's industry suggests that productivity growth was much slower than the growth of output. In particular, the state-owned industrial enterprises were rather inefficient, despite the enormous effort to restructure their internal management systems and their relations with the government.

Our conclusion is that productivity clearly grew much more rapidly in the reform period. To what extent productivity growth is attributable to economic reform is hard to determine. However, we can presume that economic reform did contribute significantly to economic growth, as other corroborating evidence suggests. For example, the foreign-trade ratio in 1978 was 9.9 percent—approximately the same as

---

31 For example, see "Statistical Data on the Achievements of Eight Years of Economic Structural Reform," 1987.
Table 4.3

(Percent per year)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GNP</td>
<td>5.4</td>
<td>9.6</td>
</tr>
<tr>
<td>Total employment</td>
<td>2.5</td>
<td>3.1</td>
</tr>
<tr>
<td>GNP per worker</td>
<td>2.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Agricultural sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>1.4</td>
<td>5.6</td>
</tr>
<tr>
<td>Employment</td>
<td>1.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Output per worker</td>
<td>−0.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Capital</td>
<td>9.2</td>
<td>5.4</td>
</tr>
<tr>
<td>Industrial sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>9.6</td>
<td>11.0</td>
</tr>
<tr>
<td>Employment</td>
<td>7.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Output per worker</td>
<td>2.4</td>
<td>6.3</td>
</tr>
<tr>
<td>Capital</td>
<td>11.9</td>
<td>9.3</td>
</tr>
<tr>
<td>Factor productivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State-owned</td>
<td>(a)</td>
<td>0.4(^b)</td>
</tr>
<tr>
<td>Collective</td>
<td>(a)</td>
<td>1.2(^b)</td>
</tr>
</tbody>
</table>


NOTE: Except for total factor productivity estimated by Jefferson, Rawski, and Zheng, all data are official statistics. The data may contain biases, but they are probably not serious enough to invalidate our observations.

\(^{a}\)Not available.


that in 1957—but it rose sharply to 27 percent by 1988.\(^{32}\) The opening of the economy to external trade apparently generated some benefits from economies of scale and specialization. The much larger number of graduates from educational institutions and technical schools than in the pre-1978 period probably improved the quality of the workers in the 1980s.\(^{33}\)

---

\(^{32}\)The ratios are based on total GNP and total exports and imports in current prices. For the source of data, see State Statistical Bureau, 1989, pp. 28-30, 633.

\(^{33}\)State Statistical Bureau, 1989, pp. 799-800.
The difference in productivity growth in the agricultural and industrial sectors also probably reflected the different degrees of successful reform in these two sectors. In agriculture, the peasants' lack of motivation to produce was the key bottleneck in the communes. The return to household farming broke the bottleneck and productivity increase followed. In the industrial sector, enterprise reform never released the factory directors from government and party control. Unlike the rural markets, markets for industrial products, services, and factors never really developed in the urban sector. Hence, the urban economy remains far below the production frontier. The highly inefficient industrial sector represents both a serious problem and an opportunity to increase output through productivity growth. Much depends on the future of economic reform.

ECONOMIC REFORM AND MILITARY MODERNIZATION

As economic reforms unfolded, profound changes in the military sector also took place. Some of these changes were the consequences of economic reform, while others influenced the course and pace of economic reform. We turn first to economic reform's major effects on China's military modernization program. A subsequent section will discuss the military's role in the economic reform movement.

Impact of Economic Reform on the Military

Economic reform affected the military sector most profoundly in the following areas: the restructuring of the military system, reform of the military R&D and defense industries, relationship between the military sector and the outside world, and competition between civilians and the military sector for educated manpower.

Restructuring of the Military System. The most important development in the military sector since China introduced economic reforms was the parallel reform of the military system itself. As economic reform progresses, the military is under pressure to reform its own system. In part, this is because poor performance and low productivity, the very factors that prompted the leaders to reform the economic system, also plagued the military sector. The need to improve efficiency was immediate, because the growth of defense

34In the words of Chi Haotian, chief of the General Staff, "The reform of the army should conform with the reform situation of the whole country, and should catch up with the pace of reform of the whole country," Jie fangjun Bao (Liberation army daily), May 8, 1988, p. 1.
spending has slowed in order to divert more resources to economic modernization. As reported in the state budget, defense spending has increased only moderately in the decade 1978–1988, at an average annual rate of 2.6 percent, far below the growth rates of state budget revenue or GNP.\textsuperscript{35} In real terms, defense spending actually declined because of much higher inflation rates.\textsuperscript{36} As Chief of General Staff Chi Haotian explained, the tight defense budget was necessary to support economic reform.\textsuperscript{37} The budget squeeze has forced the military leaders to restructure the military system, perhaps the only feasible way of strengthening China’s military capability under these circumstances.

An equally if not more compelling reason for military reform is the PLA’s (People’s Liberation Army) incapability of fighting a modern war. Before 1978, the planning premise for China’s defense policy was that a major nuclear war would occur soon.\textsuperscript{38} To prepare for such a war, China adopted Mao’s doctrine of the people’s war, which downgraded technology and relied instead on guerrilla tactics and China’s vast territory to defeat the enemy. In the early 1980s, the leaders’ threat perception changed. In their judgment, the likelihood of a major war involving China in the foreseeable future was minuscule. Accordingly, China was to prepare for conventional, limited wars instead of nuclear wars, such as border incidents, contingencies, and regional conflicts.\textsuperscript{39} Yet for these limited wars, Mao’s doctrine is totally irrelevant. This harsh reality has been brought home by the PLA’s dismal performance in the military conflict with Vietnam in 1979. Instead of teaching the Vietnamese a lesson, as the Chinese claimed, it taught China a sobering lesson: China had to turn the PLA from Mao’s “millet-plus-rifle” brigade into a modern fighting force. The task was formidable, because fundamental changes in the PCA’s command structure, training, and equipment were necessary. As recently as the early 1980s, the PCA was dominated by aging revolutionaries schooled in antiquated, people’s-war techniques and unwilling to make way for younger, better-educated soldiers. Most weapons and equipment were technologically generations behind those of the Soviet Union and the United

\textsuperscript{35}For defense spending and budget revenue in 1978 and 1988, see State Statistical Bureau, 1987, pp. 617, 626; and People’s Daily, Apr. 7, 1989, p. 3. For GNP in 1978 and 1988, see Li Chengrui, Oct. 2–8, 1989, pp. 20, 23. The reported defense spending does not include weapons procurement. The latter has apparently declined during this period, as suggested by reports of reduced sales to the military by the defense industry and by the military leaders’ complaints regarding the slow pace of weapons modernization.

\textsuperscript{36}The official retail price index shows an annual increase of 5.6 percent. See 1988 Abstract, p. 91, and People’s Daily, Mar. 1, 1989, p. 2.

\textsuperscript{37}Jie jiangjun Bao (Liberation army daily), Oct. 12, 1988, p. 1.

\textsuperscript{38}Liaowang (Outlook), Aug. 1, 1988, p. 4.

States. Modernization would require drastic improvements in the organization and quality of the armed forces, and military capital stock. Given the financial constraint and the weak technological base in China, the military leaders were forced to look first to better use of people rather than to weapons modernization. Herein lies the goal of China's military reform.

Just as the party leaders were divided over economic reform, so were the military leaders divided over issues of military reform. For example, on the issue of technology versus ideology in defense modernization, Xu Xiangqian, former vice chairman of the Central Military Commission, pointed out that "the crux for modernizing the Army is to bring forward science and technology," but "some people still do not pay attention to the role of knowledge . . . and even look down upon intellectuals" [because] "some people have not freed themselves from the bind of leftist ideology." On the issue of reorganization, certain military commanders in the Kunming military region felt that the proposed change was too drastic and the shift in ideology too fast. Others opposed the reduction of the armed forces' size, holding onto Mao's idea that in a major war, the more people, the better. The resistance to change came primarily from the senior military leaders, who either opposed the deemphasis of Mao's military thinking or were reluctant to step aside, even if they recognized the need for reform. But all the disputes and discontent notwithstanding, a rather drastic reform of the military system was implemented.

The restructuring and modernizing of the PLA had been planned for some time, but the process began in earnest only in 1985. The program focused on reforming the bloated and inefficient military system through reducing and reorganizing troops; overhauling the system of training, education, and promotion; and selectively upgrading military equipment. The goal was to produce a slimmer but more professional force that would be better equipped, better trained, and better led than before.

In 1985, the number of China's regional commands had been cut from 11 to 7. In part, the change was to streamline the command

---

Wen Hui Pao, Apr. 29, 1987, p. 3.

The 11 large military regions were: Shenyang, Beijing, Nanjing, Chengdu, Lanzhou, Guangzhou, Jinan, Fuzhou, Kunming and Urumqi, and Wuhan. The Fuzhou, Kunming, and Urumqi military regions were merged into the Nanjing, Chengdu, and Lanzhou military regions, respectively. The Wuhan military region was partly merged into the Guangzhou and partly into the Jinan military regions.
structure by reducing its size and centralizing the operational command, in part to conform more logically to the needs of China's land defense, but more important, to replace the PLA's aging leaders with younger, better-educated, and more competent commanders. By the end of 1985, the number of commanding officers in the 7 regional commands had been cut by more than half, and the number of officers at the headquarters of the General Staff, Political and the Logistic departments was reduced by 23.8 percent. The plan was to raise the ratio between officers and servicemen from 1:2.45 to 1:3.3.\textsuperscript{45} At the same time, the average age of the new commanding officers at the 7 regional commands has dropped from 64.9 to 56.7; at the three headquarters, by 10.6 years. More than 50 percent of the officers at the regional commands and some 80 percent of those at the headquarters are now college graduates, and more than 65 percent of the officers in the combat units have been replaced by others who have had formal training in military institutes.\textsuperscript{46}

The reduction of the number of officers in high command was part of the effort to cut China's armed forces by 1 million within two years (1986–1987). The force reduction's purposes were threefold. First, it would leave more money available for economic construction and for new weapons R&D. China's total military force in 1982 was 4.24 million.\textsuperscript{47} A reduction of 1 million meant a 24 percent cut—a rather drastic reduction, and hence a sizable savings in total military pay.\textsuperscript{48} Second, it would get rid of the peripheral forces that really did not contribute much to the PLA's combat strength. They included the local forces and the border guards, who were responsible for internal security and border control. These forces would be transferred to the local authorities and the Public Security departments. Third, it would improve the servicemen's capability by raising the expenditures per person.\textsuperscript{49} Within 18 months after the Chinese leaders decided to cut China's military force by 1 million, 410,000 troops were demobilized and more than 300,000 officers retired.\textsuperscript{50} The cutback's impact on the different branches of the armed forces varied. Because of the emphasis on professionalism and technology, the infantry, being the least


\textsuperscript{46}State Statistical Bureau, 1982, p. 12.

\textsuperscript{47}State Statistical Bureau, 1982, p. 12.

\textsuperscript{48}Yang Shangkun, 1985, p. k4.


technical, was probably cut the most. But the other services were also affected. The regular militia, which is not part of the PLA, was also reduced by 80 percent.\footnote{\textit{China Daily}, Aug. 9, 1986, p. 3.}

Another important aspect of military reform is the PLA ground force's reorganization into a combined force, including multiple service arms such as infantry, artillery, armored corps, engineer corps, antichemical corps, signal corps, and missile units. Before the reforms, the field army consisted almost entirely of foot soldiers. The various special forces operated independently under the Central Military Commission's direct command. Now, with the exception of the Second Artillery, which remains an independent strategic force, the special units are combined with the infantry to form the army corps. In effect, the army is now organized by missions rather than by the individual force's type of equipment.

In 1988, a major reform of the army's personnel system also took place. A set of regulations governing civilian cadres in the PLA was promulgated. The purpose was to allow the technical cadres to continue their service without being forced to retire because of age limits. Establishing the system was a move of some significance because of the need to maintain a professional and technical backbone force in the PLA.

In the past, most officers were promoted from the ranks. They lacked both a general education and the professional skills necessary to command the newly formed combined forces. In addition, overemphasizing the PLA's political role led to the neglect of combat training. To correct these deficiencies, the military leaders completely overhauled their educational system and changed their training priorities. Now the emphasis is on improving the quality of leadership at all PLA levels through formal education. Military academies dissolved during the Cultural Revolution have been restored and new ones have been established. More than 100 military academies to train officers now exist, including the National Defense University and academies for all services. The junior military schools concentrate on basic military, political, and academic education for platoon commanders. Intermediate academies carry out specialized training for officers at the regimental level. Advanced academies provide a comprehensive military education to senior officers. In addition, technical personnel attend specialized institutes. All these academies train some 10,000 cadets every year, drawn from high school graduates, outstanding soldiers, and veteran cadres from all levels. To underscore the importance attached to formal education, the leaders have made clear that only graduates of
military academies will qualify for promotion. Consequently, many cadres who have not received college-level educations have been attending academies on a rotation basis. Others attended spare-time, TV, and correspondence colleges. At the same time, combat training also underwent major changes. The emphasis shifted from training troops to training officers, from infantry to mechanized and mobile warfare, and from single-force to combined-force maneuvers. The PLA also introduced large quantities of electronic equipment for training purposes, including ground-battle simulators and air-ground combat simulators.

Because of the renewed emphasis on formal training, the officers' educational level has markedly improved. In the period 1980–1986, military schools and colleges trained 400,000 cadets, of whom 320,000 were from the PLA, 70,000 were high school graduates, and 5000 were college graduates. By early 1987, officers with education below high school level accounted for only 8 percent of the total, compared to 57 percent in 1980. The proportion of those with high school education rose from 34 to 64 percent; of those with still higher education, from 9 to 28 percent over the same period. The primary emphasis on reorganization and training in the current modernization program does not mean that the upgrading of weapons has stopped altogether. On the contrary, notable progress has been made in developing new weapons, although slowly and selectively. This was evident in the parade of weapons on National Day in 1984 and in the international military exhibition in Beijing in 1986. The new weapons included 5.56-mm automatic rifles, antitank missiles, main battle tanks, self-propelled gun howitzers, air-to-air missiles, a missiles-launching frigate equipped with the C-801 ship-to-ship missiles, Hongqi 61 surface-to-air missiles, Haiying 4 surface-to-surface missiles, and nuclear submarines. Important progress in communications equipment also occurred.

The reasons for the limited but continued improvement in military equipment are clear. In 1985, former minister of defense Xu Xiangqian expressed hope that China would approach the level of advanced countries in terms of military equipment and technology.

---

52 Foreign Broadcast Information Service, July 30, 1985, p. k3.
54 Foreign Broadcast Information Service, Jan. 6, 1986, p. k23. A total of 650 million yuan has been earmarked to develop simulators (China Daily, Apr. 2, 1986, p. 1).
56 An automation command system for the General Staff headquarters has been set up, with information-processing systems and facsimile communication devices linking the command center with the military regions and branches of military force (Foreign Broadcast Information Service, May 21, 1986, p. k14; Feb. 20, 1987, pp. k39–k40).
within 15 years.57 This ambitious goal may not be realistic, but it clearly indicated the military leaders’ strong desire to modernize the PLA’s weaponry soon. The military has long been a major political force in China’s power hierarchy. Even though its political status has diminished somewhat in recent years, for the Chinese leadership to ignore totally the military’s demands, particularly when the military has agreed (however reluctantly) to reduce its forces and defer large-scale weapon modernization, would have been unwise. The current selective improvement program appears a compromise.

A second reason for the continued development of new weapons is that, apart from political considerations, there may well be a need to improve military equipment for national security reasons during the transitional period. Deng’s assessment of the threat of a global war may be correct, but we cannot rule out the likelihood of regional military conflicts with Vietnam over Kampuchea, the Spratly Islands, and the Paracel Islands; with India over border disputes; and with Taiwan over the unification issue. Thus, Yang Shangkun emphatically called for accelerated development of urgently needed weapons.58 According to Xu Xiangqian, the focus will be improving conventional weapons, particularly antitank and antiaircraft weapons.59

A third plausible reason for maintaining an ongoing development program is that maintaining an active, if small, defense industry has technological advantages. One distinct benefit is that of learning by doing. Because of the continual effort, the future development program would start from a higher technological level than if the industry had been standing still. Moreover, to make effective use of the foreign military technology currently acquired by China, there must be both an indigenous R&D effort and production facilities to absorb the imported technology.

That the military reforms have substantially improved the military system’s efficiency is clear. But, as in the case of economic reform, restructuring in the military sector is far from complete.60 At this stage, the future of military reform is somewhat uncertain, partly because parallel reforms in the civilian sector have slowed down and partly because of the recent ascent of military leaders who are apparently more interested in weapons modernization than organizational reform.

58 Yang, 1984, p. 2.
Reform of the Military R&D and Defense Industries. Another major change in the military sector closely related to economic reform is the introduction of cost-effective measures in China's military R&D system and the defense industries. Before 1978, the R&D units were neither motivated nor obligated to be cost-effective. To remedy these shortcomings, in January 1987, the State Council established a contract system for the research and production of military equipment. Under the new system, funds for military R&D are allocated to the armed services according to their needs, and the latter enter into contractual arrangements either through open bidding or negotiations with the R&D units and defense industries that will perform specific tasks at specified costs, quality, and delivery schedules. Now responsible for its own funds, the military tries to get the best possible weapons for its money. The research units, facing competition from their bidders, have to upgrade their designs and lower their costs. Moreover, the new system promotes cooperation among institutes because the weapons are often technologically complicated; thus, cooperation is necessary for the institutes to be competitive.

In the defense industry, reorganization along the lines of civilian industrial reform also took place. Many centrally controlled enterprises were turned over to the local administration in an attempt to revitalize these enterprises through decentralization. At the same time, some enterprises in the defense sector were consolidated in order to improve economic efficiency through functional specialization. One notable example is the 2000 enterprises in the third-line areas (interior China) that are closing, merging, or moving to other locations in line with the reform.

Relationship between the Military Sector and the Outside World. A major component of the economic reform program is the policy to open the economy to the outside world. Consequently, China's foreign trade increased by leaps and bounds, and the inflow of capital and technology expanded on an unprecedented scale. In this process, the military has benefited enormously from having relatively free access to foreign capital, technology, and military equipment. As

---

62_Wen hui bao_, Feb. 9, 1987, p. 3; _People's Daily_, May 9, 1987, p. 1; _China Daily_, Mar. 4, 1988, p. 3. By 1988, contracts were signed for 80 percent of all the projects (_People's Daily_, Dec. 11, 1988, p. 3).
63For example, more than 100 enterprises under the Ministry of the Ordnance Industry were to be transferred to local authorities in 1986 (_Jingji ribao_, July 12, 1986, p. 1). The transfer was to facilitate the shift to produce civilian goods by these enterprises.
we noted above, China began its military modernization in the 1980s with largely outdated equipment. Given China's low technological base, to turn the PLA into a high-tech army, were China to rely solely on its own effort, would take a long time and enormous resources. Accessibility to foreign weapons, technology, and capital could quicken the pace of transformation somewhat.

Table 4.4 shows China's arms imports as a percentage of China's defense expenditures reported in the state budget in 1978–1987. The figures are rough estimates because of uncertainties in the exchange-rate conversion and the extent of undercoverage of the reported defense spending. Nonetheless, they are useful to show the increasing importance of arms imports. Arms imports rose from approximately 1 percent during 1978–1983 to approximately 8 percent of the reported defense budget after 1983. Of the total arms imports from identified sources in 1983–1987, imports from non-Communist countries accounted for some 70 percent, which probably would not have been feasible without the open policy.66 On the one hand, economic reform in China has led to progressive liberalization of the Western countries' measures restricting high-technology transfers to China under the

<table>
<thead>
<tr>
<th>Year</th>
<th>Arms Imports (Billions of yuan)</th>
<th>Defense Spending (Billions of yuan)</th>
<th>Imports/Spending (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>0.15</td>
<td>16.78</td>
<td>0.9</td>
</tr>
<tr>
<td>1979</td>
<td>0.23</td>
<td>22.27</td>
<td>1.2</td>
</tr>
<tr>
<td>1980</td>
<td>0.28</td>
<td>19.38</td>
<td>1.4</td>
</tr>
<tr>
<td>1981</td>
<td>0.20</td>
<td>16.80</td>
<td>1.2</td>
</tr>
<tr>
<td>1982</td>
<td>0.15</td>
<td>17.63</td>
<td>0.9</td>
</tr>
<tr>
<td>1983</td>
<td>0.20</td>
<td>17.71</td>
<td>1.1</td>
</tr>
<tr>
<td>1984</td>
<td>0.99</td>
<td>18.08</td>
<td>5.5</td>
</tr>
<tr>
<td>1985</td>
<td>1.79</td>
<td>19.15</td>
<td>9.3</td>
</tr>
<tr>
<td>1986</td>
<td>1.74</td>
<td>20.08</td>
<td>8.7</td>
</tr>
<tr>
<td>1987</td>
<td>1.42</td>
<td>20.98</td>
<td>6.8</td>
</tr>
</tbody>
</table>

**Table 4.4**

**CHINA'S ARMS IMPORTS AND REPORTED EXPENDITURES, 1978–1987**


---

Coordinating Committee for Multilateral Export Controls. On the other hand, the sharp rise in China’s exports under the open policy and, until 1989, booming tourism generated substantial foreign-exchange earnings to finance the imports.

**Competition for Educated Manpower.** Not all the effects of economic reform are positive. In at least one area—recruiting new servicemen—economic reforms created some problems for the military. In principle, China has compulsory military service. But throughout the years, China’s soldiers have always been volunteers, attracted by prestige, job security, and the opportunity to move up the social and economic ladders. Today, the lure of the army remains as strong as ever in the poor agricultural regions, where the young people are so eager to join the army that many who are not physically qualified try to enlist. Consequently, the quality of the new recruits from these areas remains rather low. Meanwhile, in the prosperous rural areas (especially the coastal regions), fewer and fewer people want to join the PLA, because economic reforms have opened up new employment opportunities more lucrative than what the military can offer.\(^{67}\) The situation changed somewhat in 1989, when subsidies to the new recruits increased and job openings became limited as the government adopted a retrenchment policy and slowed the development of rural industries.\(^{68}\)

Clearly, the difficulty with which the PLA could recruit qualified young people varies with the employment opportunities open to them, which in turn depend on the progress of economic reform. The crux of the problem is that the PLA needs educated, intelligent youths—the very group that can do better in a market-oriented economy. To compete with the civilian sector, the military would have to narrow the gap between the incomes of those in the military and civilian sectors.

**The Military’s Role in Economic Reform**

The relationship between economic reform and the military system is not one way. In its effort to adapt itself to the rapidly changing economic and political environment, the military has adopted policies that in turn affect the reform movement profoundly. Several developments in this respect are particularly significant: the civilianization of the defense industry, the sharp increase in arms exports, and changes in the military’s political role.


\(^{68}\) *Wen hui bao*, March 21, 1989, p. 3.
Civilian Goods and the Defense Industry. As we noted earlier, the growth of defense spending was held back to divert more resources to economic development and reform. As the defense budget was cut, the defense industry became the victim of economic reform. More than half the military factories stopped or drastically reduced production because of the cut in military procurement. To survive, the defense industry was forced to participate in the movement toward marketization by producing civilian goods to compete in domestic and international markets. By 1989, 90 percent of the enterprises in the defense industry were producing civilian goods, and one-sixth of them thrived on civilian production alone. Their civilian products accounted for more than 60 percent of the total output value. After 1987, their exports reached U.S. $100 million. At the same time, the defense industry also provided civilian industries with technologies developed in the military sector to help the latter undertake technical transformation. Since 1979, nearly 10,000 items of military technology have been transferred to the civilian sector, as a result of which 100 billion yuan of output value was generated.

Although the shift of military resources to civilian use originated in the defense industry's struggle for survival, the transfer benefits the economy as a whole. The civilian industries can make good use of the ample production facilities and technical manpower in the military sector that otherwise would have remained idle. In this way, the defense industries have contributed to economic construction and reform by producing equipment that China used to import, such as cars, aircraft engines, and oil-drilling platforms; by turning out consumer goods in short supply, such as cameras, refrigerators, and television sets; and by helping the civilian industries technically upgrade their production techniques or products. In addition, the PLA also directly contributed 120 million man-days in construction work in the past decade, opened up airfields and harbor facilities for civilian use, and helped train more than a million civilian technicians.

Arms Exports. Another major development in the military sector that has a significant impact on the Chinese economy is arms exports. China's export of arms is by no means a new practice. Long before Deng took over the leadership in 1978, China had been supplying arms to Albania, North Korea, Vietnam, and some African countries. But

71 China Daily, Oct. 9, 1989, p. 3.
the recent arms exports differ from those of the past in several respects. First, the volume of arms exports in recent years has been much larger. In the period 1980–1987, arms exports increased sharply, from U.S. $0.4 million in 1980 to U.S. $2.4 billion in 1987, as Table 4.5 shows. In 1985–1986, arms sales to Iran alone reportedly totaled U.S. $3.1 billion.73 China's eagerness to export arms is also indicated by its arms-export companies' active participation in international defense equipment exhibitions in Australia and Greece in 1984, in Paris in 1985, and in Singapore, the United States, the United Kingdom, and China in 1986.

Another notable feature of China's arms exports is the variety of products offered for sale. The list includes HQ-2J, HQ-61, HN-5 antiaircraft missiles; HY-2 and HY-4 medium-range antiship missiles; the C-601 air-launched antiship missile; the C-801 multipurpose coastal defense missile; the F-7 tactical fighter; the A-5 attack aircraft; the F-8 II interceptor; the Y-12 transport aircraft; Z-29 helicopters; T-59 tanks; the self-propelled howitzer; the armored personnel carrier; rifles; and submachine guns. Technologically, the Chinese weapons are less advanced than those Western countries supply. But they are simple, sturdy, and cheap.

Table 4.5

<table>
<thead>
<tr>
<th>Year</th>
<th>Arms Exports (Millions of U.S. $)</th>
<th>Percentage of Total Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>1.2</td>
<td>NA</td>
</tr>
<tr>
<td>1980</td>
<td>0.4</td>
<td>NA</td>
</tr>
<tr>
<td>1981</td>
<td>3.7</td>
<td>NA</td>
</tr>
<tr>
<td>1982</td>
<td>1288.0</td>
<td>5.5</td>
</tr>
<tr>
<td>1983</td>
<td>1540.7</td>
<td>6.4</td>
</tr>
<tr>
<td>1984</td>
<td>1625.9</td>
<td>5.9</td>
</tr>
<tr>
<td>1985</td>
<td>1057.1</td>
<td>3.4</td>
</tr>
<tr>
<td>1986</td>
<td>1554.4</td>
<td>4.4</td>
</tr>
<tr>
<td>1987</td>
<td>2388.8</td>
<td>5.0</td>
</tr>
</tbody>
</table>


Their prices generally are lower than those of Western manufactures, by as much as 50 percent. The lower prices are particularly attractive to Third World countries that cannot afford modern weapons from Western countries and do not want to become dependent on Moscow (Chinese exports' major competitor).

The third distinctive feature of China's recent arms exports is China's policy goal. Before the 1980s, China's arms deals were highly political. Now the objective is primarily economic. Through arms exports, Chinese defense industries hope to earn the foreign exchange necessary to upgrade their backward technologies. Because of the change in motivation, the list of buyers has also changed: China will now sell to whomever has the hard currency to pay for the weapons. Thus, China sold arms to many new customers, such as Iraq, Iran, Syria, Thailand, Sri Lanka, and Brazil.

Developing the export market lowers production costs because of economies of scale. More important, arms exports provide the foreign exchange to finance technology imports. How the foreign exchange earned through arms exports is divided between the military and the state is not clear. But what the latter gets is probably sizable, because total arms exports have reached enormous proportions. In 1987, for example, arms exports were China's fourth largest (SITC two-digit) item, constituting 5 percent of the country's total exports. Together with the exports of civilian goods produced by the defense industry, the military sector's contribution to China's foreign-exchange earnings is by no means insignificant.

The Military's Political Role. In China, as in virtually all Communist countries, the military plays a major political role. Its importance, however, has changed over time. In the 1980s, the military's political status apparently reached a low point, because the military was asked to take a back seat while the party concentrated its effort on economic reform. At least outwardly, most military leaders were supportive of economic reform, possibly because they realized that in the long run, economic reform might well be the most effective path to military modernization. In effect, they traded short-term defense-spending cuts for a larger defense budget in the future. The military's support is therefore conditional. At some point in the future, the civilian economy will have to deliver. Toward the end of the 1980s, some military leaders were already getting impatient.74 The use of the military in the June 4, 1989, crackdown on the student movement probably increased the military leaders' political power, just as the Cultural

74See, for example, the complaint by PLA General Logistics Department Chief Zhao Nanqi, reported in Ming pao, Apr. 24, 1988, p. 9.
Revolution did in the late 1960s. Meanwhile, the Western countries' sanction that halted all transfers of military technology to China might have reopened the issue of whether China should now rely more on indigenous R&D than on foreign technology. The ongoing conflict with Vietnam over the Paracel Islands and Spratly Islands might have further strengthened the case of those demanding more defense spending now. Under the circumstances, for defense expenditures to increase faster than in the recent past would not be surprising. If this should occur, fewer resources will be available for investment in such sectors as energy and transportation, the infrastructure essential for transforming the economy into an open, market-oriented one.

The student movement also triggered a power struggle among top party leaders. In suppressing the movement and thereby supporting the conservatives in the power struggle, the PLA unwittingly placed the reform movement in limbo; the staunch reformists were purged, and virtually all ongoing reforms were suspended, at least temporarily. Hence, in the short run, the PLA's changing political role will likely have a negative impact on economic reform.

To sum up, economic reforms in the civilian sector inevitably generated pressure on the military sector to introduce parallel reforms. One area in which important changes have taken place is the military system itself. The government has cut the armed forces' size by 20 percent, streamlined the command structure, restored a system of military ranks, reemphasized intensive military training, and selectively but steadily moved forward weapons development. In short, a discernible drive toward professionalism, as well as organizational changes in line with the shift away from the doctrine of the people's war, has occurred.

Other areas in which substantial restructuring has taken place are the defense R&D system and the defense industry. Important changes include a new procurement system to make the military and the research institutes more cost conscious, and a reorganization of the defense industries to promote functional specialization and economies of scale. The military sector has also been profoundly affected by the open-door policy, an important component of economic reform. Not only has the new policy made acquiring Western military technology never available to China before possible, it has also opened up new channels of technology transfer important to the rebuilding of China's technological base, such as academic exchanges and sending large numbers of students to Western countries.

All these developments have undoubtedly improved the military system's efficiency—an important step toward modernizing the PLA. But not all the effects on the military sector are favorable. One
negative impact is the widening income differentials between military servicemen and civilian workers. Economic reform has raised peasants' and businessmen's incomes markedly. Incomes of workers and employees have also increased substantially because of wage reforms, bonuses, and government subsidies. These increases have apparently been faster than those in military pay. Consequently, there have been negative effects on the PLA's morale that have made recruiting qualified servicemen difficult. But on the whole, the effects of economic reform on the military sector have been positive.

The relationship between economic reform and the military is not one-sided: Several developments in the military sector affected the reform movement. First, the drastic cut in procurement since 1980 left the defense industries with large excess capacities and idle technical manpower. The defense industry thus had to turn to the civilian economy for survival, producing civilian goods for domestic and international markets and transferring technology to the civilian sector. Second, the cut in defense spending and the open-door policy provided the motivation and opportunity for the defense sector to expand arms sales abroad. In both these areas, the defense industries made tremendous progress. And, as they thrived under the new policy, the civilian economy also benefited and the state could concentrate its efforts on economic reform.

More recently, the government called upon the military to crack down on student demonstrations; in so doing, the military inadvertently sided with the hard-liners in the power struggle that ended with the hard-liners in control. At present, all reforms have virtually been suspended, despite official statements to the contrary. In sum, the military has contributed significantly to economic reform, but, ironically, it has also disrupted its progress by intervening with movements for political reform.
V. COMPARISON AND CONCLUSIONS

In this study, we have assessed the extent to which market-oriented reforms in three centrally planned economies have improved economic efficiency. We have also evaluated the extent to which the military, both as an institution and as a claimant on resources, has fostered or hindered economic reform.

We designed the study to assess the fruits of reform in systems that have attempted to preserve state ownership and the Communist party's leading role, yet improve efficiency through greater use of markets and the devolution of decisions on resource allocation to the enterprise. Accordingly, the study has limited relevance to countries that have decided to abandon the Socialist experiment and opt for market economies. However, it should illuminate the potential rewards and problems facing countries like the Soviet Union, China, and Vietnam, which continue to search for a system that remains "Socialist" yet uses markets to correct some of the many inefficiencies characteristic of centrally planned systems.

In this section, we first review the similarities and differences in the economic reforms adopted by the three countries. We then analyze the reforms' economic performance. We conclude with an evaluation of the military's effects on the reforms and of the reforms on the military.

THE REFORMS

Hungary, Poland, and China have made concerted efforts to share ideas. This said, some notable differences exist in their reforms. Because of this study's focus on reforms in state-owned industry in Poland and Hungary, we confine much of the following comparison to this sector.

If economic reforms were to succeed, economic decisionmaking authority had to devolve from the ministries to the institutions that possessed the information necessary to make better choices of technologies, inputs, and fixed products: the enterprise. If the system was to function, enterprise managers' independence had to be preserved from encroachment on the part of the branch ministries or central authorities. Poland established workers' councils, which nominally counterbalanced the branch ministries. The rights of Hungarian managers were codified in law, and part of their bonuses were tied to profits, leaving them less at the mercy of a critical evaluation from their
superiors in the branch ministries. In China, the principle of one-man management was stressed, and the party secretary's role was downgraded.

None of these changes successfully established the independence of state-owned firms. In each case, the state—through the ministries, the Planning Commission, and its control of the distribution system—abrogated decisionmaking authority ostensibly ascribed to the enterprise. To some extent, this failure to transfer control is traceable to the continued existence of a one-party state. However, other characteristics of these systems were more immediate hindrances.

All the governments pursued policy goals (for example, low inflation, no unemployment, increasing exports) other than improving economic efficiency. None of the governments limited themselves to the macroeconomic policy instruments employed in market economies. To achieve these other goals, all the governments fell back on the use of the old economic instruments or new economic instruments similar to those used in the past. They resorted to “manual” controls, tax rates, loans, and subsidies designed for individual enterprises. In other words, the center directly interfered in the enterprise’s management. Because of these goals' importance to the central authorities, managers found their freedom of action curtailed.

We are not arguing that the ministries sabotaged the reforms—the problem runs deeper. The central authorities felt deeply committed to particular policy goals for political and ideological reasons—most notably, full employment in Poland and Hungary, the preservation of relatively higher wages for favored political groups in all three countries, and low relative prices for certain socially sensitive products such as basic foods. The full acceptance of a market system would make achieving some of these goals impossible.

The absence of clear-cut property rights also sabotaged the reforms. In all three countries, capital was very poorly used, in part because no one and everyone were the owners. No sanctions were attached to poor investment decisions, and large benefits in the form of higher salaries and trips abroad to visit suppliers were available to managers and bureaucrats who oversaw large investment projects.

All three reforms were marked by the proliferation of controls on prices and by the allocation of goods, taxes, and subsidies (many of which were enterprise-specific). These controls were to curb price increases, channel resources in accordance with the centers' preferences, and preserve loss-making firms. They also confiscated the profits of profitable enterprises and distorted the domestic price system and were the primary barrier to efficient reallocation of resources.
We found no evidence that managerial incompetence was a major factor in reducing the reforms' effectiveness. Managerial freedom was sharply curtailed in all three countries because of regulatory constraints and physical shortages of inputs caused by price controls. These constraints, coupled with incentives to follow the ministries' bidding, created the incentive structure under which managers operated. Within this system, managers reacted in a highly rational manner, quickly changing behavior in response to changes in incentives and signals. They found that the real incentive system was geared toward rewarding managers who fulfilled their superiors' desires. Whether these managers would operate effectively in a market system remains an open question. However, in these systems, the incentives and signals in use, not managers' unwillingness to respond to new incentive systems, were the primary reasons why economic performance was often less than expected.

ECONOMIC PERFORMANCE

The economic reforms' primary goal was to improve economic efficiency, especially in state-owned industry. Although all the reforms improved efficiency to some extent, in general the reforms' results in industry have been disappointing. Many of the successes of the reforms have been in the private sector and, in the case of China, agriculture.

Improvements in Factor Productivity

After introducing its reform, China recorded dramatic improvements in factor productivity in the economy as a whole. Productivity growth in state-owned industry was disappointing, however, in comparison with agriculture or the private sector. Since the introduction of its economic reform in 1968, Hungary outperformed Poland, Czechoslovakia, and (by some measures) the GDR in factor productivity growth. In Poland, the rate of increase in the efficiency with which capital and energy were used accelerated after the reform's adoption. However, in general the improvements were marginal. No qualitative jump to much more rapid rates of factor productivity growth occurred in either Poland or Hungary.

Capital Allocation

The reforms' major failure was continued poor allocation of capital. The share of investment of the least profitable sectors in Poland and Hungary increased in the 1980s, precisely when rate of return was to
be a much more important determinant of investment. Capital efficiency in Chinese industry has also remained low.

The state continued to play the dominant role in allocating capital in all three countries. In no case did the reforms appear to contribute to the state's ability to allocate capital. Some marginal investments were decided by enterprises. Although anecdotal evidence indicates that these investments probably generated substantial rates of return, they were such a small share of total investment in industry that they did not counterbalance poor investment decisions by the state. The reforms may actually have led to decline in the efficiency of investment in industry. Enterprise managers often designed their investment plans to fit centrally supported development programs. These investments may have had a lower rate of return than investments decided upon by the branch ministries, planning commissions, and enterprises in the old centrally planned systems.

Inflation

The central authorities' failure or inability to control growth in the money supply was a key failure of the reforms. It led to more rapid rates of inflation, which in turn encouraged the central authorities to reestablish price controls, which then exacerbated shortages and greatly reduced the role of markets in the system.

Why did inflation accelerate? Replacing central planning with controls based on taxes and subsidies must receive part of the blame. Enterprise managers had greater rein to set their own prices and wages. Enterprises that lost money in this system were able to cover their losses through subsidies or bank loans. Thus, the government ratified wage and price increases by increasing the money supply through loans or budgetary expenditures, and the rate of inflation rose.

Foreign Trade

In all three countries, the reforms increased the role and importance of foreign trade for state-owned industry. In general, the efficiency of trade appeared to improve. The most striking change was the dramatic increase in China's exports and its emergence as a major trading country. Hungary did much better in maintaining Western market shares than did its competitors in the CMEA. Even Poland, despite its poor economic performance in the 1980s, was able to improve the efficiency of imports and accelerate export growth after the implementation of its foreign-trade reform.
ARE CENTRALLY PLANNED ECONOMIES REFORMABLE?

Since the completion of the research on Poland and Hungary, the new governments of these two countries have stopped their experiments and opted to return to capitalism. Only China continues on. The revealed preference of the new Hungarian and Polish governments shows their dissatisfaction with the reforms. The Chinese government has emphasized that its primary rationale for not accelerating economic reform is political. However, for economic and social reasons, the government feels unable to abandon the reform and return to the former centrally planned system.

The reactions of the governments in these three countries mirror our overall conclusions. In Hungary and China, economic reforms apparently led to increases in total factor productivity. Foreign-trade performance also improved, although the evidence for improvements in Poland was more anecdotal than quantitative. To some extent, state-owned industry became more flexible and market-oriented.

However, most major improvements in these economies stemmed from an increased role for the private sector, not from changes in the operation of state-owned industry. The large increases in living standards and economic well-being in China are most directly traceable to the decollectivization of agriculture and the relaxation of strictures on the private sector. Although not the direct focus of this study, the private sector also accounted for almost all the growth in Hungary during the 1980s. The private sector has been the most rapidly growing part of the Polish economy as well.

In short, economic reform can improve the operation of state-owned industry. However, the improvements tended to be at the margin. Neither Poland nor Hungary succeeded in narrowing the gap between their economic performance and that of market economies with similar human and natural resource endowments. State-owned industry in China also remained inefficient in comparison to that of its competitors. Economic reform may reduce the efficiency costs so prevalent in centrally planned systems, but it does not eliminate them.

Are centrally planned economies reformable? Reforms do enable governments that wish to maintain state ownership and full employment and preserve the privileged position of particular social groups to reduce the inefficiencies of centrally planned systems. However, the improvements in efficiency have generally been small and are often purchased at the price of reduced control over the inflation rate.
THE MILITARY AND REFORMS

Effect of Reforms on the Military

After the introduction of reforms in Poland and China and the expansion of the Hungarian reform, the militaries faced strong new pressures to cut costs and become more efficient. In the case of Poland and Hungary, cost-cutting pressures are traceable in part to poor macroeconomic performance in the 1980s. Chinese economic performance, however, has been exceptional during much of this period; still, though, the military saw its budget shrink. Officers in all three armies faced incentives to run their units and equipment more efficiently. Reforms were accompanied by a drive to improve the efficiency with which resources were used both in the military and in the rest of the economy.

In the face of increasing cost pressures, all the militaries increased income-generating activities. Polish and Hungarian units raised some of their own food and manufactured some simple products; they also provided soldiers for civil construction projects (for whom the army was then paid). The Chinese, however, took this process the furthest. In contrast to Poland and Hungary, where almost all military equipment is produced in the civilian sector, the Chinese armed forces owned and operated a large number of plants that produced equipment and supplies for the armed forces. These plants have used the reform to become major arms exporters; the Chinese Ministry of Defense pockets the profits. Other plants have profitably invaded the civilian markets with products such as television sets and motorcycles. These activities have fostered competition and generated substantial profits for the defense industry.

All the militaries found attracting personnel more difficult. Recruitment difficulties primarily resulted from opportunities in the private sector. Overtime work, second jobs in cooperatives, and the creation of small part-time businesses became more attractive than a military career. Even though relative wages in the military did not deteriorate in comparison with those of primary jobs, the lack of opportunities to earn additional money severely affected recruitment.

Effect of the Military on Reforms

The military-production sector's size may have a dampening effect on reform. In Poland's case, the military-goods sector was placed in a special industrial union in which enterprises operated much as before the reform. Military-goods producers also had priority for obtaining
imports. These measures weakened the reform. In Hungary, where the military-goods sector is much smaller, similar measures had much less impact on the reform.

The military's primary effect on reform has been political. In Poland's case, reform was introduced almost concurrently with martial law. Martial law and the powers local military commanders received effectively nullified the reform for the first year. This false start may have permanently maimed the reform so it never underwent full implementation.

In China's case, the military's involvement in the June 4, 1989, crackdown weakened the reform group's position in the leadership. Unwittingly or consciously, the army has managed to derail the Chinese economic reform.
Appendix A

COBB-DOUGLAS MODELS OF CZECH, EAST GERMAN, POLISH, AND HUNGARIAN INDUSTRY

For each economy, we estimated Cobb-Douglas production functions by regressing logged total employment in Socialist industry, logged industrial capital stock, and time on net material product produced by industry. The coefficients on capital and labor were constrained to equal one under the assumption of constant returns to scale. Because the economic reform began in 1968, we constrained the model to include only observations after 1968 for Hungary, Poland, and Czechoslovakia. Observations for the GDR extended from 1960 to 1985. We did not include observations before 1960 because of poorer data quality.

The model's form was:

\[ \text{LIND} = A + B_1 \times \text{TIME} + B_2 \times \text{LLAB} + B_3 \times \text{LCAP} + e. \]

Estimates were

Czechoslovakia: No. of observations: 18  R-squared = 0.9379  F = 113.3
\[ \text{LIND} = -3.13 + 0.027 \times \text{TIME} + 0.941 \times \text{LLAB} + 0.059 \times \text{LCAP} + e \]
\[ ( -1.07 ) \quad ( 0.53 ) \quad ( 0.533 ) \quad ( 0.034 ) \]

The GDR: No. of observations: 26  R-squared = 0.9992  F = 13542.0
\[ \text{LIND} = -2.93 + 0.032 \times \text{TIME} + 0.741 \times \text{LLAB} + 0.259 \times \text{LCAP} + e \]
\[ ( -9.22 ) \quad ( 5.13 ) \quad ( 5.93 ) \quad ( 2.07 ) \]

Hungary: No. of observations: 18  R-squared = 0.9837  F = 452.6
\[ \text{LIND} = 0.032 + 0.024 \times \text{TIME} + 0.541 \times \text{LLAB} + 0.459 \times \text{LCAP} + e \]
\[ ( 2.13 ) \quad ( 0.62 ) \quad ( 1.08 ) \quad ( 0.91 ) \]

Poland: No. of observations: 19  R-squared = 0.8198  F = 36.39
\[ \text{LIND} = -0.921 - 0.012 \times \text{TIME} + 0.33 \times \text{LLAB} + 0.67 \times \text{LCAP} + e \]
\[ ( -10.1 ) \quad ( -0.24 ) \quad ( 0.392 ) \quad ( 0.794 ) \]
LIND = Logged net industrial output
Time = The year
LLAB = Logged number of employees in industry
LCAP = Logged index of the industrial capital stock
Appendix B

AVERAGE RATES OF RETURN: RANKINGS BY INDUSTRIAL SECTOR

The Hungarian magazine Figyelo gives annual ratings of Hungarian enterprises by size, export volume, employment, and so on—a sort of Hungarian Fortune 500. In 1987, it also provided rankings by rate of return. We have taken the rankings by rate of return for these enterprises and computed average rankings for each industry (see Table B.1). The sample is not truly representative of Hungarian industry because it is confined to the top 100 firms. However, the total number of Hungarian firms in the state sector was 1007 in 1986. These largest 100 firms produced the vast bulk of Hungarian industrial output. The full listing of enterprises appears in Table B.2.

Table B.1

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average Rankinga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport equipment</td>
<td>12.7</td>
</tr>
<tr>
<td>Electronics</td>
<td>19.3</td>
</tr>
<tr>
<td>Precision machinery</td>
<td>27.5</td>
</tr>
<tr>
<td>Chemicals</td>
<td>27.5</td>
</tr>
<tr>
<td>Drugs</td>
<td>29.8</td>
</tr>
<tr>
<td>Consumer durables</td>
<td>32.5</td>
</tr>
<tr>
<td>Textiles</td>
<td>41.2</td>
</tr>
<tr>
<td>Light industry</td>
<td>44.7</td>
</tr>
<tr>
<td>Machinery</td>
<td>46.7</td>
</tr>
<tr>
<td>Construction materials</td>
<td>49.3</td>
</tr>
<tr>
<td>Foods</td>
<td>55.5</td>
</tr>
<tr>
<td>Oil &amp; gas</td>
<td>59.8</td>
</tr>
<tr>
<td>Metals</td>
<td>72.3</td>
</tr>
<tr>
<td>Power</td>
<td>72.6</td>
</tr>
<tr>
<td>Coal</td>
<td>89.3</td>
</tr>
</tbody>
</table>

aAverage ranking is from 100 to 1, 1 being highest.
Table B.2  
HUNGARIAN ENTERPRISE PROFITABILITY RANKINGS, 1986

<table>
<thead>
<tr>
<th>Rate of Return</th>
<th>Forints per 100 Wages</th>
<th>Enterprise</th>
<th>Industrial Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Hungarian Electric Company</td>
<td>Power</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>BRG Mechatronics Enterprise</td>
<td>Electronics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IKARUS Autobody and Vehicle</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>Manufacturing</td>
<td>Transport equipment</td>
</tr>
<tr>
<td>4</td>
<td>23</td>
<td>VIDEOTON Electronics</td>
<td>Electronics</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>MMG Automatic Works (MMG-A Budapest)</td>
<td>Electronics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hungarian RR Car and Machine Works (RABA)</td>
<td>Transport equipment</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>Telephone Factory (TERTA)</td>
<td>Telecommunications</td>
</tr>
<tr>
<td>7</td>
<td>26</td>
<td>Refrigeration Machinery Works</td>
<td>Consumer durables</td>
</tr>
<tr>
<td>8</td>
<td>28</td>
<td>Tisza Shoe Factory</td>
<td>Leather</td>
</tr>
<tr>
<td>9</td>
<td>43</td>
<td>Hungarian Optical Works (MOM) BHG Communications Technology</td>
<td>Precision machinery</td>
</tr>
<tr>
<td>10</td>
<td>37</td>
<td>TAURUS Rubber Enterprise</td>
<td>Telecommunications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biogal Pharmaceuticals</td>
<td>Chemicals</td>
</tr>
<tr>
<td>11</td>
<td>40</td>
<td>Caola Cosmetics and Household</td>
<td>Drugs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manufacturing</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>31</td>
<td>Chemicals Enterprise</td>
<td>Chemicals</td>
</tr>
<tr>
<td>13</td>
<td>21</td>
<td>Tisza Chemical Combine</td>
<td>Chemicals</td>
</tr>
<tr>
<td>14</td>
<td>12</td>
<td>Hajdu Industrial Works (HIM)</td>
<td>Machinery</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>Toolmanufaturing Works (SZIM)</td>
<td>Machine tools</td>
</tr>
<tr>
<td>16</td>
<td>35</td>
<td>Budapest Chemical Works</td>
<td>Chemicals</td>
</tr>
<tr>
<td>17</td>
<td>16</td>
<td>EGIS Pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BUDALAKK Paint and Synthetic Resin Manufacturing</td>
<td>Chemicals</td>
</tr>
<tr>
<td>18</td>
<td>20</td>
<td>Hungarian Viscose Factory</td>
<td>Chemicals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Precision Mechanics</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>25</td>
<td>Enterprise (FMV)</td>
<td>Precision machinery</td>
</tr>
<tr>
<td>20</td>
<td>17</td>
<td>Chemical Works along the Tisza</td>
<td>Chemicals</td>
</tr>
<tr>
<td>21</td>
<td>15</td>
<td>Nitro-Chemical Industrial Works</td>
<td>Chemicals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kobanya Pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>25</td>
<td>Manufacturing</td>
<td>Drugs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kornarom Crude Oil Enterprise</td>
<td>Oil &amp; gas</td>
</tr>
<tr>
<td>23</td>
<td>11</td>
<td>Residential Textiles</td>
<td>Textiles</td>
</tr>
<tr>
<td>24</td>
<td>27</td>
<td>Enterprise (LATEX)</td>
<td>Chemicals</td>
</tr>
<tr>
<td>25</td>
<td>13</td>
<td>Borsod Chemical Combine</td>
<td>Transport equipment</td>
</tr>
<tr>
<td>26</td>
<td>6</td>
<td>Csepel Automobile Works</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Rate of Return</th>
<th>Profits per 100 Forints of Wages</th>
<th>Enterprise</th>
<th>Industrial Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>50</td>
<td>Szolnok Livestock and Meat</td>
<td>Foods</td>
</tr>
<tr>
<td>31</td>
<td>22</td>
<td>Zala Crude Oil Enterprise Northern Hungary Chemical Works</td>
<td>Oil &amp; gas</td>
</tr>
<tr>
<td>32</td>
<td>24</td>
<td>Gyula Meat Combine Orion Radio and Electric Enterprise</td>
<td>Chemicals</td>
</tr>
<tr>
<td>33</td>
<td>44</td>
<td>Hajdu-Bihar City Livestock and Meat</td>
<td>Foods</td>
</tr>
<tr>
<td>34</td>
<td>49</td>
<td>Glass Industry Works</td>
<td>Construction materials</td>
</tr>
<tr>
<td>35</td>
<td>51</td>
<td>COMPAK Commercial Packaging MEDICOR Concrete and Reinforced Concrete Works</td>
<td>Light industry Precision machinery Construction materials</td>
</tr>
<tr>
<td>36</td>
<td>54</td>
<td>Labor Instrumentation Works Pest-Nograd City Livestock and Meat TUNGSRAM Hungarian Synthetics Processing Enterprise</td>
<td>Precision machinery Electric machinery</td>
</tr>
<tr>
<td>37</td>
<td>8</td>
<td>MK Hungarian Cable Works Tisza Crude Oil Enterprise Gyor-Sopron City Livestock and Meat Industry Budapest Confectionary \ Enterprise</td>
<td>Metals Oil &amp; gas Foods</td>
</tr>
<tr>
<td>38</td>
<td>61</td>
<td>Masterfil Wool Weaving \ Capital City Gas Works Enterprise</td>
<td>Textiles Oil &amp; gas Foods</td>
</tr>
<tr>
<td>39</td>
<td>59</td>
<td>Crude Oil and Natural Gas Exploration Enterprise Danube Crude Oil Enterprise Graboplast Gyor Wool Weaving and Synthetic Leather Works</td>
<td>Oil &amp; gas Oil &amp; gas Leather, textiles</td>
</tr>
<tr>
<td>41</td>
<td>76</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>33</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>65</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>9</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>47</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>53</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>56</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>63</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>45</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>45</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>75</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>29</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Rate of Return</td>
<td>Profits per 100</td>
<td>Enterprise</td>
<td>Industrial Sector</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
<td>------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>60</td>
<td>57</td>
<td>Csepel Works—Iron</td>
<td>Metals</td>
</tr>
<tr>
<td>61</td>
<td>64</td>
<td>Kobanya Brewery Works</td>
<td>Foods</td>
</tr>
<tr>
<td>62</td>
<td>55</td>
<td>Chinoin Pharmaceutical and Chemical Products</td>
<td>Drugs</td>
</tr>
<tr>
<td>63</td>
<td>14</td>
<td>Great Plains Crude Oil and Natural Gas Enterprise</td>
<td>Oil &amp; gas</td>
</tr>
<tr>
<td>64</td>
<td>72</td>
<td>Papa Meat Combine</td>
<td>Foods</td>
</tr>
<tr>
<td>65</td>
<td>74</td>
<td>Ganz-Danubius Ship and Crane Works</td>
<td>Machinery</td>
</tr>
<tr>
<td>66</td>
<td>58</td>
<td>Szeged Salami and Meat Combine (PICK)</td>
<td>Foods</td>
</tr>
<tr>
<td>67</td>
<td>48</td>
<td>Csepel Works—Metals</td>
<td>Metals</td>
</tr>
<tr>
<td>68</td>
<td>83</td>
<td>Budapest Meat Packing Enterprise Budapest Textile Printing</td>
<td>Foods</td>
</tr>
<tr>
<td>69</td>
<td>85</td>
<td>Enterprise</td>
<td>Textiles</td>
</tr>
<tr>
<td>70</td>
<td>77</td>
<td>Ajka Aluminum Oxide and Aluminum Foundry</td>
<td>Metals</td>
</tr>
<tr>
<td>71</td>
<td>86</td>
<td>Veszprem Coal Mines</td>
<td>Coal</td>
</tr>
<tr>
<td>72</td>
<td>82</td>
<td>Microelectronics Enterprise (MEV)</td>
<td>Electronics</td>
</tr>
<tr>
<td>73</td>
<td>52</td>
<td>Cement and Lime Works</td>
<td>Construction materials</td>
</tr>
<tr>
<td>74</td>
<td>42</td>
<td>Budapest Power Works Enterprise</td>
<td>Power</td>
</tr>
<tr>
<td>75</td>
<td>80</td>
<td>Kaposvar Meat Combine</td>
<td>Foods</td>
</tr>
<tr>
<td>76</td>
<td>81</td>
<td>Szekszard Meat Packing</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>73</td>
<td>Enterprise</td>
<td>Foods</td>
</tr>
<tr>
<td>78</td>
<td>39</td>
<td>Danube Iron Works</td>
<td>Metals</td>
</tr>
<tr>
<td>79</td>
<td>60</td>
<td>Tisza Power Plant Enterprise</td>
<td>Fuels</td>
</tr>
<tr>
<td>80</td>
<td>66</td>
<td>Gagarin Thermal Works Northern Transdanubia Electric Power Enterprise</td>
<td>Power</td>
</tr>
<tr>
<td>81</td>
<td>67</td>
<td>Vegetable Oil and Laundry</td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>84</td>
<td>Soap Enterprise Almasfuzito Aluminum Oxide Manufacturing</td>
<td>Foods</td>
</tr>
<tr>
<td>83</td>
<td>70</td>
<td>Budapest Electrical Works Electric Power Enterprise</td>
<td>Power</td>
</tr>
<tr>
<td>84</td>
<td>79</td>
<td>beyond the Tisza Thermal Power Enterprise along the Danube</td>
<td>Power</td>
</tr>
<tr>
<td>85</td>
<td>62</td>
<td>Oroszlany Coal Mines Ganz-MAVAG Locomotive and RR Car, Machinery</td>
<td>Coal</td>
</tr>
<tr>
<td>86</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>87</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table B.2—continued

<table>
<thead>
<tr>
<th>Rate of Return</th>
<th>Points of Wages</th>
<th>Enterprise</th>
<th>Industrial Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>89</td>
<td>Borsod Coal Mines</td>
<td>Coal</td>
</tr>
<tr>
<td>89</td>
<td>75</td>
<td>Paka Nuclear Works Enterprise</td>
<td>Power</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>Lower Matra Coal Mines</td>
<td>Coal</td>
</tr>
<tr>
<td>91</td>
<td>91</td>
<td>Dorog Coal Mines</td>
<td>Coal</td>
</tr>
<tr>
<td>92</td>
<td>92</td>
<td>Lenin Foundry Works</td>
<td>Metals</td>
</tr>
<tr>
<td>93</td>
<td>93</td>
<td>Osz Foundry Plants</td>
<td>Metals</td>
</tr>
<tr>
<td>94</td>
<td>94</td>
<td>Gas Service Enterprise beyond the Tisza</td>
<td>Oil &amp; gas</td>
</tr>
<tr>
<td>95</td>
<td>95</td>
<td>Foundry Base Metals</td>
<td>Metals</td>
</tr>
<tr>
<td>96</td>
<td>96</td>
<td>Pet Nitrogen Works</td>
<td>Chemicals</td>
</tr>
<tr>
<td>97</td>
<td>97</td>
<td>Southern Plains Gas Enterprise</td>
<td>Oil &amp; gas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mid-Transdanubia Gas Servicing</td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>98</td>
<td>Company (KOGAZ)</td>
<td>Oil &amp; gas</td>
</tr>
<tr>
<td>99</td>
<td>100</td>
<td>Tatabanya Coal Mines</td>
<td>Coal</td>
</tr>
<tr>
<td>100</td>
<td>99</td>
<td>Mecek Coal Mines</td>
<td>Coal</td>
</tr>
</tbody>
</table>

BIBLIOGRAPHY

China Daily, April 2, 1986.
China Daily, August 9, 1986.
China Daily, Apr. 6, 1989.
Crane, Keith, A Comparison of Foreign Trade Decisionmaking in Poland and Hungary, Ph.D. dissertation, Indiana University, 1983.
“Exclusive Interview with Comrade Brigadier General Dezso,” [Pup, director of the Hungarian People’s Army Career Guidance Department], Igaz Szo, Mar. 1986, pp. 4–5.
Fenjin de Sishinian (Forty years of struggle and advance), Statistics Publishing House, Beijing, 1989.
Foreign Broadcast Information Service, China, Jan. 6, 1986.
Foreign Broadcast Information Service, China, May 21, 1986.
FBIS-CHI-89-052, Mar. 20, 1989, p. 27.
FBIS-CHI-89-152, Aug. 9, 1989.


Gao Shanquan, Jiujianlai de zhongguo jingji tizhi gaige (Reform of China's economic system in the past nine years), People's Press, Beijing, 1987, pp. 37–41.


Jie fangjun Bao (Liberation army daily), May 8, 1988.
Jingji ribao (Economic daily), July 12, 1986.

*Kierunki reformy gospodarczej*, Ksiazka i Wiedza, Warsaw, 1981.


*People’s Daily*, May 9, 1987.


People’s Daily, March 1, 1989.
People’s Daily, April 7, 1989.
People’s Daily, Jan. 11, 1990.
Research Institute of the Center for Rural Development, State Council, Gaige maianlin zhidu Chuangxin (Reforms embarking on institutional innovations), Sanlian Bookstore, Shanghai, 1988.


Wen hui pao, Mar. 21, 1989.


