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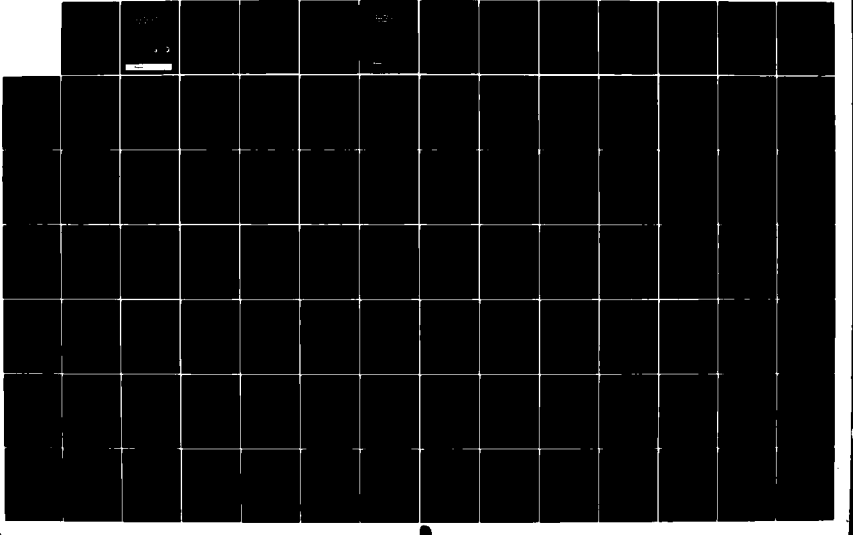

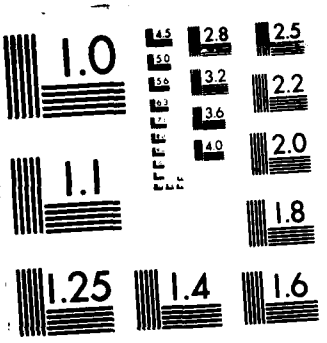

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The Creditworthiness of Eastern Europe in the 1980s

Keith Crane

Rand

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This report develops various scenarios to analyze the hard currency debt problems of Poland, Hungary, and Romania. It considers the effect of adjustment policies on (1) those countries' struggles with their balance of payments; (2) their ability to generate more rapid increases in output through increased hard currency exports; and (3) their levels of military expenditure while there is so much pressure on their balance of payments. It concludes that, if Romania and Hungary manage to service their debts in the next few years, they should be creditworthy borrowers by the end of the 1980s, but that Poland has little prospect of restoring solvency even in the 1990s. Output growth in all three countries will be constrained by their ability to finance hard currency imports and to increase hard currency exports. Western credit policy is not likely to affect either the independence of these countries from the Soviet Union or their military expenditures.

R-3201-USDP

The Creditworthiness of Eastern Europe in the 1980s

Keith Crane

January 1985

Prepared for the
Office of the Under Secretary of Defense
for Policy

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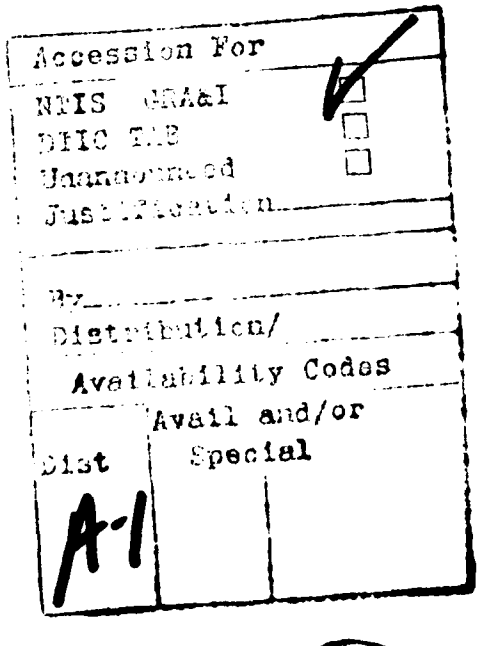
PREFACE

This report has been prepared for the Office of the Under Secretary of Defense for Policy. It is part of Rand's research program on international economic policy and should be of interest to policymakers concerned with international capital markets, East-West economic relations, and economic developments in Eastern Europe. It provides hard currency balance of payments projections for Poland, Hungary, and Romania; analyzes their creditworthiness; and projects their output and defense expenditures for the 1980s. The report was written in 1983 and 1984 and therefore some of the assumptions and projections have become dated by the time of publication. The general conclusions, however, still stand.



SUMMARY

This report seeks to answer three questions. First, will present adjustment policies permanently improve Eastern Europe's struggle with its hard currency balance of payments, or will more acute debt crises recur when rescheduled loans come due or governments feel compelled to relax their squeeze on consumption? Second, what is the probable effect of current account adjustment on the domestic economies? Will these countries be mired on low growth paths for the foreseeable future, or will they be able to generate more rapid increases in output through increased hard currency exports? Third, given the probable growth paths of these countries, how much are they likely to devote to military expenditures while there is so much pressure on their balance of payments?

The analysis is confined to Poland, Hungary, and Romania, all the Warsaw Pact members with serious hard currency debt problems except for East Germany. For purposes of comparison, they illustrate very different approaches to the solution of their debt problems. A series of scenarios for each country project hard currency balance of payments and output. Output projections are made using models in which hard currency imports become inputs to the production function. These supply-side models capture the constraints on output imposed by balance of payments pressures.

Poland

Six scenarios are formulated to analyze Poland's prospects: (1) "more of the same"; (2) the present liberalizing reform takes root and leads to more rapid hard currency export growth and labor productivity increases; (3) "no Soviet trade deficit," in which Poland is no longer permitted to run ruble trade deficits with the Soviet Union; (4) "reconciliation," in which Western sanctions are dropped and the West makes net "new" loans to Poland; (5) a continued moratorium on debt service payments on guaranteed debt; and (6) total default. In all the scenarios Poland remains bankrupt throughout the period of analysis (1984–1989). The country will be unable to service its debts without rescheduling. Indicators of financial health all lie outside the realm considered acceptable by international bankers, although the indicators improve considerably in the case of successful economic reform.

Projections for hard currency imports allowed estimation of output levels for each scenario. In all cases, utilized national income (UNI),

the difference between output and net exports, remained below its 1978 peak for almost the entire period. These projections indicate that Poland will face severe economic problems for the entire decade mainly because of servicing its hard currency debt.

Polish defense expenditures will be much larger in this decade than in the 1970s, despite the current economic crisis, assuming that the share of UNI devoted to defense will continue at the higher levels recorded in 1983 and projected for 1984. However, if the Polish government cuts the share of military spending in UNI from over 4 percent to 3 percent (the 1978 level), output could rise slightly while defense expenditures would fall below the levels of the late 1970s.

The Polish government faces two domestic policy options: (1) make a concerted attempt to carry out economic reform, or (2) continue the present policy of price controls and allocation of resources by administrative fiat within a partially reformed system. A third option, a return to the old Soviet-style system, is considered untenable. The projections indicate the only promising domestic economic policy is the coherent implementation of economic reform.

In foreign economic policy, the government can try to rechannel trade to the Council for Mutual Economic Assistance (CMEA), default on its debts selectively or in toto, seek new loans through a reconciliation with the West, or confine itself to attempting to reschedule maturing loans. Present efforts to rechannel trade appear to have been unsuccessful: The share of exports to the West in total exports has increased, and ruble imports apparently have been poor substitutes for hard currency imports. Neither default scenario offers the Polish government a solution to its problems. In both cases output projections differ little from the base case and Poland's debt problems become insoluble. Reconciliation with Western governments offers the greatest benefits to the economy.

Policy options open to Western governments were analyzed in the context of three objectives: repayment of the debt, reduced Polish military expenditures, and reducing Soviet influence in Poland. The reconciliation and reform scenarios were most promising in terms of increasing potential for servicing the debt; the two default options were counterproductive. However, the Polish government has consistently protected domestic consumption rather than fostering exports, so if Western governments advance "new" money, they would be well-advised to establish and monitor specific economic policies. Poland is unlikely to adopt a more pro-export orientation unless lenders apply pressure.

Military expenditures in Poland appear to be more a function of the preferences of the leadership or the costs of quelling Solidarity than of

the state of the economy: Expenditures were maintained or increased in 1982–1984 during the nadir of the Polish recession. Consequently, credit policies will not have much effect on the level of military spending unless the Polish government responds to a reconciliation with the West by tacitly agreeing to lower defense outlays, which is very unlikely in light of past behavior.

The current Polish leadership has rebuffed political changes as a precondition for rescheduling. Poland's creditors appear to have limited influence on the political decisions made by Poland's leaders and are not likely to have a major direct effect on Polish-Soviet relations. However, reconciliation with the West may provide the Polish leadership with more room to maneuver in its foreign policy.

Hungary

After near-default in 1982, Hungary has made some progress in reducing its hard currency debt burden. However, as loans contracted in the late 1970s come due, questions arise as to whether Hungary will be able to maintain its creditworthiness and the price it must pay to do so.

These questions are addressed through projections of Hungarian hard currency balance of payments and output levels for four scenarios: (1) a "muddling-through" base case, (2) current reform measures substantially increase factor productivity, (3) closing the ruble trade deficit with the Soviet Union by diverting hard currency exports to ruble trade, and (4) a liquidity crisis in which foreign banks withdraw deposits from Hungary and refuse to roll over loans. In all scenarios except the fourth, Hungary should be able to service its debts. By 1988, debt service and debt export ratios will have fallen to a point where the country should be a good credit risk.

Import estimates derived from balance of payment projections allowed projections of Hungarian output and consumption for each scenario. In all cases, growth rates for both output and consumption are below those recorded during the 1970s. Economic liberalization (scenario 2) paints the most optimistic picture: Output increases at an average annual rate of 4.4 percent, substantially greater than the 3.3 percent in the base case. The Hungarians would find burdensome closing the Soviet ruble trade deficit by diverting hard currency exports to ruble trade (scenario 3), but neither output nor consumption would fall precipitously. However, another liquidity crisis would impose tremendous hardship on the country.

If external equilibrium is to be maintained, the Hungarian leadership will have to continue to increase exports to all hard currency

markets. Hard currency imports will also have to be restrained, through either exchange rate adjustments or the continued use of import permits. The government faces two options for internal adjustment: expansion of economic liberalization, or the status quo. Extension of reforms would be the most attractive policy because the resulting increases in output and consumption are substantial.

If Hungary is to continue to service its loans, it must have both current account surpluses and the continued confidence of Western bankers. The most appropriate policy of Western governments interested in the repayment of Hungarian loans is continued reliance on the International Monetary Fund. Thus far, the IMF has successfully encouraged the Hungarians to adopt policy changes consistent with increasing the current account surplus and maintaining the confidence of the international banking community. Reliance on the IMF may also forestall Soviet fears of possible involvement in Hungarian affairs by individual Western governments.

Political liberalization is not a necessary corollary to economic liberalization, but in the case of Hungary greater political freedom has accompanied past economic changes. Although the policy tools available to Western governments for fostering the Hungarian reform appear to be limited, "differentiation," the current policy of the United States and some other Western governments, appears to have contributed to improved relations, fostering reform and encouraging limited moves toward greater independence in domestic and foreign policy.

All the scenarios project moderate increases in military spending commensurate with the moderate increases in output. Hungary's military establishment is currently one of the weakest in the Warsaw Pact and would be of minor importance in a Soviet attack on Western Europe, so these increases would have little or no effect on the balance of conventional forces in Europe.

Romania

Romania's creditworthiness for the rest of the decade is projected in three scenarios: (1) a base case, assuming continued exclusion from international financial markets; (2) rescheduling, with rollover of 60 percent of debt owed to Western commercial banks and to Western governments; and (3) the Soviet Union permits Romania to purchase oil for transferable rubles instead of hard currency.

In all three scenarios the next few years will be difficult ones for Romania. In 1985, projected imports are below levels needed to keep Romanian industry operating at capacity, even in the most favorable case because of both the burden of servicing the hard currency debt

and the low level of projected Romanian exports. Increased demand and continuing shortfalls in domestic production have taken Romania out of the category of net exporter of petroleum products. As oil exports have declined, Romania has had difficulty in finding other exports to cover imports of oil, raw material, and components needed to keep Romanian industry operating near capacity levels.

By 1989, in all scenarios Romania substantially reduces its debt and has comfortable surpluses in net compressible import capacity. If the Romanians sacrifice to service their debts over the next three years, they will possess a tolerable debt level by the end of the decade.

Given the burden of debt service payments, Romania has difficulties until 1987 in all the scenarios. A major policy goal, rapid economic growth through industrialization, will probably not be feasible because of the need to channel resources to exports rather than investment. Furthermore, political unrest may increase as living standards continue to stagnate, or at best improve slightly.

The Romanian government can respond to this state of affairs by continuing to coerce the population into quiescence, or it can loosen some of the more stringent regulations on private activities and hope the improvement in market supplies of food and services will dampen domestic unrest. Because of Romania's highly centralized political and economic systems, the government is unlikely to accept economic reform involving decentralization of economic decisionmaking.

The Romanian government has two foreign policy options. First, it can try to mend its fences with the Soviet Union. If the Soviets respond by allowing Romania to import oil for transferable rubles, balance of payments pressures would be somewhat eased, as shown in the third scenario. The second foreign policy option is to continue to play the maverick in the CMEA and maintain good relations with the West and third world countries. The decision of the Romanians to attend the Los Angeles Olympics indicates that that is the Romanian government's preferred policy. If this policy leads to a partial rollover of Romanian loans in the next few years, it may be more economically beneficial than a *rapproachement* with the Soviets.

Western governments and banks have considerable power to ease Romania's problems. Western credit policies could be geared toward achieving certain foreign policy goals with regard to Romania: (1) timely repayment of Romania's loans and interest, (2) continued independence in Romanian foreign policy, and (3) increased respect for human rights.

Repayment appears to be attainable best by working with the IMF, if further loans are to be granted or a rescheduling negotiated. IMF refusal to disburse loans when Romania has failed to satisfy its debt

commitments, and the disfavor of the international financial community, have effectively pressured the Romanians to meet their financial obligations. Neither IMF policies nor pressure from individual Western countries have had much effect on Romania's domestic

Although a formal agreement to advance loans in exchange for the continuance of Romania's independent foreign policy is probably impossible, maintaining foreign policy independence would be more feasible if the West agrees to roll over part of Romania's debt in the next few years. Rolling over credits would give the Romanians greater leeway in which to pursue these policies. Given the poor choice of some of the past projects financed by Western governments, however, both Romania and the West may be better off if lenders independently assess the profitability of projects, rather than rely on Romanian studies.

Threats to withdraw trading privileges or credits have had some effect on Romanian immigration policies in the past but do not appear to have had much influence on other Romanian policies concerning civil liberties. In general, Romania's human rights performance has been poor, so the degree to which credit policy can be used to improve human rights performance is probably limited.

Conclusions

According to the scenarios projected for these three countries, East European debt problems are far from over (Table S.1). Poland fails to restore its creditworthiness, and Hungary and Romania both face difficult obstacles as they attempt to meet their debt obligations. Only Hungary retains international creditworthiness; Romania and Poland have already forced their creditors to reschedule their loans. Paradoxically, this makes Hungary the most vulnerable to its creditors. If international banks withdraw their deposits and refuse to roll over short term loans, Hungary would probably request a rescheduling.

If Romania and Hungary manage to service their debts in the next few years, they should be very creditworthy borrowers by the end of the 1980s. Poland has little prospect of restoring solvency even in the 1990s.

Output growth in all three countries will be constrained by their limited ability to finance hard currency imports and to increase hard currency exports. In the most optimistic scenarios, Polish output fails to regain its previous 1978 peak until 1987 or later. Poland's national income projections are even more depressing. In some scenarios even by 1989 living standards fail to regain the level achieved in 1978. For Romania, the next few years will probably be ones of low growth, in

Table S.1

SUMMARY OF PROJECTIONS

Scenario	Year	Hard Currency Imports (millions of $)	Net Debt	Debt Service Ratio	NMP	Military Spending
Poland						
Actual	1980	8,730	24,600	1.07	100	100
1.a. Initial	1989	8,560	28,710	.66	113.7	129
1.b. Lower defense spending	1989	8,560	28,710	.66	113.9	96
2. Successful reform	1989	12,430	28,710	.66	128.0	147
3. No Soviet trade deficit	1989	8,380	28,710	.67	113.3	129
4. Reconciliation	1989	9,780	31,610	.61	116.0	131
5. Moratorium	1989	8,300	34,490	.47[a]	113.3	128
6. Total default	1989	3,270	47,190	1.22	99.1	108
Hungary						
Actual	1980	5,370	7,190	.26	100	100
1. Initial	1989	9,620	5,760	.15	125.3	120
2. Successful reform	1989	9,620	5,760	.15	134.5	129
3. No Soviet trade deficit	1989	8,790	5,760	.16	123.7	118
4. Liquidity crisis	1985	4,150	4,310	.33	107.4	93
Romania						
Actual	1980	8,090	9,560	.22		
1. Initial	1985	3,350	6,185	.44	—	—
2. Rescheduling	1985	3,960	6,810	.44	—	—
3. Soviet oil	1985	3,720	6,185	.44		

[a]Excludes principal due.

contrast to the very rapid rates of increase recorded in the 1960s and 1970s. Output increments will have to be devoted to exports rather than investment; and imports, especially of investment goods, will continue to be constrained.

Although the present crisis drives Poland and Hungary toward economic reform, the same forces encourage them to centralize control over increasingly scarce foreign exchange, so the successful implementation of reform measures remains in doubt. Romania may still be able to generate economic growth by curbing consumption and increasing investment within its Stalinist economic system. Greater integration

into the CMEA may be impractical for these three countries because they need to increase their hard currency exports to service their debts.

Eastern Europe's current economic difficulties present both quandaries and opportunities for Western policymakers. Ensuring the prompt payment of debt service is problematic, especially as both Poland and Romania have not met past obligations. However, extending or withholding new credits may provide policymakers with an effective instrument in their dealings with East European governments. Poland remains interested in IMF membership, Hungary needs to remain in international financial markets, and Romania would like to reenter them. Understandably, Western creditors are unwilling to throw good money after bad. If, however, interest payments or principal are partially recycled to the country on the condition the money will be used to increase exports, creditors may improve their prospects of repayment. The banks have followed this practice for Poland. If "new" money is advanced, the loans can be disbursed in tranches conditional on the fulfillment of specified economic targets much as the IMF does. Because all three countries permit limited forms of foreign investment, Western governments could pressure these countries to seek new money in the form of equity, rather than loans. These governments could also be encouraged to convert loans into equity, although this suggestion is very unlikely to be accepted.

Western credit policy is not likely to affect either the independence of these three countries from the Soviet Union or their military expenditures. Both Romania and Hungary have enjoyed the benefits of present Western policies of differentiation, including access to subsidized credits. These policies may have helped create a climate in which they can pursue more independent foreign or economic policies, but the overwhelming political and economic role of the Soviet Union remains the determinant of the limits on these policies. Western policies will not change this situation. Moreover, such policies as easier access to Western credits may permit East European governments to "buy off" their populations and thereby refrain from economic liberalization, rather than encourage reform.

To the extent Western credit policies contribute to more rapid economic growth in Eastern Europe, military expenditures can be increased more easily. The greater supply of resources does not necessarily mean that more will be spent, however. For example, Poland increased the share of UNI devoted to the military during its economic crisis; Romania claims to have reduced it. Perhaps the political climate between East and West is a more important determinant of military expenditures than of economic growth. When the climate is better, East European regimes can argue against increasing

expenditures better than during times of stress. In sum, Western credit policies probably have little effect on military expenditures in Eastern Europe.

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CONTENTS

TABLES

I. INTRODUCTION

PURPOSES

In the Western media the debt problems of Eastern Europe have been superseded by those of Latin America. While the large Latin American borrowers continue to need "new" money to make interest payments, all the countries in Eastern Europe, with the exception of Poland, have generated surpluses on their hard currency current accounts in the past two years. Moreover, the size of East European debts is far less than loans extended to Brazil and Mexico. At the end of 1983, Poland, the most heavily indebted, carried a gross debt of $26 billion; Romania owed $8880 million and Hungary $7520 million.[1] Brazilian debts totaled roughly $96 billion and Mexican debts $91 billion at the end of 1983.[2] For these reasons the East European debt crisis appears to have subsided.

Poland, Romania, and Czechoslovakia have obtained hard currency trade surpluses by reducing imports; exports have increased only slowly or declined. This has meant that the main approach to solving the debt problem has been to squeeze domestic consumption and investment and thereby imports, rather than to increase output and export the increment. In other words, these countries have purchased current account surpluses at the expense of economic growth.

This report questions whether these adjustment policies have permanently improved East Europe's persistent hard currency balance of payments problems or whether the crises will recur more acutely when rescheduled loans come due or governments feel compelled to relax their squeeze on consumption. The report also seeks to determine the strength of the turnaround on the current account. Bunching of payments, sudden shifts in interest rates, or the worsening of East-West relations could lead to another run on Eastern Europe by Western banks. If this happens, will the countries be able to last out the run, or will they default on their debts?

A second purpose of this report is to determine the probable effect of current account adjustment on the domestic economies. Will these countries be locked into low growth paths for the foreseeable future or

[1] *Economic Memorandum*, Polish government document, 1983; IMF, *International Financial Statistics*, December 1984.

[2] *The Economist*, 1 September 1984, p. 59.

will they be able to generate more rapid increases in output through increased hard currency exports?

A third purpose is to analyze the probable effect of East European debt problems on military expenditures. Given the growth paths of these countries, how much are these countries likely to expend on their military establishments during this time of balance of payments pressures?

FOCUS

To keep this study to a manageable length, the analysis is confined to three countries: Poland, Hungary, and Romania. These countries include all the Warsaw Pact members, except for East Germany, with serious hard currency debt problems. Yet they provide very different approaches to solving these problems. Each government has adopted different policies in relation to both its creditors and its population. For example, the Polish government has ignored the bulk of its debt obligations and concentrated on first regaining its position as the sole political power in the country and second preventing further declines in consumption. Hungary has striven to retain good relations with its creditors while attempting to avoid declines in per capita consumption. The Romanians have vacillated. They were forced to ask their creditors to reschedule in 1982 and 1983, but in 1984 they planned to meet their obligations in full. They were able to do so because they changed a $1-1/2 billion hard currency trade deficit in 1980 to a surplus of the same size in 1982 by cutting investment and consumption and by severe curbs on hard currency imports.

The three governments involved have also adopted very different systemic solutions for solving the crisis. The Polish government has designed a program of economic liberalization but has nullified much of it by continuing policies of administrative interference in price setting, allocation of inputs, and investment decisions. The Hungarians have made a concerted effort to return to the principles of the 1968 economic reforms. They have attempted to integrate the domestic price system with prices on Hungary's major hard currency markets and to give enterprises more independence. Romania has responded to its crisis by increasing centralization in a traditional Soviet type of system.

CONCEPTS AND METHODS OF PROJECTION

This report constructs a series of scenarios that attempt to capture the implications for the country's future creditworthiness and economic growth of the different policy choices open to leaders in the Soviet Union, the West, and the country itself. In each of the scenarios projections are made for the hard currency balance of payments and, in the case of Poland and Hungary, for economic output through 1989, which was chosen as the end date for the scenarios because Poland's problem of repaying rescheduled loans emerges in that year, yet it is not so far in the future that present conditions cannot be used as a base from which to project the course of the three economies.

Balance of Payments Projections

The first part of each section uses a methodology developed by Avramovic (1964) and further developed by Solberg (1982). Avramovic introduces the concept of net compressible import capacity as a measure of a country's balance of payments problems. He defines net compressible import capacity as the difference:

$$NCIC = X - I - A - NCM + NER - CR, \qquad (1)$$

where $NCIC$ equals net compressible import capacity,
X equals exports,
I equals interest payments,
A equals amortization,
NCM equals noncompressible imports,
NER equals new external resources obtained by the country, and
CR equals changes in reserves.

The resulting difference serves as a measure of a country's external imbalance and therefore each country's ability to service its debts.

The terms in Eq. (1) are self-explanatory except for NCM, noncompressible imports. This is an ex ante concept; it is defined as those imports policymakers reduce only when they have exhausted the options of reducing reserves, cutting other (compressible) imports, or increasing exports or loans. NCM are largely determined by the structural characteristics of the economy. Their reduction leads to a decline in output and may reduce the standard of living. In most economies these imports consist of raw materials, food, and semimanufactures.

The difference between hard currency earnings and noncompressible expenditures, the sum of interest payments, amortization, and noncompressible imports equals the balance for compressible imports.

This difference plus loans or foreign investment[3] equals net compressible import capacity, which measures the severity of the hard currency balance of payments constraint on the country's economy.

Most of Eastern Europe's debt is in hard currency, and the lack of imports from hard currency areas, rather than imports in general, constrains economic output,[4] so this report projects *hard currency* net compressible import capacity, rather than total net compressible import capacity. Imports purchased for transferable rubles are considered to fall into a separate category.[5]

Net compressible import capacity and such traditional indicators of debt burden as debt service and debt export ratios are used to determine a country's creditworthiness. A country is assumed to be creditworthy when net compressible import capacity is positive and debt service ratios fall below .25, a level bankers consider to be of concern. The relative creditworthiness of these countries is judged according to how these indicators change from scenario to scenario.

Output Projections

The effect of balance of payments pressures on output and consumption is addressed through the use of projections generated by small macroeconomic models. These models differ from traditional models in that they incorporate hard currency imports as an input in the production process. In the United States, standard large-scale macromodels estimated with econometric techniques have generally been predicated on theoretical models in which output changes are primarily demand determined, although supply equations are included.[6] These models often incorporate a trading sector, but their theoretical base tends to be a closed model.

Such models provide poor approximations to the reality of centrally planned economies (CPEs). First, CPEs are shortage economies in which macroeconomic control is exercised primarily through input

[3]All three countries permit limited foreign investment, but flows have been negligible because of problems with the repatriation of profits and regulatory stability.

[4]Olechowski, 1982, p. 20.

[5]This implies that transferable ruble imports are not substitutable for hard currency imports. This assumption is not as strong as it appears. In transferable ruble trade, increases in imports of "hard" goods, goods that can be sold on the world market at the same price as the same Western product, need to be matched by exports of hard goods of equivalent value. Thus the hard currency trade balance would remain the same even if a greater share of trade in hard goods is conducted in transferable rubles. The countries are assumed to be unable to substitute soft transferable ruble imports for hard currency imports. This assumption is strong although it may hold true for Poland (Olechowski, 1982, p. 20; Kemme and Crane, 1984).

[6]Duggal, Klein, and McCarthy, 1974.

controls rather than demand regulation, and thus models expressing economic activity as a function of demand rather than supply are inappropriate. Second, the East European CPEs are open economies in the sense that a large proportion of their output is traded. In contrast to small market economies, however, these economies typically restrict imports to noncompetitive imports—goods either not produced in the domestic economy or not produced in sufficient quantity to satisfy domestic demand. Consequently, changes in the level of imports greatly affect output, whereas output in market economies is determined to a greater extent by aggregate demand in domestic and export markets. Changes in output levels, however, do not necessarily have a similar effect on exports; exports can increase or decrease during times of economic decline depending on the objectives of the central authorities. Thus, neither closed models nor small open market economy models are suitable for modeling economic activity in a CPE.

The models constructed here attempt to avoid these problems by making output a function of hard currency imports. In turn, hard currency imports are determined by export earnings and debt service, which are assumed to be determined exogenously. Imports are then equal to:

$$\text{Expected Hard Currency Imports} = HCE - I - A + L \qquad (2)$$

where HCE is hard currency earnings,
I is total interest obligations,
A is amortization (principal due), and
L equals loans and foreign investments.

The models are designed to make the linkages clear between supplies of hard currency imports, debt service obligations and net material product (NMP) and utilized national income (UNI), the goods and services consumed within the country, so that it is easy to trace the effects of the different hard currency import levels projected in the scenarios on NMP and UNI.

Models were constructed only for Poland and Hungary. The lack of adequate, reliable data on Romania's real hard currency imports, output, and capital stock made it impossible to construct a model for Romania.

Defense Spending

The projection of defense expenditures presented some problems. With the exception of some work by Alton (1981), very little research

appears to have been conducted on East European military expenditures. Although all three countries publish defense budgets, they appear to exclude research and development costs and may also omit some other expenditures.[7] Furthermore, military equipment prices may have been kept artificially low in some countries.[8]

Despite these problems, projections were made on the basis of the military budgets reported by the Polish and Hungarian governments. Military expenditures were calculated as a percentage of UNI for the most recent year available. East European governments apparently target a constant percentage of income to be devoted to the military, so this percentage was assumed to remain fixed for the decade.[9] Total military expenditures were then projected by multiplying this percentage times projections of UNI.

An attempt was made to split these projections into personnel and other costs. These costs were extrapolated from 1978 estimates using cost of living and wage indexes.[10] The extrapolations were used to estimate the division of the military budget between personnel and other costs for the latest year for which data were available. This division of expenditures was then assumed to hold for the entire period of projection.

POLISH SCENARIOS

The section on Poland contains the largest number of scenarios primarily because the country and its creditors have the most divergent set of policy options. The base case assumes that the West reluctantly agrees to reschedule Polish loans but advances no new money; relations remain strained. Domestically, the Polish government remains unwilling or unable to implement economic liberalization and output remains tightly constrained by shortages of hard currency imports. In view of the slow pace of improvement in Polish-Western relations, this scenario may be the most probable. A variation in which defense spending is cut from 4.04 to 3 percent of UNI is also included.

Scenario 2 is predicated on the successful implementation of Poland's economic reform. Labor productivity and hard currency exports are assumed to increase more rapidly than in the base case.

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[7]Alton et al., 1981, p. 409.

[8]Checinski, 1974, p. 19.

[9]The share of military expenditures in Polish UNI rose considerably in 1983 and 1984, however.

[10]Alton et al., 1981, p. 409.

Considering the slow progress of the reform to date, this scenario is somewhat unlikely. Scenario 3 is based on a Soviet refusal to permit Poland to run ruble trade deficits after 1984. Scenario 3 is unlikely because Polish plans for 1985 continue to assume deficits in transferable ruble trade. Scenario 4 assumes that the West and the Polish government come to a reconciliation. The West advances some "new" money, enabling the Poles to remove output bottlenecks through increased hard currency imports and thereby increase hard currency exports. In view of the decline of Western opposition to Polish membership in the International Monetary Fund (IMF), this is the most likely scenario after the first. Scenario 5 continues the status quo; Poland refuses to service its guaranteed debt until 1989. Scenario 6 simulates formal Polish default on the debt. Scenario 5 is also improbable unless Polish-Western relations reverse course. Scenario 6 is highly unlikely.

HUNGARIAN SCENARIOS

Scenario 1, muddling through, assumes that hard currency debt will be rolled over, but that Hungary will not receive any new money. In scenario 2 the new wave of economic reforms implemented since 1979 are assumed to be successful, and capital and labor productivity increase more rapidly than in the base case. In scenario 3 the Soviet Union is assumed to demand that Hungary close its ruble trade deficit before the Soviets agree to purchase Hungarian products for hard currency. Scenario 4 assumes a run on Hungary by Western banks.

The first and second scenarios are equally probable; the rate of change in the reform appears to be accelerating, but periodically the central authorities introduce measures contrary to the spirit of the reform. Rapid declines in 1984 ruble trade deficits indicate scenario 3 may also be likely. A run on Hungary by Western banks is highly improbable.

ROMANIAN SCENARIOS

In scenario 1 Romania is assumed to have to make payments of both interest and principal without the benefit of rescheduling. Although this is consistent with Romania's present status in the international financial markets,[11] the country may be able to return to the markets

[11]Western bankers say they are refusing to lend to Romania because of the problems Romania caused before rescheduling.

in 1985. This eventuality was captured in scenario 2. Scenario 3 analyzes the potential benefits to Romania of mending its fences with the Soviet Union. The first scenario appears to be highly probable, the second less so, because the Romanian leadership continues to insist it will not borrow from Western banks as long as interest rates remain high. The third scenario is unlikely as Romania failed to obtain oil in trade talks with the Soviets in the spring of 1984 and subsequently attended the Los Angeles Olympics.

II. THE POLISH HARD CURRENCY DEBT CRISIS

INTRODUCTION

On December 13, 1981 Wojciech Jaruzelski, head of the Polish armed forces, declared a state of war in Poland. In response Western governments refused to continue discussions on rescheduling Polish debt; the Polish government refused to make payments on debt due. At this juncture several individuals advocated declaring Poland in default, but Poland's creditors decided against this course. A stalemate ensued. Although Poland and its bankers signed a series of rescheduling agreements on unguaranteed loans, Poland made no payments on guaranteed loans. Furthermore, the Polish government threatened to sue the U.S. government for damages because of the sanctions, a threat that may have been seen as a pretext for delaring default on guaranteed loans.[1]

The stalemate has broken. Western governments are coming to an agreement with the Polish authorities on government guaranteed debt, and Poland's application for reentry into the IMF is being reactivated.[2] Bankers have signed a multi-year rescheduling of Poland's debt, thereby providing Poland with a stable debt schedule for most of the rest of the 1980s.

These policy changes are occurring as the Polish economy fails to generate hard currency trade surpluses sufficient to cover interest due on hard currency debts, let alone principal payments. The process of economic adjustment in Poland is far from complete, and the date when Poland will meet its financial commitments continues to recede.

Polish research institutes and the Planning Commission have studied the probable course of the Polish economy over the next few years. The emphasis of these studies has been on maximizing future rates of growth in output and consumption, not on achieving external equilibrium.[3] Hard currency current account balance is not assumed to come about during the 1983–1985 plan period.[4]

Western scholars have concentrated on ascertaining the causes of the Polish economic crisis, rather than projecting its future path.[5] With the exception of the work of Wharton Econometrics, there have been

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[1]*Zycie Warszawy*, 12–13 November 1983, p. 1.

[2]*FBIS*, 28 January 1985, p. G3.

[3]For example, Sadowski, Kotowicz, and Szeworski, 1981, p. 437, project Polish output under the assumption of debt rescheduling and a default of a moratorium on debt payment. In both scenarios consumption levels are assumed to grow.

[4]Polish Planning Commission, Polish planning documents, unpublished.

[5]Montias, 1982; Fallenbuchl, 1982.

no Western projections of Poland's current account. The projections published by Wharton are generally confined to one scenario out of many. This report provides projections for several scenarios, thus enabling Western policymakers to ascertain the implications of the policy choices they face on future Polish creditworthiness and output.

ECONOMIC COLLAPSE

The details of the Polish balance of payments, economic, and political crises have been well-documented.[6] The extent to which these crises are intertwined, however, cannot be overstressed. To a great degree, Poland's hard currency balance of payments problems sparked the economic and political crises. Credit constraints, a result of Poland's increasing hard currency debt, forced the Gierek regime to begin closing the hard currency current account deficit in the late 1970s. (See Table 1.) The deficiencies of the Polish economic system, coupled with wrong-headed government policies intended to close this deficit, resulted in declines in economic output but little improvement in external balance. For example, bureaucrats attempted to reduce the hard currency current account deficit by commanding enterprises to increase exports and reduce imports. Because they lacked the information needed to distinguish the most needed imports from those of lesser importance, their commands often led to production bottlenecks, created when domestic suppliers were forced to export the input or trading organizations were denied permission to import it. As systemic failings and the incompetence of the government became increasingly apparent, the stage was set for the political unrest that led to the formation of Solidarity and to the "Polish Renewal."

Pointing to Polish nonsocialist trade flows, many trace Poland's economic decline, which began in 1978–1979, to the overly rapid increases in investment during the first half of the 1970s made possible by loans and credits granted by Western banks and governments for imports of machinery. (See Table 2.) Between 1970 and 1975 the value of hard currency imports grew very rapidly in both real and nominal terms per year (27 percent and 39 percent, respectively); machinery imports grew even more rapidly, 52 percent annually in nominal terms.[7] Although hard currency exports also increased (8.5 percent in real terms and 22.4 percent in nominal terms),[8] they failed to keep pace with imports (Table 3). The Polish government adopted a deliberate policy of financing this growing trade gap by borrowing from

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[6]Fallenbuchl, 1982; Brumberg, 1983.

[7]*Rocznik Statystyczny* (the *Polish Statistical Yearbook*, henceforth *RS*), 1976, p. 334.

[8]*RSHZ*, 1981, p. 5.

Table 1

MEASURES OF THE BURDEN OF POLISH HARD CURRENCY DEBT

Year	Net Hard Currency Debt (millions of $)	Debt Service Ratio[a]	Debt Export Ratio
1971	765	NA	.53
1972	1150	.15	.64
1973	2215	NA	.88
1974	4120	NA	1.12
1975	7380	.30	1.79
1976	10680	.42	2.41
1977	14225	.59	2.92
1978	17530	.79	3.20
1979	19280	.95	3.03
1980	24600	1.07	3.28
1981	25000	1.02	4.64
1982	25450	NA	4.62

SOURCES: Net hard currency debt: 1971–1976—Lenz and Teal, 1981, p. 745; 1977–1978—WEFA, March 1981, p. 54; 1979—*Rocznik Statystyczny Handlu Zagranicznego* (the *Polish Statistical Yearbook of Foreign Trade*, henceforth *RSHZ*), 1981, p. 52; 1980–1981—*RSHZ*, 1982, p. 52; 1982—WEFA, September 1983, p. 77.

Debt service ratios: 1971–1979—Zoeter, 1981, p. 730; 1980–1982—WEFA, March 1983, p. 35.

Hard currency debt/export ratios: 1971–1982—Calculated from net hard currency debt divided by Polish nonsocialist exports (*RSHZ*, 1982, pp. 3,4).

[a]The sum of interest payments and amortization of medium and long term debt due in a year divided by exports.

Western banks and governments. Although some Polish critics maintain that these policies led to Poland's subsequent economic collapse, low rates of interest and the need to make Poland's capital stock more energy efficient imposed by the 1973 oil price increase indicate that borrowing to finance investment was economically rational at the time.[9] Other East European countries and many of the developing countries pursued similar policies with varying degrees of success—e.g., South Korea and Malaysia. After following this policy for four years, Poland's debt service and debt/hard currency export ratios in 1975 were high, but not yet unmanageable (Table 1).

The primary cause of the Polish economic crisis was probably not only the investment boom of the early 1970s, but the leadership's refusal to quickly curb this boom and the imports it sucked in following the 1974–1975 recession in the West. Moreover, the Polish

[9](Tyson, 1984).

Table 2

POLISH NET MATERIAL PRODUCT, UTILIZED NATIONAL INCOME, AND INDUSTRIAL OUTPUT, 1970–1982
(Constant prices, 1970 = 100)

Year	Net Material Product	UNI	Net Industrial Output
1971	108	110	109
1972	120	124	120
1973	132	141	134
1974	146	158	150
1975	159	173	167
1976	170	184	182
1977	179	188	196
1978	184	189	201
1979	180	182	198
1980	169	172	190
1981	149	150	159
1982	137	133	152

SOURCE: *RS*, various years.

economic system was unable to efficiently reallocate output to hard currency exports and to redistribute imports to the most efficient users when adjustment became imperative. Roughly 70 percent of outstanding Polish hard currency debt in 1981 was acquired between 1976 and 1981 (Table 1). The $16 billion increase exceeded total Polish hard currency imports of machinery ($12.5 billion), indicating that after 1975 borrowings were used not only to pay for imports of investment goods but also to finance imports of intermediate goods and agricultural commodities and to service previous debt. For example, much of what Poland now owes the U.S. government was borrowed from the Commodity Credit Corporation to import agricultural commodities during these years. By 1980 and 1981 most borrowings were used to roll over previous loans and to make interest payments.[10]

This change in the use of increases in Polish borrowing reflects a change in the composition of hard currency trade.[11] By 1980, the percentage of machinery imports in hard currency trade had declined because of cuts in investment, and the percentage of intermediate goods increased because of greater demand for hard currency imports

[10]"Beyond the Boundaries of Default," 1981, p. 17.

[11]The share of machinery in hard currency imports fell from 36 percent in 1975 to 21 percent in 1980; the share of food and intermediate goods increased correspondingly (*RSHZ*, 1981, p. 13).

Table 3

POLISH CONVERTIBLE CURRENCY BALANCE OF PAYMENTS
(Millions of $ U.S.)

Current Account	1970	1975	1980	1981	1982
Merchandise exports (f.o.b.)	1300	4365	7950	5485	4880
Receipts for services	175	570	950	660	480
Transfers to Poland	75	270	1015	955	410
Interest received	—	30	130	150	80
Merchandise imports (f.o.b.)	-1200	-7345	-8730	-6230	-4530
Payments for services	-150	-510	-1080	-510	-400
Transfers from Poland	0	0	-500	-625	-90
Interest paid	-50	-510	-2450	-2260	-1830[a]
Balance	+150	-3130	-2715	-2375	-1000
Capital Account					
Increases in net debt					
Long and medium term	-50	2530	3010	1340	-740
Short term	-25	690	-720	-830	-110
Financial operations (net)	50	-120	-160	-480	-110
Changes in bank balances	-50	30	590	240	-60
Refinanced credits	0	0	0	1790	2010

SOURCE: 1970-1982—*RSHZ*, 1983, p. 73.

[a]Polish statistics give only interest paid, not interest owed. The Polish authorities stopped payment on interest on guaranteed loans in 1982, so this figure is substantially less than the amount of interest due in that year.

by domestic producers (much of the previously imported machinery needed higher quality inputs than those available from domestic and Council for Mutual Economic Assistance (CMEA) sources to operate efficiently). Further, the share of agricultural commodities in hard currency trade increased to alleviate domestic shortages (caused by growing demand for meat, insufficient production incentives for farmers, and periodic crop failures). Consequently, after hard currency exports failed to attain expected levels in 1980 and the government was forced to reduce hard currency imports, the supply of industrial inputs was reduced leading to a decline in industrial output in 1981. As conditions on the domestic market worsened, so did civil unrest and domestic difficulties in increasing exports.

The government accelerated the economic decline in 1981 when it chose to finance wage increases through money creation.[12] The tradi-

[12]In 1981 the only plant reputed to be on three shifts a day was that housing the presses of the National Bank.

tional allocative inefficiencies of Soviet types of economies were compounded as queuing replaced prices as the means by which most consumer goods were allocated. As curbs on hard currency imports increased, output and exports plunged (Table 3). A shorter workweek and little reallocation of labor contributed to a decline in output of the extractive industries, worsening the situation. The end result was the worst economic decline of any developed country since the Great Depression.

ECONOMIC RECOVERY

Output

The allocative inefficiencies of the Polish system, greatly compounded by the slowdown in transportation and communications caused by the imposition of martial law, slowed economic recovery and made pushing the hard currency trade balance into surplus expensive. Output in manufacturing industries, construction, and agriculture continued to fall rapidly during the first quarter of 1982. The workweek in the mines was lengthened, however, leading to a return to the trend toward higher output in the extractive industries that first began in October 1981. By the second half of 1982, the decline in industrial output stopped; output still declined for the year as a whole, however. The level of industrial output continued to rise through 1983, although the rate of increase over the levels of 1982 moderated during the second half of the year.

Because the fall in Polish net material product was due to supply-side constraints rather than a fall in demand, the factors that typically contribute to economic recovery in market economies, such as stimulation of aggregate demand, have been of lesser importance. The factors that appear to have been of primary importance in halting the decline in output are increased employment in the mines and a longer workweek; a decline in the real value of the monetary overhang, thereby lessening queues and increasing monetary incentives; and, possibly, increased allocative efficiency by planners as some earlier mistakes have not been repeated (e.g., some large investment projects have been abandoned and some rationalization has occurred in the allocation of foreign exchange).

Balance of Payments

A comparison of Tables 2 and 3 indicates changes in the Polish economy since 1980 have been most marked in the external sector. NMP continued to decline in 1982, but Poland recorded a surplus on the hard currency trade account, its first since 1970 ($350 million on a

flow of funds basis and $1440 million dollars on a flow of goods basis).[13] This was achieved simply by reducing hard currency imports more rapidly than the rate of decline in hard currency exports. By 1982 hard currency imports were at 50 percent of their 1980 level in real terms, and exports had fallen to only 79 percent of the 1980 level. Ruble exports, however, began to rise in 1982 while ruble imports fell in real terms.[14] Poland's deficit with the Soviet Union was substantially reduced (Table 4) as Soviet aid began to dry up. Both hard currency and ruble exports increased in 1983 and hard currency imports also rose, the first time in a number of years.

Despite surpluses in hard currency trade in both 1982 and 1983, Poland continued to face major problems servicing its hard currency debt. There were insufficient funds to pay all the interest due on its debt, let alone make repayments. Consequently, Poland remained on the brink of default, although for the first time in over a decade there was a net flow of resources from Poland to the West rather than the reverse.

Table 4

POLAND'S TRANSFERABLE RUBLE BALANCE OF PAYMENTS[a]
(Millions of transferable rubles)

Current Account	1970	1975	1980	1981	1982
Merchandise exports	2070	4365	6190	5715	6840
Exports of services	225	290	520	520	620
Transfers	0	0	0	0	10
Interest receipts	0	0	0	0	10
Merchandise imports	−2295	−4210	−7020	−7270	7530
Imports of services	−70	−180	−340	−360	330
Transfers from Poland	0	0	0	0	0
Interest payments	0	−20	−20	−70	120
Capital Account					
Increases in net debt					
Long and medium term	20	−270	−225	470	10
Short term	−20	45	790	1190	700
Net financial operations	0	45	—	0	40
Changes in bank balances	0	−70	110	−200	−240

SOURCES: 1970–1981—*RSHZ*, 1982, p. 52; 1982—*MRS*, 1983, p. 68.

[a]Calculated with exchange rates of 1 deviza zloty = .225 rubles for 1970–1981 and 68 zlotys = 1 transferable ruble for 1982.

[13]*Maly Rocznik Statystyczny*, (the *Small Polish Statistical Yearbook*, henceforth *MRS*, 1983, pp. 68, 202.

[14]Wharton Econometrics Forecasting Associates (WEFA), September 1983, p. 71.

III. BALANCE OF PAYMENTS PROJECTIONS FOR POLAND

CONCEPTS AND METHODS OF PROJECTION

Solberg (1982) defines the creditworthiness of a sovereign borrower as a function of economic developments falling into three time frames: the long term, the medium term, and the short term. Long term developments concern the ability of the borrower to use loans so that at some point in the future output will have increased sufficiently to cover interest and principal payments. They include changes in the proportion of output saved, because the country must change from a net borrower to a net saver if the loans are to be repaid, and the expansion of export industries, which then provide the wherewithal to repay borrowings. Medium term developments concern changes affecting trade flows. These include declines in export volume due to such disturbances as changes in relative prices of traded goods on international markets, reduced access to important export markets, or fluctuations in the level of economic activity in the world. Short term developments primarily consist of liquidity problems such as unusually large principal payments falling due in a specific period or a loss of confidence causing a fall in the country's reserves.

The Polish crisis is primarily the result of long term structural problems that eventually triggered a liquidity crisis. The Polish economic system was unable to transform the increased output of the early 1970s into hard currency exports and later to transform the borrowings of the late 1970s into either economic growth or exports. The short term liquidity crisis came about when Western bankers realized that Poland would not be able to make the principal payments falling due in 1981. External constraints on exports—e.g., limitations on access to markets and declines in world demand—played only a minor role in Poland's balance of payments crisis before 1982.

The severity of Poland's hard currency balance of payments problems have limited the policy options available to the authorities to deal with the crisis. Normally, sovereign borrowers have the option of decreasing compressible imports, increasing short term borrowings, or running down reserves to weather short term balance of payments problems. The Poles have long since exhausted these options. They have had to adopt the more drastic policies of reducing non-

compressible imports (thereby reducing output and consumption) and requesting bankers to reschedule their loans. A further option, formal default, has been analyzed but not yet adopted.[1]

Despite the limited options available to the Polish government for coping with its hard currency balance of payments problems, Western, Soviet, and the Polish governments all have considerable power to affect Polish creditworthiness and economic output in the course of the rest of the decade. I have attempted to capture the policy options facing these governments in six scenarios below. The first scenario assumes no major changes in Poland's present economic environment. Then two variations favorable to the Poles are examined: the 1982 economic reform is successfully implemented and brings about more rapid productivity growth and higher rates of export growth than historical trends would suggest possible, and a political compromise between society and the government is reached after which Western governments extend "new" money enabling Poland to increase hard currency imports and thereby output and exports. Also examined are three variations potentially unfavorable to the Poles or their creditors: the elimination of the trade deficit with the Soviet Union (a process that is apparently occurring), a continued moratorium on debt service payments on guaranteed debt, and default on all hard currency loans.

SCENARIO 1: MORE OF THE SAME

Assumptions

The initial scenario assumes that there will be little change in the internal or external economic environment Poland will face in the period to 1989.[2] Low rates of investment imply little change in industrial structure. Consequently, industry is assumed to remain fairly energy-intensive, and there will be no dramatic increase in supplies of coal available for export, especially as coal output will be limited by capacity constraints. The economic reform is not expected to affect productivity, and market disequilibrium is assumed to remain a problem.[3] Thus the reform will probably not bring about a large increase in allocative efficiency or induce a more rapid rate of innovation. For

[1]Sadowski, Kotowicz, and Szeworski, 1981.

[2]A more detailed description of the assumptions and data on which this scenario is based is provided in Appendix A.

[3]This is consistent with official Polish predictions; the Polish authorities predict that hard currency imports and several domestically produced inputs will have to be rationed through the end of the decade.

these reasons the quality or type of Polish hard currency exports is assumed not to change and, therefore, the income elasticity of demand for Polish exports on hard currency markets should not increase.[4] This implies that Poland will not be able to mount an export drive to the West generating increases in hard currency exports much greater than those experienced in the 1970s.

Increases in hard currency exports are assumed to be determined by growth in aggregate demand in Poland's hard currency export markets and by Polish hard currency export capacity. The former is represented by GNP growth in market economies, which is assumed to remain below the rapid rates of the 1960s. Despite the fairly high income elasticity of demand for Polish hard currency exports, slower economic growth in the West will moderate increases in hard currency exports. Polish export capacity has declined since 1980, captured by using 1983 hard currency exports as a base.

Because of the low rate of investment and slow progress in implementing the economic reform, Polish import needs are assumed to remain unchanged from their levels of the late 1970s and early 1980s. The 1980 level of nonagricultural imports is assumed to equal the noncompressible level, chosen because on the one hand Polish authorities made reducing the hard currency trade deficit a high priority in that year; imports were severely curtailed except for food and intermediate goods considered necessary to keep the population quiescent or to maintain industrial output levels. On the other hand, output reduction was primarily due to a decline in the output of the extractive industries; shortages of hard currency imports were not yet instrumental in the decline in industrial output. Noncompressible agricultural imports are assumed to be determined by the quantities necessary to maintain food consumption at levels considered minimal by the Polish government.[5]

A series for U.S. AAA corporate bond rates for the 1980s were used to create proxy rates on guaranteed and unguaranteed Polish loans.[6] These rates, which are high in historical terms, were multiplied by modified official Polish debt figures to project interest payments.[7] Repayment schedules were taken from official Polish data, but have

[4]The income elasticity of demand for Polish exports by market economies was estimated to be 1.88. The procedure used to estimate this figure is described in Appendix A.

[5]The determination of these quantities is described in Appendix A.

[6]The rates used are given in Appendix Table A.1.

[7]To estimate Polish debt levels, I have capitalized interest owed and included arrears on loans. Capitalized interest alone comes close to $3 billion.

been modified by the addition of principal due from the reschedulings assumed in the scenarios. Western inflation rates are assumed to be lower than those of the 1970s, so the value of Poland's debt in real terms will decline at a more moderate pace than experienced in the 1970s. In the past, high rates of inflation on hard currency export markets caused the value of Poland's exports to increase rapidly, making it possible for Poland to repay loans with a smaller quantity of exports than would otherwise have been the case. Correspondingly, the lower rates of inflation assumed in these scenarios better preserve the real value of the loans, implying that repayments will impose more of a burden on the Polish economy than if inflation had continued to be high.

The only policy response assumed taken by the Polish government in this scenario is to reschedule 95 percent of unguaranteed principal and 90 percent of all other principal due in all years. Until 1986, 65 percent of unguaranteed interest and 90 percent of interest on guaranteed loans made by non-Western lenders are also assumed to be rescheduled.

Poland continues to import raw materials and energy from the Soviet Union at present levels. Other CMEA imports, notably machinery and consumer goods, have a very low elasticity of substitution with hard currency imports. Therefore, changes in the level of this trade do not affect output or hard currency trade flows to any degree and are not explicitly incorporated into the balance of payments or the output projections.[8]

Poland's continuing trade deficit with the Soviet Union poses a problem. The Soviets have forced the Poles to reduce this deficit every year since 1981, Solidarity's heyday. It seems plausible that they will continue to press the Poles to reduce the deficit, most likely by requesting increased imports of Polish goods. Unfortunately, little information is available with regard to how long the Soviets will permit this deficit to exist. An arbitrary assumption was made that the deficit will be reduced linearly after 1984 until it disappears in 1988. Because most of Poland's ruble exports consist of manufactures, many of which are not easily salable on the world market, an increase in exports to the Soviet Union is not assumed to affect hard currency exports, although it does reduce utilized national income. Ruble debt service is assumed to be covered from Polish surpluses in transferable ruble trade in services.

[8]Previous research indicates that the elasticity of Polish industrial output with respect to ruble imports is very low (Kemme and Crane, 1984).

Balance of Payments Projection

Hard currency balance of payments projections for 1989 under the initial scenario are shown in Table 5. The projections for the entire period are given in Table A.1. in Appendix A.

According to the projection real hard currency earnings are to increase at an average annual rate of 8.1 percent. This is less than the rate Poland achieved during the first half of the 1970s (8.5 percent), but exceeds the rate for the 1970s as a whole (6.9 percent) (*RSHZ*, 1982, p. 5). Although the rate of increase is high for Poland, historically speaking, it appears feasible considering that the base for the projections is the level of exports in 1983, which was about 12 percent less than the level in 1980.

Table 5

POLISH BALANCE OF PAYMENTS PROJECTIONS FOR 1989: INITIAL SCENARIO
(Millions of $ U.S.)

	1980	1982	1989
Total Hard Currency Revenue	8586	5209	12040
Exports of coal	NA	NA	2550
Other merchandise exports	NA	NA	8970
Total exports	7965	4974	11510
Net services and transfers	515	402	520
Other	106	−167	0
Total Noncompressible Expenditures	−17152	−17090	−19490
Grain imports	−1180	−580	−770
Other noncompressible imports	−6990	−7450	−10720
Total noncompressible imports	−8170	−8030	−11490
Net interest paid	−2335	−1776	−3020
Amortization	−6647	−2868	−4980
Interest and principal arrears	0	−4420	0
Total Imports (actual or estimated)	−8757	−4616	−8560
Balance for Compressible Imports[a]	−8566	−11880	−7450
Policy Response			
New loans	8804	1627	0
Rescheduling	0	2246	4520
Change in reserves	349	−4	0
Net Compressible Import Capacity	587	−8010	−2930

[a]This is equal to total hard currency revenue minus total noncompressible expenditures.

Debt service fluctuates greatly over the course of the period. In 1984 debt service is over $17 billion, as Poland is assumed to come to an agreement with Western governments and the entire backlog of overdue interest and principal is rescheduled.[9] The level declines after 1984 and then surges starting in 1989 as previously rescheduled loans fall due (Table 6 below). Net debt and therefore interest payments rise until 1986, since it is assumed Poland will continue to reschedule interest, as well as principal falling due through 1985. Interest payments hit $3160 million in 1986 and remain above $3 billion through 1989; they will place a substantial burden on the Polish economy.

The balance for noncompressible imports indicates that Poland will continue to face very severe balance of payments constraints through 1989. If Poland covered all its principal and interest obligations in 1989 and was unable to borrow, projected hard currency earnings would allow for imports of only $4040 million in nominal terms; in real terms this figure is one-third less than the 1983 figure. In 1983 the Polish authorities believed that the lack of hard currency imports was the greatest stumbling block to continuing the economic recovery; if imports could not be increased, output would stagnate or begin to fall once more. Therefore, if Poland were unable to roll over principal in 1989, the country would suffer economic collapse or, more probably, would refuse to pay the loans. In other words, most of Polish loans coming due in 1989 will still be uncollectable.

Even under the assumption that the bulk of principal due will be rescheduled, the remaining very large deficit in net compressible import capacity indicates that Poland will continue to face a binding hard currency import constraint. The deficit in net compressible import capacity will be such that in 1989 Poland will be able to purchase only two-thirds of noncompressible imports—in real terms the level of imports will be two-thirds of the 1980 level and only one-third greater than hard currency imports in 1983. This is so low that the Poles will probably continue to seek to roll over some interest, as well as principal, in 1989.

Prospective Creditworthiness

In this scenario net debt continues to rise until 1985 to roughly $30 billion and then declines slowly to $29 billion by 1989. The increase in debt is solely due to rescheduling of interest. This scenario assumes Poland will be frozen out of international capital markets for all funds

[9]In these projections rescheduling consists of replacing the loan coming due with a new loan. The old loan is considered part of debt service but the money used to pay this loan off is supplied by the new loan from Poland's creditors.

except those rolled over by banks and governments. Given the magnitude of Polish debt service and debt export ratios, it is difficult to imagine that bankers would be able to make new loans on financial grounds.

Table 6 presents projections for several of the most important indicators of Poland's creditworthiness for the initial scenario from 1984 to 1989. By all the traditional measures Poland remains bankrupt for the entire period. Debt service ratios, although declining, remain well above the ranges considered acceptable by international bankers.[10] The ratio for 1984 indicates that debt service obligations will exceed hard currency exports by over two times; this is an extraordinarily high ratio. Debt export ratios decline throughout the period of analysis but still remain higher than current ratios for major Latin American bor-

Table 6

POLISH DEBT BURDEN IN THE 1980s: INITIAL SCENARIO
(Millions of $ U.S.)

Year	Debt	Debt Service	Debt Service Ratio	Debt Export Ratio	Expected Imports with Rescheduling	New Loans
1984	27425	17332[a]	2.67	4.23	4588	15435
1985	29654	4902	.65	3.91	6917	4231
1986	29471	5532	.66	3.49	5091	2186
1987	29322	5238	.55	3.10	6168	1945
1988	29171	5174	.49	2.74	7387	1896
1989	28713	8004	.66	2.39	8555	4523

Year	Debt Service Total Debt Ratio	Amortization Total Debt Ratio	Rollover Ratio	Net Transfer Import Ratio
1984	2.67	.53	1.12	−.41
1985	.65	.07	1.16	−.10
1986	.66	.08	2.53	−.66
1987	.55	.07	2.69	−.53
1988	.49	.07	2.73	−.44
1989	.66	.17	1.77	−.41

[a]This figure includes arrears from 1981-1983.

[10]Debt service ratios of over .25 are considered grounds for alarm; Poland's ratios are more than double these levels.

rowers.[11] The decline is primarily due to increased exports and the small decreases in debt toward the end of the decade.

Poland's net financial transfer to import ratio (disbursements minus debt service divided by imports) is negative for the entire period. This means that the loans Poland obtains are less than their interest and principal payments. In other words, there will be a net financial transfer from Poland to the West for the entire period, because Poland will run a surplus in hard currency trade to be used for partial payment of interest. Rollover ratios (debt service divided by disbursements) are initially low in this scenario as most obligations are rolled over through 1986. This ratio becomes much larger as new and rescheduled loans become smaller in comparison with Polish payments on principal and interest between 1985 and 1988 and then falls again as principal payments on loans rescheduled in the early 1980s come due in 1989 and are in turn rolled over.

In short, Poland will continue to need to reschedule throughout the period in order to maintain a level of hard currency imports consistent with generating output at the low levels of 1982 and 1983. Interest payments will impose a heavy burden on the economy; hard currency surpluses in trade and services of over $3 billion dollars will be required to cover interest obligations alone. This burden will prevent Poland from improving its international financial position and the country will continue to be de facto bankrupt.

Effect on the Domestic Economy: Output Projections

Economists in both the East and West agree that reduced supplies of hard currency imports coupled with pressure to generate hard currency surpluses to service the debt have been a primary cause of Poland's economic problems.[12] This section will project the effects of these difficulties on Polish output and utilized national income through 1989.

Output and utilized national income are projected with a small econometric model in which hard currency imports are a direct input in industrial production.[13] Net material product is divided into its various components, a series is projected for each of these, and then the output of each sector is summed to compute NMP. Utilized national income

[11]In December 1982, Mexico and Brazil had debt export ratios of roughly 2.7 (*The Economist*, 11 December 1982, p. 74).

[12]Olechowski, 1982, p. 20; Fallenbuchl, 1982, p. 1.

[13]The model is described in detail in Appendix B.

is the difference between NMP and net exports. The model was designed to make the linkages among supplies of hard currency imports, debt service obligations, and output and UNI easily traced. Consequently, the implications of the different levels of hard currency imports for output and UNI in the various scenarios are clear.

Output and UNI projections for the base case are shown in Table 7. The projections paint a bleak picture of Poland's economic future. Output recovers its previous peak, registered in 1978, only in 1988; and utilized national income remains below its former peak until 1989. The primary cause of this gloomy state of affairs is the shortage of hard currency imports and the burden of servicing external debt. For example, after approaching 1980 levels in 1985, UNI declines by over 10 percent in 1986 because of the assumption that hard currency interest payments will be covered from the trade surplus in that year. On top of the declines registered in 1981 and 1982, this would be an enormous blow to the Polish populace.

If this scenario comes to pass, the Polish leadership will be under tremendous pressure to improve the efficiency of the economy. Past attempts to pursue growth by means of increasing supplies of factor inputs will not be an option. This may augur a pragmatic approach to private agriculture and small scale industry and a continuation of the economic reforms. Attempts to reinstitute the former system of central planning as was done in Czechoslovakia after 1968 would be extremely costly.

This scenario provides no hope for improved living standards. Whether this will exacerbate domestic unrest in Poland or lead to a more quiescent attitude toward the government is an open question; it

Table 7

POLISH OUTPUT PROJECTIONS: INITIAL SCENARIO

	NMP			UNI		
Year	(1977 zlotys)	(1980 = 100)	(1979 = 100)	(1977 zlotys)	(1980 = 100)	(1979 = 100)
1984	1489.6	90.9	87.6	1422.6	86.7	83.1
1985	1628.3	99.3	95.7	1626.0	99.1	95.0
1986	1600.4	97.6	94.1	1458.0	88.9	85.2
1987	1688.5	103.0	99.2	1553.2	94.7	90.8
1988	1778.6	108.5	104.5	1649.3	100.6	96.4
1989	1863.8	113.7	109.5	1736.4	105.9	101.5

does indicate that popular acceptance of the Jaruzelski regime because of a dramatic improvement in the economy is very unlikely. If popular acceptance of the regime is a goal, it will have to be pursued through other means.

Defense Spending

Table 8 provides some projections of Polish military expenditures during this period. The projections indicate that military expenditures will be substantially greater in the 1980s than in the 1970s despite Poland's economic crisis.

These figures were computed under the assumption that the percentage of defense spending in UNI was the same for the entire period. This percentage (4.04 percent) was that budgeted for the most recent year available, 1984, and is a third more than the percentage devoted to defense in 1978, a substantial increase for a country undergoing an economic crisis. The increase in the percentage of utilized national income devoted to the military is probably due in part to attempts to maintain defense expenditures during a time of economic decline and in part to the cost of financing martial law. Polish sources also claim that defense outlays had to be raised because of increased international tensions and higher prices for supplies and equipment.[14]

Although the percentage of utilized national income taken by defense has risen by a third (3 percent to 4 percent), nominal expenditures have risen more than 2.5 times (*RS*, 1983, p. 78), twice the

Table 8

POLISH MILITARY EXPENDITURES: INITIAL SCENARIO

	UNI		Military Expenditures		Personnel Expenditures		Equipment Expenditures	
Year	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100
1984	1422.6	86.7	57.5	106	10.7	86	46.7	112
1985	1626.0	99.1	65.7	121	12.3	98	53.4	128
1986	1458.0	88.9	58.9	109	11.0	88	47.9	115
1987	1553.2	94.7	62.7	116	11.7	94	51.0	122
1988	1649.3	100.6	66.6	123	12.5	99	54.2	130
1989	1736.4	105.9	70.2	129	13.1	105	57.0	137

[14]*Rzeczpospolita* (Polish daily newspaper), 20 January 1984, p. 5.

increase in the cost of living. This increase in reported expenditures could have been due to price changes, so increases in real terms may have been marginal. If that is the case, however, the new prices probably better reflect factor costs than prices used in the 1970s, which implies previous defense budgets may have understated the true burden of defense.

The Jaruzelski regime has good reasons to increase expenditures on the military: (1) The government may have decided to increase expenditures on the police and public security forces to deal with domestic unrest; (2) the new Polish regime is heavily weighted with personnel from the armed forces, so they may have enforced their preferences for greater military spending; (3) the government may be attempting to "buy" the loyalty of the Polish officer corps by increasing military salaries.

A problem with the projection is the slower growth of projected expenditures on personnel than on the "other" category. The share of the military budget spent on personnel was computed using cost of living and wage indexes to extrapolate expenditures for 1982, the latest year for which these indexes were available, from 1978 estimates by Alton et al. (1981, p. 409). Personnel costs were computed by inflating Alton's 1978 figures for military pay and subsistence with index numbers for earnings by government administrative employees and cost of living indexes, respectively.[15] These zloty estimates of personnel costs were used to estimate the proportion of the military budget devoted to personnel in 1982, the last year for which zloty totals for defense and consumer price indexes were available; this figure was 18.7 percent. That proportion was assumed to remain constant for the entire period and was multiplied by the estimates for total military expenditures to calculate personnel costs. The remainder was assumed to be spent on operations, maintenance, and acquisitions.

The cost of living and wages have not increased as rapidly as producer goods prices, so the share of personnel in defense expenditures appears to be declining. Whether expenditures on items other than personnel have actually increased in real terms is an open question.

Lower Military Expenditures: A Variation on Scenario 1

In 1978 Poland devoted only 3.0 percent of UNI to defense. The 1984 figure, the one used for the rest of the scenarios, was 4.04 percent.[16] If tensions between Poland and the West ease, political forces

[15]*RS*, 1982, pp. 88, 124; and *MRS*, 1983, pp. 93, 97.

[16]*Rzeczpospolita*, 20 January 1984, p. 5.

interested in increasing investment or consumption may be able to make the case for reducing the present percentage of UNI spent on the military to former levels.

Table 9 presents output, UNI, and military expenditure projections under the assumption that the reduced expenditures are diverted to investment, so that the percentage of UNI invested rises from 10.7 to 11.7. Poland would benefit little from such a move. In 1989 output and UNI projections are only .15 percent greater in this case, almost negligible.

NATO could benefit from this scenario, however. In 1989 military spending would be less than three-quarters of base case levels. Moreover, under the assumption that Polish draft laws would be the same, personnel numbers would not fall. In this case it would be difficult if not impossible to reduce personnel expenditures, so the cutbacks would fall almost entirely on procurement and maintenance.

Table 9

OUTPUT AND MILITARY SPENDING PROJECTIONS: REDUCED DEFENSE EXPENDITURES

	NMP		UNI		Military Expenditures	
Year	(1977 zlotys)	(1980 = 100)	(1977 zlotys)	(1980 = 100	(1977 zlotys)	(1980 = 100)
1984	1489.6	90.9	1422.6	86.7	42.7	78.6
1985	1628.8	99.4	1626.4	99.2	48.8	89.9
1986	1601.4	97.7	1459.0	89.0	43.8	80.7
1987	1690.0	103.1	1554.7	94.8	46.6	86.0
1988	1780.8	108.6	1651.5	100.7	49.5	91.3
1989	1866.6	113.9	1739.3	106.0	52.2	96.2

SCENARIO 2: SUCCESSFUL ECONOMIC REFORM

Introduction

This scenario assumes the Polish economic reform takes root and changes factor productivity growth and export orientation in the Polish economy. The reform, introduced January 1, 1982, was designed to increase economic efficiency and decentralize economic control. These goals were to be attained by greater reliance on market forces and by increasing the independence of enterprises by giving workers a decisive

role in enterprise decisionmaking through workers' councils. Enterprises were to be self-financing: Loss-making enterprises were to be allowed to go bankrupt.[17]

Such a reform ought to have greatly increased allocative efficiency in Poland; at a minimum greater reliance on market forces ought to have eliminated excess demand on both consumer goods and labor markets. This has not occurred: Many consumer goods (meat, apartments, automobiles, etc.) continue to be allocated by ration cards or queue and the labor market is characterized by excess demand.[18] Poland continues to be a shortage economy in Kornai's terminology, an economy plagued by permanent excess demand.[19]

The failure of the reform to this point has primarily been due to the reluctance of the Polish authorities to rely on market forces to set prices and determine what is to be produced. This reluctance stems from fears concerning the potential effect of markets on two important policy goals: reducing inflation and maintenance of full employment. Despite a rise in the cost of living of over 100 percent in 1982, the authorities have maintained price controls on many consumer goods and raw materials apparently because they believe inflation would have been even more rapid without them. Controls on the freedom of enterprises to set their own prices have been tightened since the introduction of the reform; the authorities appear to believe that without such controls enterprises would be able to monopolize markets for several important items and monopoly profits would generate substantial efficiency costs because of poor allocation of resources. Price controls on foodstuffs and consumer basics have been maintained for political reasons, and, since 1982, nominal wage increases have kept pace with price increases. The government has failed to curb nominal wage increases and in December 1982 actually granted across-the-board increases,[20] so excess demand has persisted, despite the doubling of prices of consumer basics in February 1982.

Equilibrium in markets has also been elusive because the government has subsidized loss-making enterprises through grants or loans, thereby forestalling any massive layoffs, but also eliminating much of the pressure on enterprises to alter the structure of production. Subsidies for enterprises, construction, and agriculture accounted for over 40 percent of the national budget in 1982. A substantial part of these subsidies was financed by money creation. For example, in 1983 the

[17] *Trybuna Ludu* (Polish daily), 28 September 1981, p. 5.

[18] *Zycie Gospodarcze* (Polish economic journal), 3 July 1983, p. 1.

[19] Kornai, 1980, Ch. 1.

[20] Polish Economic Advisory Council, 1983, p. 3.

authorities planned on financing 7 percent of budgetary expenditures through money creation;[21] this has contributed to excess demand.

Instead of allocating increasingly scarce inputs through markets, the authorities have chosen to allocate resources administratively. Administrative measures have been especially prevalent in the allocation of foreign exchange and raw materials, and ad hoc measures have been used extensively for determining tax rates and subsidies. Consequently, enterprise managers have faced incentives other than bonuses tied to profits when making decisions. They have found it expedient to apply for subsidies, lobby for supplies of inputs, and manipulate tax and price regulations to increase earnings rather than pursue profits through changing product lines or altering production technologies. Thus, the ad hoc application of the instruments established in the reform has reduced incentives for managers to use inputs more efficiently and change their output mix to better correspond to demand; they have imposed substantial efficiency costs on the country.

Poor application of the instruments of the reform has also contributed to Poland's failure to regain external balance. Permanent excess demand and an overvalued currency have greatly limited the incentives for enterprises to export because the domestic market is more profitable.[22] The primary incentive for enterprises to export to hard currency areas is permission to retain a percentage of earnings to finance imports of their choice, rather than profits from exports per se.

The reforms introduced in Poland in 1982, however, have provided the authorities with the instruments to eliminate these problems, if they so desire. Enterprises and their managers are to be evaluated on the basis of profits, not output, and market prices have been introduced for some goods sold on the domestic market. Raw materials' prices within Poland were to be tied to world market prices. Consequently, a devaluation of the zloty should have an economic effect, not just an accounting one. A devaluation, greater use of market prices, and a "harder" budget constraint for enterprises could quickly bring equilibrium to the domestic market, especially if domestic monopolies were broken up by removing barriers to entry for all firms: state, cooperative, or private. Excess demand could also be quickly reduced if sales of franchises for retail stores and restaurants on the line of the Hungarian reform were increased, as well as further sales of poorly utilized state-owned land to private farmers, because much of the monetary overhang in the Polish economy is assumed to be in the

[21]Fallenbuchl, 1983, pp. 13, 14.

[22]According to many Polish economists and enterprise managers the zloty remains substantially overvalued (*Rzeczpospolita*, 1 July 1983, p. 1). Although the zloty was devalued in 1984, inflation continues at a rapid rate, so the net effect is uncertain.

hands of the Polish private sector or the peasants. The Polish reform has provided the authorities with the instruments to increase exports and achieve equilibrium on domestic markets, but do they have the political will to use them? Given the political will, the assumptions of this scenario are plausible.

Assumptions

All the assumptions of the base case are maintained in this scenario except the rate of growth of Polish exports to market economies and the rate of increase in labor productivity. Exports to market economies are assumed to increase by 12.6 percent per year in real terms, the rate of increase recorded in 1983.[23] This rate is for total hard currency exports, including coal exports. It is appreciably faster than the 8.1 percent rate of increase in the initial scenario and also faster than the 9.1 percent average rate recorded in the boom between 1971 and 1976.[24] This rapid rate was chosen because: (1) in the first year after the introduction of the economic reform the Polish economy has demonstrated that such a rate is possible; and (2) considering the low levels of market economy exports in 1981 and 1982, the Polish economy should be able to increase exports rapidly, at least until former levels have been regained. This rate of increase exceeds the rate used in the base case by over 50 percent; although optimistic, it may be feasible, if the Polish economic reform takes root.

Labor productivity is assumed to increase more rapidly in this scenario than in the base case. The reform is assumed to raise Polish labor productivity by the same amount as the increase in Hungarian labor productivity following the Hungarian reform—2.2 percentage points per year.[25] These increases were incorporated into the model as factor-augmenting technological change—the projections for labor inputs were increased by 2.2 percent per year.

Balance of Payments Projections

Balance-of-payments projections for this scenario are given in Table 10. If the Polish authorities succeed in increasing hard currency exports at the rates assumed, the hard currency balance of payments

[23] *Zycie Gospodarcze*, 5 February 1984, p. 8.

[24] *RSHZ*, 1982, p. 5.

[25] This is the difference in the average annual rate of increase in labor productivity between 1960 and 1967, the period immediately preceding the Hungarian reform, and 1968 to 1973, the period immediately following its implementation.

Table 10

BALANCE OF PAYMENTS PROJECTIONS FOR 1989: THE INITIAL AND REFORM SCENARIOS
(Millions of $ U.S.)

	Initial	Reform
Total Hard Currency Revenue	12040	15920
Exports of coal	2550	NA
Other merchandise exports	8970	NA
Total exports	11510	15400
Net services and transfers	520	520
Total Noncompressible Expenditures	-19490	-19490
Grain imports	-770	-770
Other noncompressible imports	-10720	-10720
Total noncompressible imports	-11490	-11490
Net interest paid	-3020	-3020
Amortization	-4980	-4980
Interest and principal arrears	0	0
Total Imports (actual or estimated	-8560	-12430
Balance for Compressible Imports	-7450	-3570
Policy Response		
New loans	0	0
Rescheduling	4520	4520
Net Compressible Import Capacity	-2930	950

pressures on the Polish economy will be greatly eased by 1989. Increased export earnings will reduce the deficit on the balance for compressible imports by almost $4 billion in comparison with the initial scenario, permitting imports to be increased by the same amount or a commensurate decline in hard currency debt.

If Poland's lenders permit Poland to continue to reschedule 90 percent of guaranteed loans and 95 percent of unguaranteed loans in 1989, the deficit in net compressible import capacity will be replaced by a surplus of almost $1 billion. The switch from deficit to surplus would occur only in 1989, however; scenario projections still show a deficit in net compressible import capacity of $750 million in 1988 (Appendix Table A.2.).

In this scenario Poland will be able to cover its interest payments with its surplus in hard currency trade. Principal must still be rolled over in 1989, however, if Poland is to cover the costs of noncompressible imports. In comparison, in the initial scenario Poland is still able

to import only at three-quarters of noncompressible levels by 1989. Poland's import constraints will be substantially loosened in this scenario, thereby allowing the authorities to utilize more industrial capacity through increased imports of industrial inputs.

Prospective Creditworthiness

Because the only improvement in Poland's hard currency balance of payments in this scenario stems from increased hard currency exports, many of the debt indicators projected in Table 6 stay the same. Debt and debt service remain unchanged, as do debt service to total debt ratios, amortization to total debt ratios, and rollover ratios.

Some improvement occurs in debt service and debt export ratios. Although in no year do debt service ratios fall below .25, a level that signals a troubled debtor, after 1986 this indicator is substantially below the levels in the base case (Table 11). Debt to export ratios also show some improvement, but still remain very high, over 2 for almost the entire period. The net transfer to import ratio is negative for the entire period and in some years exceeds −.4, which means that there will be a net transfer of resources from Poland to the West and in some years the transfer will exceed 40 percent of the value of expected Polish hard currency imports. These figures accent the extent to which debt service will burden the Polish economy.

Despite substantially greater nominal hard currency earnings (32 percent) in this scenario, Poland still will not have restored its creditworthiness by 1989. Without the assumption of rescheduling, Poland's debt service obligations would still exceed 50 percent of projected hard currency earnings. If Poland were to service its debts, export earnings available for imports would be less than three quarters

Table 11

POLISH DEBT BURDEN IN THE 1980s: REFORM SCENARIO

Year	Debt	Expected Imports	Debt Service Ratio	Debt Export Ratio	Net Transfer Import Ratio
1984	27425	4736	2.61	4.13	−.40
1985	29654	7133	.63	3.80	−.09
1986	29471	5902	.60	3.19	−.57
1987	29322	7754	.47	2.65	−.42
1988	29171	9981	.39	2.20	−.33
1989	28713	12435	.50	1.80	−.28

the level the authorities believe essential. Moreover, despite substantial debt service payments over the course of the decade, declines in net debt will be minute; not until 1989 will Poland be able to cover both noncompressible imports and make large principal payments on its hard currency debt. Even in this scenario Poland will not have restored its creditworthiness and the Polish authorities are likely to continue to push their creditors to continue to reschedule principal due.

Projections of Net Material Product, Utilized National Income, and Defense Spending

The same model as in the base case was used to project output for this scenario.[26] (See Table 12.) The only changes in assumptions are increased hard currency imports and a faster rate of labor productivity growth. Increased imports made possible by the faster rates of export growth and higher labor productivity provide Poland with 12.5 percent more output in 1989 than in the base case. Over the course of the period output grows at 6.8 percent per year, which is more than 2 percentage points greater per year than the 4.6 percent rate in the initial scenario. Although this rate is substantially below the average rate of the early 1970s (9.8 percent), it is impressive for the 1980s when many centrally planned economies have seen output stagnate or fall. However, these increases must be considered in the light of the declines

Table 12

POLISH OUTPUT PROJECTIONS: REFORM SCENARIO

	NMP			UNI		
Year	(1977 zlotys)	(1980 = 100)	(1979 = 100)	(1977 zlotys)	(1980 = 100)	(1979 = 100)
1984	1511.0	92.2	88.8	1444.2	88.1	84.4
1985	1668.5	101.8	98.1	1666.6	101.6	97.4
1986	1684.3	102.8	99.0	1543.3	94.1	90.2
1987	1817.9	110.9	106.8	1685.1	102.7	98.5
1988	1957.2	119.4	115.0	1831.8	111.7	107.0
1989	2097.4	128.0	123.3	1975.5	120.4	115.4

[26]This model is described in detail in Appendix B.

Poland experienced between 1979 and 1982; in this scenario Polish NMP still remains below 1978 levels (the previous output peak) until 1987.

In 1989 utilized national income is 13.8 percent greater in this scenario than in the base case. This ought to leave more room for the central authorities to increase investment, which could lead to even higher rates of growth in subsequent years. Living standards and investment levels remain below 1978 levels until 1988, which implies that the government will still be under tremendous pressure to improve economic efficiency and increase living standards. Real per capita consumption is unlikely to regain its previous peak until 1989; widespread economic dissatisfaction will persist. Under these assumptions Poland may be in a position to pursue export-led growth in the 1990s. However, output and UNI levels will remain below those of the previous peak until 1987 or 1988, so the 1980s will probably be a lost decade for the Polish economy in terms of increases in per capita consumption even in the case of successful economic reform.

Defense spending is considerably greater in this scenario than in the initial one, commensurate with increased levels of UNI. Expenditures are projected to exceed the levels of the 1970s in every year for the entire period. In this scenario expenditures on procurement of new equipment are likely to be substantially greater than those of the previous decade despite the economic crisis (Table 13).

SCENARIO 3: ELIMINATION OF THE SOVIET TRADE DEFICIT

Introduction

Despite frequent references in the Polish press to the economic assistance supplied by the other members of the CMEA during the economic crisis, the extent of this assistance is much less than originally hoped. No help was forthcoming from the other East European members of the CMEA during 1982, the year in which the Polish economy reached its nadir. In fact, Poland ran a surplus in trade in that year with all these countries with the sole exception of East Germany.[27] Only the Soviet Union has provided Poland with considerable help; the Soviets provided hard currency loans during 1981 (when Solidarity was active) and allowed Poland to run a trade deficit of 1620 million transferable rubles in that year. The Soviets reduced its trade surplus with Poland sharply in 1982, however, to 620 million transfer-

[27] *MRS*, 1983, pp. 204, 206.

Table 13

POLISH MILITARY EXPENDITURES: REFORM SCENARIO

Year	UNI (billion 1977 zlotys)	UNI 1980 = 100	Military Expenditures (billion 1977 zlotys)	Military Expenditures 1980 = 100	Personnel Expenditures (billion 1977 zlotys)	Personnel Expenditures 1980 = 100	Equipment Expenditures (billion 1977 zlotys)	Equipment Expenditures 1980 = 100
1984	1444.2	88.1	58.3	108	10.9	87	47.4	114
1985	1666.6	101.6	67.3	124	12.6	100	54.7	131
1986	1543.3	94.1	62.3	115	11.7	93	50.7	121
1987	1685.1	102.7	68.1	125	12.7	102	55.3	133
1988	1831.8	111.7	74.0	136	13.8	110	60.2	144
1989	1975.5	120.4	79.8	147	14.9	119	64.9	155

able rubles, less than 40 percent of the 1981 deficit.[28] This process continued in 1983 when the deficit was further reduced to less than 600 million rubles.[29] This may have been somewhat of a surprise to Polish planners because they projected a trade deficit double in size in the national plan.[30] It appears that the Soviets have decided that economic aid can safely be cut as long as political unrest has been reduced.

Assumptions to Scenario 3

This scenario assumes that the Soviet Union continues to reduce aid to Poland. All the assumptions of the base case are maintained except for two concerning the quantity of Polish hard currency exports and the quantity of output available for domestic utilization. The Soviet Union and Poland's other CMEA trading partners are assumed to force Poland to balance trade by 1985, instead of 1988 as assumed in the base case.[31] To cover the trade deficit, Poland is assumed to increase

[28] *RSHZ*, 1983, p. 25.

[29] Surpluses in ruble trade in services of 150 million and 280 million rubles in 1981 and 1982, respectively, have helped to offset these deficits. (*Zycie Gospodarcze*, 1 January 1984, p. 9.)

[30] The planned deficit was 1190 million transferable rubles, the actual deficit was less than 600 million rubles (*Zycie Gospodarcze*, 1 January 1984, p. 9).

[31] Since Poland has a net debt of over 3400 million transferable rubles with its CMEA partners, besides debts in hard currency, it also needs to generate transferable ruble surpluses to service this debt (*MRS*, 1983, p. 69). Poland appears to pay about 3 percent per year on this debt; interest payments equaled 116 million transferable rubles in 1982. Poland's surplus on services sold to the CMEA was 280 million rubles in 1982, so debt service on transferable ruble loans is assumed to be covered by surpluses in ruble trade in services.

exports to the Soviet Union by 375 million rubles, the amount of the deficit projected in the base case, by diverting exports that would otherwise go to hard currency markets and by reducing domestic consumption. The contributions of each source of additional exports were determined by the composition of Polish exports to socialist countries in 1983. Roughly two-thirds (65.7 percent) of these exports consisted of machinery and light industrial products and the rest of goods—raw materials, food, etc.—that could be sold on world markets for hard currency.[32] The composition of the increase in exports needed to close the deficit is assumed to be the same. That part of the increase accounted for by machinery and light industrial products is assumed to come from domestic consumption. That share composed of other products is assumed to be diverted from hard currency exports, roughly equivalent to $180 million annually.[33]

Balance of Payment Projections

Because of previous reductions in Poland's trade deficit with the Soviet Union in 1982 and 1983, the effect on net compressible import capacity of closing the deficit in 1985 is quite small. Hard currency exports are $180 million less in 1989 than in the base case (Table 14). This is assumed not to affect Poland's payments of interest and principal, but to cause a $180 million decline in hard currency imports, roughly 2–3 percent less than in the base case.

In Poland's straitened financial condition, the fall in hard currency exports projected in this scenario would be damaging; but it would not cause much change in Poland's external imbalance, considering the country's other severe financial problems. By 1989 the deficit in net compressible import capacity is about 6 percent larger than in the base case, but the base case deficit is so large that the increase would probably not make a qualitative difference in Poland's problems.

Prospective Creditworthiness

Since debt payments and debt totals are assumed to remain the same in this scenario as in the previous two, the debt service to total

[32] *MRS*, 1983, p. 204.

[33] This figure was determined by converting the projected Soviet trade deficit (375 million rubles in 1985) to dollars using the Soviet official rate of exchange (.726 dollars equals 1 ruble) (CIA, 1982, p. 59). The official Soviet rate was used instead of the Polish cross rates (ruble-zloty and zloty-dollar) because prices in "hard" goods trade in the CMEA are based on world market prices converted at the Soviet official rate of exchange, not on the basis of national rates.

Table 14

POLISH BALANCE OF PAYMENTS PROJECTIONS FOR 1989: THE INITIAL AND NO SOVIET TRADE DEFICIT SCENARIOS
(Millions of $ U.S.)

	Initial Scenario	No Soviet Deficit Case
Total Hard Currency Revenue	12040	11860
Exports of coal	2550	2550
Other merchandise exports	8970	8790
Total exports	11520	11340
Net services and transfers	520	520
Total Noncompressible Expenditures	-19490	-19490
Grain imports	-770	-770
Other noncompressible imports	-10720	-10720
Total noncompressible imports	-11490	-11490
Net interest paid	-3020	-3020
Amortization	-4980	-4980
Total Imports (estimated)	-8560	-8380
Balance for Compressible Imports	-7450	-7630
Policy Response Rescheduled Principal	4520	4520
Net Compressible Import Capacity	-2930	-3110

debt ratios, amortization to total debt ratios, and rollover ratios have been omitted in Table 15. Those indicators involving exports and imports worsen somewhat, but not substantially: In 1985 the debt service ratio increases from .65 in the base case to .66, the debt export ratio rises from 3.91 to 4.00, and the net transfer to import ratio stays roughly the same. Because the first two ratios were already extremely high in the base case, the deterioration caused by the elimination of the trade deficit with the Soviet Union would have only a minor effect on Poland's creditworthiness; the country remains insolvent.

Projections of Net Material Product, Absorption, and Defense Spending

Output is somewhat lower in this scenario (Table 16) than in the base case because of the decline in hard currency imports caused by the diversion of exports from Western markets to the Soviet Union. By

Table 15

POLISH DEBT BURDEN IN THE 1980s: NO SOVIET TRADE DEFICIT SCENARIO

Year	Net Debt	Debt Service	Debt Service Ratio	Debt Export Ratio	Net Transfer Import Ratio	Expected Imports
1984	27420	17330	2.67	4.23	−.41	4590
1985	29650	4900	.66	4.00	−.10	6740
1986	29470	5530	.67	3.57	−.68	4910
1987	29320	5240	.56	3.16	−.55	5990
1988	29170	5170	.49	2.78	−.45	7210
1989	28710	8000	.67	2.42	−.42	8380

Table 16

POLISH OUTPUT PROJECTIONS: NO SOVIET TRADE DEFICIT SCENARIO

	NMP			UNI		
Year	(1977 zlotys)	(1980 = 100)	(1979 = 100)	(1977 zlotys)	(1980 = 100)	(1979 = 100)
1984	1489.6	90.9	87.6	1404.3	85.6	82.1
1985	1622.1	99.0	95.3	1606.4	97.9	93.9
1986	1592.1	97.1	93.6	1441.2	87.9	84.2
1987	1681.2	102.6	98.8	1541.7	94.0	90.1
1988	1772.0	108.1	104.2	1642.5	100.1	96.0
1989	1857.8	113.3	109.2	1730.2	105.5	101.1

1989 output is .3 percent less than in the base case; the rate of growth falls by .1 percentage points to 4.5 percent per year.

The only damage of note occasioned by the need to increase exports to the Soviet Union is felt in utilized national income. In 1985 UNI is 1.2 percent less than in the base case, but this declines to a difference of 1.1 percent in 1986 and .4 percent in 1989. Under the assumptions of this scenario, the effect of closing the trade deficit with the Soviet Union on Polish output and UNI would be minor.

The question remains whether the necessity to restrain consumption to increase exports to the Soviet Union would have any political repercussions. The Polish media have taken great pains to place a large

part of the blame for present economic difficulties on Western sanctions and to emphasize the role of Soviet assistance in keeping the economy afloat. It refrains from pointing out that the decline in Polish terms of trade over the past two years has been mostly due to changes in the prices at which trade is conducted with the Soviet Union. The link between continuing low living standards and trade with the Soviet Union may therefore be only weakly perceived by much of the population; whether a sharper realization of reduced assistance would have a political effect remains an open question.

Defense spending (Table 17) in 1985, parallel to UNI, is about 1 percent less in this scenario than in the base case. Under the assumption that the share of defense spending in UNI would remain the same as in 1984, military expenditures would still be as much as 20 percent higher in some years than in 1980. Expenditures on operations, maintenance, and acquisition would be substantially above former levels.

Table 17

POLISH MILITARY EXPENDITURES: NO SOVIET TRADE DEFICIT SCENARIO

	Absorption		Military Expenditures		Personnel Expenditures		*Equipment* Expenditures	
Year	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys	1980 = 100
1984	1404.3	85.6	56.7	105	10.6	85	46.1	111
1985	1606.4	97.9	64.9	120	12.1	97	52.8	126
1986	1441.2	87.9	58.2	107	10.9	87	47.3	113
1987	1541.7	94.0	62.3	115	11.6	93	50.6	121
1988	1642.5	100.1	66.4	122	12.4	99	53.9	129
1989	1730.2	105.5	69.9	129	13.1	104	56.8	136

SCENARIO 4: RECONCILIATION BETWEEN POLAND AND THE WEST

On 24 December 1981, President Reagan imposed economic sanctions on Poland, including revocation of U.S. landing privileges for Polish aircraft, expulsion of the Polish shipping fleet from U.S. waters, loss of access to further U.S. government-backed export credits, and a refusal to discuss renegotiation of Poland's outstanding debt. Several

heads of other NATO countries subsequently adopted other sanctions in January 1982, the most notable of which was an agreement to halt negotiations on rescheduling Polish hard currency debt. Three preconditions were set for the removal of these sanctions: repeal of martial law, freedom for all political prisoners, and a resumption of a dialogue between the government and Solidarity.

If these conditions were met, not only would relations between the West and Poland presumably return to the status quo ante, but some possibility could exist for the resumption of Western loans to Poland above and beyond rescheduling agreements. To this point the Polish government has adamantly refused to bow to Western pressure, yet has partially fulfilled some of the West's conditions: Martial law has been repealed in letter, if not in spirit, and many political prisoners have been freed. Western governments have also modified their positions. They have returned to the bargaining table to discuss rescheduling; the United States has dropped some strictures on Polish use of American fishing grounds and has agreed to negotiate the restoration of Polish landing rights and scientific exchanges. There is some possibility that a reconciliation between the West and Poland will take place.

Assumptions for Scenario 4

This scenario examines the extent of the potential economic benefits to the West and to Poland, if the West and Poland are reconciled. The scenario is constructed under the following assumptions: (1) Poland fulfills most of the demands set by NATO in 1982 and the West responds by dropping all sanctions. (2) In addition to rescheduling all guaranteed loans through 1985 according to the terms of the 1981 Paris Club agreements, the West advances new loans that would allow Poland to purchase enough imports to close the noncompressible import gap in 1985 ($1800 million). The loan is for one time only under the assumption that Western governments would be willing to provide a stimulus for the Polish economy but would expect Poland to be able to generate enough exports to cover its interest payments and a modicum of principal in following years. The loan is assumed to have a five-year grace period so principal payments would not begin until 1990, after the end of the period of projection. The West provides no new money after 1985 but agrees to the rescheduling patterns assumed in the base case. (3) Given increased imports Poland is able to expand hard currency exports so that in 1985 hard currency exports increase by 16.8 percent in real terms.[34] (4) After 1985 exports grow at the average rate projected in the initial scenario (8.1 percent per year).

[34]The increase projected by the Polish Planning Commission for 1984 given a sizable increase in hard currency imports is 16.8 percent.

This scenario can also be construed as an "IMF" scenario. As part of the reconciliation with the West, Poland is admitted to the IMF, which would arrange the new loan.

Balance of Payments Projection

Despite the additional burden of paying interest on the new loan contracted in 1985, this scenario is more favorable for Poland than the initial scenario in terms of the hard currency balance of payments. The deficit in net compressible import capacity in 1989 shrinks to $1720 million. This is over $1 billion less than in the base case, but it differs substantially from the $950 million surplus recorded in the reform scenario. The source of the decline in the deficit is increased exports. Given the assumptions of this scenario, the increase in hard currency exports in 1985 eliminates some of the supply-side bottlenecks plaguing Polish export industries, thereby providing a larger base from which exports are to increase. (See Table 18.)

Table 18

POLISH BALANCE OF PAYMENTS PROJECTIONS FOR 1989: THE INITIAL AND RECONCILIATION SCENARIOS
(Millions of $ U.S.)

	Initial	Reconciliation
Total Hard Currency Revenue	12040	13540
Exports of coal	2550	NA
Other merchandise exports	8970	NA
Total exports	11520	13020
Net services and transfers	520	520
Total Noncompressible Expenditures	-19490	-19780
Grain imports	-770	-770
Other noncompressible imports	-10720	-10720
Total noncompressible imports	-11490	-11490
Net interest paid	-3020	-3310
Amortization	-4980	-4980
Total Imports (estimated)	-8560	-9780
Balance for Compressible Imports	-7450	-6240
Policy Response, Rescheduled Principal	4520	4520
Net Compressible Import Capacity	-2930	-1720

Prospective Creditworthiness

Net hard currency debt is about 10 percent greater in this scenario, but by increasing the debt, the Polish authorities are able to substantially increase hard currency exports and imports. By 1989 exports are 14 percent greater in nominal terms and hard currency imports 28 percent greater than in the base case (Table 19). Debt export and debt service ratios are slightly less, however. These ratios, especially the debt export ratio, remain high by international standards. Even by the end of the period Poland is still far from regaining solvency.

Because of increased imports the net transfer to import ratio falls in this scenario, compared with the base case. The debt service to total debt ratio also declines. These measures indicate that Poland gains some breathing space by going more deeply into debt in 1985. The small increase in net debt in this scenario allows Poland to make some progress toward regaining external equilibrium.

Projections of Net Material Product, Absorption, and Defense Spending

Output and absorption fare much better in this scenario than in the base case. By 1989 NMP is about 2 percent more and absorption 1.6 percent more than in the initial scenario. The increase in absorption is

Table 19

POLISH DEBT BURDEN IN THE 1980s: RECONCILIATION SCENARIO

Year	Debt	Debt Service	Expected Imports	Debt Service Ratio	Debt Export Ratio
1984	27420	17330	4490	2.72	4.30
1985	32560	4900	8900	.63	4.19
1986	32370	5830	5220	.66	3.65
1987	32220	5530	6590	.54	3.17
1988	32070	5470	8170	.47	2.73
1989	31610	8290	9780	.61	2.33

Year	Net Transfer Import Ratio	Debt Service Total Debt Ratio	Amortization Total Debt Ratio	Rollover Ratio
1984	-.42	.63	.53	1.12
1985	.13	.15	.06	.81
1986	-.70	.18	.07	2.67
1987	-.54	.17	.06	2.84
1988	-.44	.17	.06	2.88
1989	-.39	.26	.16	1.83

especially great in 1985, the year in which the loans are granted. If granted the loans, the Poles would be able to increase consumption and investment by almost 10 percent in that year in comparison with the base case (Table 20). If this increase could be channeled toward productive investments, increases in output and absorption in later years would be even greater.

Several lessons can be drawn from the output projections in this scenario. First, the imposition of martial law and the subsequent refusal of the West to grant additional credits to Poland have been costly in terms of forgone output.[35] Second, Poland would derive substantial economic benefit from reconciliation with the West, if it simultaneously obtained new loans. Third, Western negotiators ought to have a fairly strong position from which to bargain for economic terms for renewing ties. Past experience indicates, however, that this Polish government is prepared to pay extremely high economic costs to hold onto political power, so political concessions are likely to be granted grudgingly, if at all.

A combination of this scenario and the reform scenario is plausible, because one would expect the IMF to make loans conditional on a more consistent implementation of the economic reform. Both

Table 20

POLISH OUTPUT PROJECTIONS: RECONCILIATION SCENARIO

	NMP			UNI		
Year	(1977 zlotys)	(1980 = 100)	(1979 = 100)	(1977 zlotys)	(1980 = 100)	(1979 = 100)
1984	1484.8	90.6	87.3	1417.6	86.4	82.8
1985	1689.9	103.1	99.3	1784.4	108.8	104.3
1986	1606.7	98.0	94.4	1450.1	88.4	84.7
1987	1705.4	104.1	100.2	1557.3	94.9	91.0
1988	1805.7	110.2	106.1	1664.9	101.5	97.3
1989	1901.7	116.0	111.8	1764.6	107.6	103.1

[35]Recent articles in the Polish press have attempted to quantify losses due to economic sanctions. These studies have started from the assumption that the West ought to have agreed to further loans and to business as usual after the imposition of martial law. The logic of this assumption is certainly questionable. Poland was bankrupt at that time, so there were no financial reasons for continuing to provide loans. The imposition of martial law, in direct violation of the Helsinki accords, destroyed any political rationale for supporting the Polish regime. Consequently, the "costs" of the sanctions as calculated by the Poles are based on faulty premises.

scenarios are superior to the base case, so such a combined scenario promises substantial benefits to the Poles and is possibly the only attractive solution to their present problems.

Military spending in this scenario increases commensurate with the increase in utilized national income. The projections are for total spending to increase by 30 percent in comparison with the 1980 level in some years, with expenditures on equipment, operations, and maintenance about 40 percent higher than 1980 levels by 1989. In comparison with the levels of the initial scenario, however, military spending is only 1 to 2 percent higher (except for 1985 when it jumps to over 9 percent higher). (See Table 21.)

These projections hinge on the assumption that military spending will continue to take a larger share of utilized national income than it did in the 1970s. Better relations with the West or increased popular pressure to raise living standards could induce the Polish government to alter its priorities. However, these considerations will undoubtedly play second fiddle to the wishes of the ruling elite.

Table 21

POLISH MILITARY EXPENDITURES: RECONCILIATION SCENARIO

	Absorption		Military Expenditures		Personnel Expenditures		Equipment Expenditures	
Year	(billion 1977 zlotys)	(billion 1980 = 100	1977 zlotys)	(billion 1980 = 100	1977 zlotys)	(billion 1980= 100	1977 zlotys)	1980 = 100
1984	1417.6	86.4	57.3	106	10.7	85	46.6	112
1985	1784.4	108.8	72.1	133	13.5	108	58.6	140
1986	1450.1	88.4	58.6	108	11.0	87	47.6	114
1987	1557.3	94.9	62.9	116	11.8	94	51.1	123
1988	1664.9	101.5	67.3	124	12.6	100	54.7	131
1989	1764.6	107.6	71.3	131	13.3	106	58.0	139

SCENARIO 5: MORATORIUM ON SERVICING GUARANTEED DEBT

Since the declaration of martial law in Poland and the subsequent imposition of Western sanctions, the Polish government has made no attempt to honor its debts to Western governments. Third world governments, most notably Brazil and Argentina, although not participating in the sanctions, have also found it difficult to compel the Poles

to pay either interest or principal due. On the one hand, this state of affairs has had obvious advantages for Poland, which has avoided paying the large interest payments due[36] and has also avoided the problem of dealing with over $9.4 billion of unpaid principal. On the other hand, Polish debt service arrears have exacerbated already strained relations with its Western trading partners and have made it necessary for Poland to conduct much of its trade on a cash basis, as international lenders are loath to advance trade credits due to Poland's poor payment record.

The purpose of this scenario is to assess the advantages and disadvantages for both the West and Poland of a continuation of Poland's present policy of refusing to honor its financial obligations to other governments. It attempts to measure Poland's incentives to come to terms with its creditors in the Paris Club.

The scenario can also be construed as an attempt to assess the probable effect of a unilateral declaration that Poland is in default by one of the governments in the Paris Club. Discussions with international bankers indicate that if, for example, the United States were to declare Poland in default, little would change in their relationship with the Poles; bankers would attempt to insure that cross-default clauses in unguaranteed debts would not be triggered. If West European governments also fail to react to a U.S. declaration, the outcome would be essentially the same as a continued moratorium on Polish guaranteed debt.

Assumptions of Scenario 5

Assumptions concerning hard currency exports, noncompressible imports, and interest rates remain the same in this scenario as in the base case. Assumptions concerning interest and principal payments change in the following manner: (1) The Poles fail to come to terms with the Paris Club and refuse to pay either interest or principal on guaranteed Western debt until 1989, at which time they begin to make interest payments. Interest and principal arrears are assumed to be capitalized annually with interest accruing on the capitalized arrears at the same rate as on the original loan. (2) Because of Soviet pressure and the Polish leadership's determination to better relations with third world countries, debts owed to these countries—primarily Arab oil states, Brazil, Argentina, and the Soviet Union—are assumed to be rescheduled according to the scenario in the base case.[37] Rescheduling

[36]The Polish government estimates their current arrears on interest at $2.8 billion.

[37]90 percent of interest and principal until 1985 after which 90 percent of principal is rescheduled (Appendix A).

of unguaranteed debt is assumed to follow the pattern of the initial scenario.

Western governments are assumed not to place additional sanctions on the Poles. Western governments have not responded to Poland's present refusal to pay up, so it seems plausible to assume they will not retaliate in the future.

Balance of Payments Projections

Despite the moratorium on debt service on guaranteed loans, Poland's hard currency balance of payments continues to show substantial deficits in net compressible import capacity. Somewhat surprisingly, in 1989 net compressible import capacity is lower in this scenario than it is in the base case (Table 22). Although Poland's balance for compressible imports is higher, the increased interest payments owed by Poland because of its moratorium on debt service on guaranteed debt more than offset the net principal payments made in other scenarios.

Table 22

POLISH BALANCE OF PAYMENTS PROJECTIONS FOR 1989: MORATORIUM SCENARIO
(Millions of $ U.S.)

	Initial Scenario	Moratorium Scenario
Total Hard Currency Revenue	12040	12040
Exports of coal	2550	2550
Other merchandise exports	8970	8970
Total exports	11520	11520
Net services and transfers	520	520
Total Noncompressible Expenditures	-19490	-17160
Grain imports	-770	-770
Other noncompressible imports	-10720	-10720
Total noncompressible imports	-11490	-11490
Net interest paid	-3020	-3560
Amortization	-4980	-2110
Total Imports (estimated)	-8560	-8300
Balance for Compressible Imports	-7450	-5120
Policy Response, Rescheduled Principal	4520	1940
Net Compressible Import Capacity	-2930	-3180

Prospective Creditworthiness

Poland's moratorium on debt service payments to Western governments leads to a marked improvement in its debt service ratios. In the first years of this scenario these ratios are half the levels of the base case. Debt to export ratios deteriorate, however, compared with the initial scenario. Moreover, neither of the two ratios approach levels considered acceptable by international bankers. Even if one discounted the unfavorable effect on Poland's creditworthiness of a continued moratorium on these debt service payments, Poland would still not greatly improve its external accounts even if all of its hard currency earnings were devoted solely to servicing debt owed to Western banks and non-Western governments.

Poland does register a considerable improvement in its net transfer to import ratio. In later years this indicator registers less than half the levels of the initial scenario. Debt service to total debt ratios also decline, indicating that a greater percentage of export earnings is available for imports in this scenario than in the base case.

Another indicator, the interest to total debt ratio, has been included in Table 23. It measures the effective rate of interest Poland pays on its debt. By refusing to pay Western governments the interest due on

Table 23

POLISH DEBT BURDEN IN THE 1980s: MORATORIUM SCENARIO

Year	Debt	Debt Service	Expected Imports	Debt Service Ratio	Debt Export Ratio
1984	27620	7210	5600	1.11	4.26
1985	30070	2900	7120	.38	3.96
1986	31450	3190	6610	.38	3.73
1987	32970	3250	7640	.34	3.49
1988	34660	3210	8850	.30	3.25
1989	34490	5680	8300	.47	2.86

Year	Net Transfer Import Ratio	Debt Service Total Debt Ratio	Amortization Total Debt Ratio	Interest Total Debt Ratio	Rollover Ratio
1984	-.16	.26	.21	.06	1.14
1985	-.07	.10	.04	.05	1.19
1986	-.28	.10	.05	.06	2.34
1987	-.24	.10	.05	.05	2.27
1988	-.20	.09	.04	.05	2.29
1989	-.45	.16	.06	.10	2.92

its debt, Poland has effectively reduced its interest rates from the rates of 10–12 percent in the other scenarios. Even at these very low levels of interest, Poland still will be hard pressed to service its debt and by any traditional measure the country will still be uncreditworthy through the 1980s.

Projections of Net Material Product, Utilized National Income, and Defense Spending

In the short run Poland benefits from this scenario. By diverting hard currency export earnings from servicing guaranteed debt to increasing hard currency imports, Poland increases NMP by over 3 percent in the mid-1980s (Table 24). Poland begins to suffer the consequences of the moratorium in 1989 when despite the more rapid output increases registered in previous years, output fails to attain the levels projected in the base case because of the burden of increased interest payments.

The real payoff for Poland is illustrated in Table 24 in the columns displaying the projections for utilized national income. UNI is over 7 percent greater in 1984 in this scenario than it is in the base case. In 1988 it still exceeds base case projections by about this amount. Polish living standards would be substantially greater in this scenario than they are in the base case.

This scenario demonstrates the tradeoffs facing the Polish leadership. On the one hand, a continued moratorium on servicing debt owed or guaranteed by Western governments could lead to substantial increases in consumption and investment. On the other hand, when

Table 24

POLISH OUTPUT PROJECTIONS: MORATORIUM SCENARIO

	NMP			UNI		
Year	(1977 zlotys)	(1980 = 100)	(1979 = 100)	(1977 zlotys)	(1980 = 100)	(1979 = 100)
1984	1533.0	93.5	90.1	1523.2	92.9	89.0
1985	1635.5	99.8	96.1	1643.9	100.2	96.1
1986	1662.6	101.4	97.7	1596.9	97.4	93.3
1987	1743.2	106.4	102.5	1677.9	102.3	98.0
1988	1828.2	111.5	107.5	1763.9	107.5	103.1
1989	1857.5	113.3	109.2	1719.6	104.8	100.5

the Polish leadership finally begins to service the debt, Poland will still be in the position it is in today: broke and mired in a period of slow economic growth because of its debt obligations.

The moratorium scenario is not a promising one. Despite the increases in consumption in earlier years, output at the end of the period is lower than in the base case. The Polish government may find it more in its interest to bite the bullet now, rather than continue to postpone its debt problems.

Military expenditures in this scenario, commensurate with the increased levels of UNI, are greater than in the base case (Table 25). Poland is able to increase its contribution to the Warsaw Pact by ignoring its obligations to Western governments. If Western governments passively accept a moratorium on Poland's debt they would incur two types of losses: the lost principal and interest payments and the need to increase military expenditures to offset the Polish effort.

Table 25

POLISH MILITARY EXPENDITURES: MORATORIUM SCENARIO

	Absorption		Military Expenditures		Personnel Expenditures		Equipment Expenditures	
Year	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100
1984	1523.2	92.9	61.5	113	11.5	92	50.0	120
1985	1643.9	100.2	66.4	122	12.4	99	54.0	129
1986	1596.9	97.4	64.5	119	12.1	96	52.5	126
1987	1677.9	102.3	67.8	125	12.7	101	55.1	132
1988	1763.9	107.5	71.3	131	13.3	106	57.9	139
1989	1719.6	104.8	69.5	128	13.0	104	56.5	135

SCENARIO 6: DEFAULT ON ALL HARD CURRENCY DEBT

After the imposition of martial law in December 1981 the pros and cons of declaring Poland in default were debated in the United States.[38] At that time the U.S. government, which among all of the governments with loans or guarantees on outstanding loans to Poland considered the option most seriously, decided against declaring the

[38]Rohatyn, 1982, p. A18.

country in default. Since then little discussion has been devoted to this policy option in the West, and among government officials who deal with the problem it is generally considered to be a counterproductive policy.

Some policymakers in Poland, however, have recently resurrected the idea. Stanislaw Dlugosz, an under secretary in the Polish Planning Commission, declared in an article in a major Polish economics weekly that "convertible currency funds earmarked for servicing Poland's foreign debt should be minimized over the next 5–7 years."[39] According to Western bankers, the Polish government has faithfully upheld its commitments until now under the rescheduling agreements reached on unguaranteed loans. They argue that the Polish government takes its hard currency debts seriously and that those in command have no interest in total default. Bankers' statements are buttressed by an article by Kazimierz Glazewski, chairman of Bank Handlowy, criticizing the Dlugosz article.[40]

Assumptions

This scenario explores the consequences of Dlugosz's suggestion. Poland is assumed to declare a moratorium on payments of both principal and interest on all its hard currency loans. Unpaid principal and interest are assumed to be capitalized by Poland's creditors and interest is charged on these "loans" at the same rate as the original loan. To judge the consequences of this decision for the long term balance of payments Poland is assumed to make full payment of interest due in 1989 but makes no move to pay principal.

All other assumptions in this scenario are the same as in the base case except for hard currency earnings. Poland's creditors are assumed to retaliate by seizing all Polish foreign assets and by creating trade barriers for Polish exports. Poland's commercial fleet is assumed to be confined to CMEA trade or is sequestered by its creditors so net hard currency earnings from services are zero. Hard currency exports are assumed to equal two-thirds of the levels recorded in the initial scenario. This figure was adopted because real Polish exports to the United States plummeted to this level in 1982. Although the decline in

[39]Dlugosz, 1983, p. 15.

[40]Glazewski, 1984, p. 11. He stated that Poland has done extremely well in rescheduling negotiations, obtaining terms superior to those given to Brazil, and that Poland will continue to try to set its financial house in order.

exports to the United States cannot be entirely attributed to the imposition of sanctions,[41] this figure provided the only plausible guide to the effect of market economy sanctions against Poland.

Balance of Payment Projections

Balance of payments projections in this scenario are grim. If in 1989 Poland attempted to pay only interest on its debt, it would have a bill of $4.5 billion (Table 26). Net compressible import capacity would be in deficit by over $8 billion, almost three times the level in the base case. The projected level of imports would be almost one-quarter of noncompressible levels. Even if the Poles continued their moratorium on interest payments in 1989, their balance of payments would still be in poor shape. Net compressible import capacity in this case would

Table 26

POLISH BALANCE OF PAYMENTS PROJECTIONS FOR 1989: DEFAULT SCENARIO
(Millions of $ U.S.)

	Initial Scenario	Default Scenario
Total Hard Currency Revenue	12040	7720
Exports of coal	2550	1710
Other merchandise exports	8970	6010
Total exports	11520	7720
Net services and transfers	520	0
Total Noncompressible Expenditures	-19490	-15940
Grain imports	-770	-770
Other noncompressible imports	-10720	-10720
Total noncompressible imports	-11490	-11490
Net interest paid	-3020	0
Amortization	-4980	-4450
Total Imports (estimated)	-8560	-3270
Balance for Compressible Imports	-7450	-8220
Policy Response, Rescheduled Principal	4520	0
Net Compressible Import Capacity	-2930	-8220

[41]The decline in Polish exports to the United States in 1982 was also a consequence of the U.S. recession and supply difficulties facing Polish exporters. However, it was greater than the decline of Polish hard currency exports as a whole.

still be −$3770 million, which is still over $.75 billion more in deficit than the projection of the initial scenario. Under these assumptions, default dramatically worsens Poland's balance of payments.

Prospective Creditworthiness

Because of the much lower rate of growth assumed for hard currency exports in this scenario and the massive increases in hard currency debt, creditworthiness indicators deteriorate greatly (Table 27). Poland fails to make interest payments on its debt, so these are amortized and total debt increases rapidly. By 1989 it is over $47 billion, roughly twice its level in 1982. Although Poland pays no debt service in this scenario, debt service ratios were calculated on the basis of debt service owed. These ratios are almost twice as high as those recorded in the initial scenario. Debt export ratios are also double their levels in the initial scenario. The net transfer to imports ratio shows that if Poland were to service its debt, debt service would exceed imports in most years.

If Poland were to default, amortized unpaid interest would almost double its debt by the end of the 1980s. Poland would be unable to make interest payments on this debt, let alone begin to amortize it,

Table 27

POLISH DEBT BURDEN IN THE 1980s: DEFAULT SCENARIO

Year	Debt	Debt Service	Expected Imports	Debt Service Ratio	Debt Export Ratio
1984	28510	17330	4080	4.25	6.99
1985	31520	5020	4820	1.04	6.55
1986	34890	5740	5370	1.07	6.49
1987	38620	5820	6040	.96	6.40
1988	42750	6180	6820	.91	6.26
1989	47190	9430	3270	1.22	6.12

Year	Net Transfer Import Ratio	Debt Service Total Debt Ratio	Amortization Total Debt Ratio
1984	-4.25	.61	.51
1985	-1.04	.16	.06
1986	-1.07	.16	.07
1987	- .96	.15	.05
1988	- .91	.14	.05
1989	-2.88	.20	.11

even after six years of respite. Some of the deterioration in debt indicators in this scenario stems from the assumption that Poland's creditors would retaliate by restricting Polish exports to their markets and would seize the Polish commercial fleet. This appears to be a plausible assumption in the case of total default. However, even in the absence of this assumption, the increase in Polish debt caused by the amortization of unpaid interest would place a tremendous burden on the economy, if future Polish leaders would eventually try to meet their obligations.

Projections of Net Material Product, Utilized National Income, and Defense Spending

Despite the removal of the burden of servicing the debt, net material product projections are less in this scenario than in the base case for every year except 1986 (Table 28). The projection for 1989, which was made under the assumption that Poland would pay interest due in that year, is 15 percent below the projection in the base case. Projections for other years are only a few percent below those in the initial scenario. Polish officials advocating default to give the Polish economy time to recover are probably sanguine. The resulting financial upheaval would eliminate any large increases in output that could be expected from eliminating debt service payments.

Default does buy short run increases in consumption. In some years UNI projections are substantially above the levels of the initial scenario (up to 12 percent). Yet even in this scenario UNI levels never attain the peak recorded in 1978. Under the assumptions of this

Table 28

POLISH OUTPUT PROJECTIONS: DEFAULT SCENARIO

	NMP			UNI		
Year	(1977 zlotys	(1980 = 100)	(1979 = 100)	(1977 zlotys	(1980 = 100)	(1979 = 100)
1984	1464.6	89.4	86.1	1500.3	91.5	87.7
1985	1545.3	94.3	90.8	1573.8	96.0	92.0
1986	1612.9	98.4	94.8	1634.6	99.7	95.5
1987	1684.0	102.7	99.0	1699.5	103.6	99.3
1988	1759.4	107.3	103.4	1759.4	107.3	102.8
1989	1623.5	99.1	95.4	1450.0	88.4	84.7

scenario the Polish government would achieve the same results as did the Gierek administration in the late 1970s: slight increases in living standards or stagnation at the price of an enormous increase in hard currency debt.

It is unlikely that Poland's creditors would forgive the country its loans in the near term, so reentry into international trade and the financial world is implausible. Unsettled debt issues from World War II and before continued to affect U.S. relations with several Communist countries until very recently,[42] which indicates Poland could find itself an international financial pariah for the rest of the century if it went into default.

Because of the increased levels of UNI in this scenario, military expenditures are above the levels of the base case (Table 29). Poland is able to divert resources that would otherwise go to servicing its debt to purchases of military equipment.

Table 29

POLISH MILITARY EXPENDITURES: DEFAULT SCENARIO

	Absorption		Military Expenditures		Personnel Expenditures		Equipment Expenditures	
Year	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100	(billion 1977 zlotys)	1980 = 100
1984	1500.3	91.5	60.6	112	11.3	90	49.3	118
1985	1573.8	96.0	63.6	117	11.9	95	51.7	124
1986	1634.6	99.7	66.0	122	12.3	99	53.7	129
1987	1699.5	103.6	68.7	127	12.8	103	55.8	134
1988	1759.4	107.3	71.5	132	13.4	107	58.1	139
1989	1450.0	88.4	58.6	108	11.0	87	47.6	114

[42]Only in the late 1970s did the United States and China discuss and come to a resolution about claims from Chinese nationalization of the assets of U.S. citizens following the revolution. The United States and Czechoslovakia also failed to settle their financial quarrels until the late 1970s.

IV. OUTLOOK FOR POLAND

ECONOMIC OUTLOOK

Creditworthiness

In all scenarios, projections for Polish creditworthiness as reflected in net compressible import capacity and more traditional measures of creditworthiness indicate a bleak decade (Table 30). Poland does not regain its creditworthiness in any of the scenarios. The most progress is made in the reform scenario, but in all cases the hard currency import constraint remains binding. Although projections stop in 1989, debt and export data indicate that Poland's lack of creditworthiness will continue into the 1990s. The small reductions in debt in the 1980s imply interest payments will remain high and principal payments falling due from loans rescheduled in the early 1980s will strain the economy. Poland's international credit standing is unlikely to improve in the foreseeable future.

Output

Output recovers from the low point of 1982 in all the scenarios; in the initial scenario it increases by 4.6 percent per year. UNI also increases, but at a slower rate, and declines in some years. Although increasing the percentage of national income invested or more rapid factor productivity growth could lead to larger increases in output, the primary constraint on increasing national income in this model is the dearth of hard currency imports. This conclusion is supported by statements of Polish economists and policymakers concerning the bottlenecks created by shortages of foreign exchange, Poland's slow economic recovery since 1982, and statistical evidence.[1]

POLISH POLICY OPTIONS

Domestic Policy Options

Practically speaking, the government has two domestic policy options: "muddling through" as described in the initial scenario and aggressive pursuit of economic liberalization as discussed in the reform

[1]Olechowski, 1982; Kemme and Crane, 1984.

Table 30

POLISH SCENARIOS: PROJECTIONS TO 1989
(Millions of $ U.S.)

	Scenario	Assumptions Differing from the Initial Scenario	Net Compressible Import Capacity	Net Debt	Debt Service Ratio	NMP	UNI (1980 = 100)	Military Spending
1a.	Initial scenario	—	−2,930	28,710	.66	113.7	105.9	129
1b.	Lower defense spending	Military spending is 3.0%, not 4.04% of UNI	−2,930	28,710	.66	113.9	106.0	96
2.	Successful economic reform	Real hard currency exports increase 12.6% per year; labor augmenting technological change is 2.2% per year	+950	28,710	.50	128.0	120.4	147
3.	No Soviet trade deficit	Hard currency exports $18 million less each year; no ruble trade deficit after 1984	−3,110	28,710	.67	113.3	105.5	120
4.	Reconciliation	Poland receives $1800 million in new money; real hard currency exports increase 16.8% in 1985, 8.1% annually thereafter	−1,720	31,610	.61	116.0	107.6	131
5.	Moratorium	No payments on guaranteed debt are made until 1989 when interest is paid for that year	−3,180[a]	34,490	.47[a]	113.3	104.8	128
6.	Total default	No debt service payments are made until 1989 when interest is paid for that year only; Exports are 2/3 of levels of the initial scenario	−8,220	47,190	1.22	99.1	88.4	108

[a]Excludes principal owed.

scenario. Retreat to the prereform system is not considered a tenable option.[2]

The base case, "muddling through," is the one currently pursued by the Polish government. It can be described in the same terms that have been used to criticize the Hungarian reform: neither plan nor market.[3] Although the Polish reform has emphasized the need for enterprises to be self-financing—to be profitable and to make demand the determinant of what is produced—the government has been very reluctant to allow markets to determine prices or enterprises to operate freely. The role of government in determining prices has increased since the first days of the reform, and exemptions to taxation and price rules have proliferated. Although Poland's larger economy ought to make it less amenable to rule by suggestion as practiced in Hungary, the continued shortages of many raw materials and foreign exchange have made it very attractive for the government to allocate goods and services by administrative fiat rather than markets, and thereby maintain its role in the economy. The government's continued timidity in increasing prices of consumer basics indicates that "muddling through" is probably the policy of the future.

The second option, aggressively pursuing economic liberalization, has support from such government ministers as Baka and from most Polish economists. It probably provides the only feasible avenue to rapid increases in output, consumption, and exports. The primary problems with pursuing such a policy lie in price and wage rate regulation. Although some measures have been adopted in 1984 to make wage regulation more flexible, as stated above, there has been a great reluctance to rely on markets to determine prices. This problem continues to be a major stumbling block to making the reform coherent.

Foreign Policy Options

Poland has a different set of policy options in external economic affairs, all of which are consistent with the two domestic options listed above. The first option, the one most often espoused by government leaders, is to redirect trade to the CMEA; it also appears to be the least tenable from an economic point of view. Most of Poland's imports

[2]The Polish Council of Ministers and the Party apparatus have repeatedly criticized the old economic system and have insisted that a retreat from the reform is not possible. Although the creation of economic associations in place of the old trusts and the introduction of target programs in the first two years of the reform indicate that some of the elements of the old system have crept into the new, the elimination of compulsory plan targets in 1982 and most of the target programs in 1984 coupled with the new body of law delineating the rights of enterprises and workers' councils would make a return to the old system of central planning difficult.

[3]Bauer, 1983.

from the West consist of raw materials, components, and machinery not available from its CMEA partners or sold by them only for hard currency. Consequently, increased CMEA imports have not been able to substitute for hard currency imports. Furthermore, despite claims to the contrary, Poland is redirecting exports away from rather than to the CMEA. In 1983, in real terms, exports to nonsocialist countries increased at twice the rate of exports to socialist countries. In the latter half of the 1970s, roughly 60 percent of Polish exports were destined for the CMEA; in 1982 this percentage equaled 53.6 percent and in 1983 it dropped to less than half. Although imports from the West are a smaller percentage of total Polish imports than they were in the mid-1970s, these imports are now being purchased for cash, not credit, and increases in these imports have been identified as the key to economic growth in the 1984 plan. Despite the rhetoric, the Polish authorities have given priority to increasing hard currency exports in the 1984 plan because these exports are needed to service the debt and to pay for imports.

A second option is formal default. The Polish authorities have yet to find this attractive, but they may yet change their minds. In the default and moratorium scenarios Poland gains little in terms of increased output. Although consumption and investment are higher than the base case projections for most of the period, the long-run consequences of either of these policies appear to be the same as the policies of the Gierek era—an unsustainable increase in debt and economic decline.

Another option, as discussed in the fourth scenario, is for the government to push for a reconciliation with the West through greater domestic political liberalization. To this point the repeal of martial law, amnesty for Solidarity supporters, and other measures consistent with a greater regard for human rights have been directed toward placating the populace, possibly to give the lie to Western criticisms of Polish violations of human rights, not, at least officially, to meeting the terms for the removal of Western sanctions. The reactivation of Poland's application to the IMF and the tentative agreement with Western governments on rescheduling guaranteed debt indicate that this scenario has become very probable.

The fourth option is reschedulings with Western bankers and some sort of agreement with Western governments. This policy is assumed to be followed in most of the scenarios. The Polish authorities have avoided the problem of servicing guaranteed hard currency debt by using the refusal of the West to discuss renegotiations of terms as an excuse to stop principal and interest payments. The return of Western governments to the bargaining table coupled with some relaxation of U.S. sanctions puts the Polish government in a difficult predicament.

Refusal to come to terms with its creditors would lead to a continuation of Poland's present problems with financing imports and increasing exports, but the decision to begin even partial payments of debt service would place a considerable burden on the Polish economy.

WESTERN POLICY OPTIONS

Western policymakers have seen credit policies as a mechanism for influencing the behavior of the Polish government. The denial of further credits to Poland following the imposition of martial law has been recognized by both sides as the most important sanction used by the West. The effectiveness of credit policies to influence the Polish authorities is determined by several variables, including the foreign policy goals to be pursued, the economic policies adopted by the Poles, and the economic environment. With these constraints in mind this section discusses the role of Western credit policies on the following foreign policy goals: (1) timely payment by the Poles of interest and principal due, (2) a reduction in Polish military expenditures, and (3) a reduction in Soviet control over Poland.[4]

Repayment of the Debt

One goal that ought to be of interest to all creditors is for Poland to pay the interest and principal due on its debts. Policies to this point have been ineffective. The West has been loath to declare Poland in default, so the Polish authorities' refusal to pay either interest or principal due has become a de facto 100 percent rescheduling of both principal and interest.

The return of Western governments to the bargaining table indicates that attempts are being made to find a more fruitful solution to the repayment problem. In the bargaining now underway the two sides have one objective in common and one in conflict. Both sides want to expand the capability of Poland to service its debts, primarily through the expansion of exports and output. The scenarios indicate that this objective could be attained if the West advances "new" money and if the economic reform were implemented more consistently, although the experience of the 1970s shows that loans granted without economic liberalization may worsen Poland's debt problems.

Western and Polish objectives conflict when it comes to the decision on how to divide increased output between debt service and domestic consumption. The West emphasizes the former and the Poles the latter. The Polish regime has two major wishes that could be granted

[4]These goals have differing applicability to the various governments involved.

by the West: a repeal of the sanctions and access to new credits. The first could be used effectively as a bargaining chip for increasing the share of output devoted to debt service. The second poses a problem, because in the short run Western creditors would be asked to increase their outstanding loans, despite Poland's very poor past record of repayment, in exchange for promises that debts will be promptly serviced in the future.

The willingness of the Polish authorities to use "new" money to service the debt rather than for domestic consumption is not ensured, so one option is to confine activities to rescheduling old loans rather than advancing additional funds. This is the option assumed in three of the six scenarios. Unfortunately, only in the reform scenario do Poland's debt problems diminish to any great extent; and here, too, the country remains uncreditworthy. The advantage for Western governments in rescheduling existing loans only is that no new money is put at risk and a portion of interest and principal are paid. At least there is a net transfer of resources from East to West rather than vice versa.

If Poland is granted new money or simply a rescheduling, Western governments would be well advised to make disbursements conditional on the implementation of particular economic policies, much as the IMF sets conditions for recipients of its loans. This applies to both new disbursements or recycled interest payments. Because both Hungary and Romania have agreed to conditions imposed by the IMF, conditionality has precedents in Eastern Europe. Conditionality is of especial importance because both present and past Polish governments have consistently given domestic consumption precedence over current account adjustment. By demanding that interest be received before recycling, Western governments could refuse to recycle if Poland fails to meet conditions.

Forcing default is another policy option open to Western governments. Default would hinder rather than help Poland to regain its creditworthiness, so it would be an inadvisable policy if the primary Western objective is the repayment of the loans.

Reduced Military Spending

NATO countries have an interest in a reduced level of military expenditures by the Poles. Initial data indicate, however, that military expenditures are not necessarily a function of economic well-being. Military expenditures in 1982, the bottom of the Polish economic crisis, were apparently greater than the levels of previous years indicating that government preferences have been of greater import than the economic health of the country. Based on the assumptions that defense expenditures will continue to take a greater share of output

under the Jaruzelski regime than under Gierek, projected military expenditures in the scenarios are greater than those of the 1970s despite the low level of economic activity. A policy of attempting to weaken the Polish economy would therefore have little effect on defense expenditures.

Lessening Soviet Control

A third objective, possibly not of unanimous interest in the West, has been to offset Soviet control in Poland. This objective has been pursued in part by attempting to dissuade the Polish government from eliminating pluralistic forces in the country. Since the imposition of martial law, Western success in this area has been limited. Coverage of events in Poland by the Western media may have contributed to the softening of martial law, and Western pressure probably weighed in the decision to grant an amnesty. At the official level, the Polish government has been adamant that Western refusal to extend new credits will have no effect on internal policies. The Poles have also indicated that the extension of new credits will also not have much influence on domestic policies.

V. HUNGARY'S HARD CURRENCY BALANCE OF PAYMENTS PROBLEMS

THE NEW ECONOMIC MECHANISM (NEM)

The tale of Hungary's balance of payments problems is one of systemic failures, economic policy mistakes, and external shocks on the economy. The failure to fully implement the Hungarian economic reform has been charged with contributing to Hungary's balance of payments problems, and much of its present strategy for restoring external balance and increasing output is based on a return to the principles of the reform.

Hungary is one of two Eastern European countries (Yugoslavia is the other) that have succeeded in creating an alternative to the Soviet-style command economy. The reform introduced in 1968 eliminated some of the main features of the Soviet system.[1] Enterprises in the Hungarian system were to be independent, profit-maximizing entities whose decisions were to be guided by demand for their products and the costs of their inputs. These enterprises were to draw up their own plans, much as Western corporations plan their business; these plans were not to be changed by the supervising authority.

Goods and services were to be distributed through markets, not allocated administratively. Prices were to be affected by demand, but central preferences were to be enforced by stipulations concerning the way in which prices were to be calculated and review of price changes by the Price Office. The central authorities were to continue to set prices of raw materials and consumer basics. Investments were to be chosen by the rate of return and investment funds allocated through the banking system, not by branch ministries.

The economy was also to be made much more sensitive to world markets. With the exception of raw materials, imports were to be priced at cost. In most cases exporters were also to receive the price paid by foreign importers for their products, although export subsidies were assumed to have a continued role in the system. Ties between producers and world markets were to be further strengthened by permitting some enterprises to set up their own export departments.

[1]The following section draws on Friss (1978) and Csikos-Nagy (1982). Portes (1977) also contains a good description of the reform.

In practice the reform failed to operate as envisioned. In the early years of the reform, plant managers continued to stress increases in output, rather than profits.[2] Bureaucratic infighting determined investment choices, and investment grants were often used instead of loans. Prices were closely regulated by the central authorities and rapidly diverged from world market prices in the early 1970s after OPEC increased the price of oil. Furthermore, enterprises were able to bargain with officials in the branch ministries and the central government for special subsidies and tax preferences, thereby making enterprise performance a function of the manager's skill in bargaining with his superiors rather than his success in increasing economic efficiency or responding more rapidly to the market.[3] The Hungarian reform during this period can be characterized as "neither plan nor market"; although plan targets and central allocation of inputs were eliminated, they were replaced with a complex system of bargaining over prices and tax rates, not by markets.[4] To a great extent this system continues to operate in Hungary to this day.

HUNGARY'S FALL INTO HARD CURRENCY DEBT

Hungary started the decade of the 1970s with a manageable debt load, although in 1970 gross debt was greater than Poland's (Table 31). After the implementation of the NEM in 1968, the economy somewhat surprisingly generated hard currency trade surpluses in both 1969 and 1973.[5] In 1974, following the steep rise in energy prices on international markets, Hungary began to register large hard currency trade deficits that were financed by Western loans. In 1978 the deficit peaked at over $1 billion, by which time Hungary had built up a large hard currency debt.

One reason for these deficits was the deterioration in Hungary's terms of trade.[6] Hungary's hard currency terms of trade declined by 29.2 percent between 1972 and 1975.[7] By 1975 the terms of trade for

[2]Granick, 1975.

[3]Tardos, 1980.

[4]Bauer, 1983, p. 310.

[5]The forint-dollar exchange rate was set at less than the marginal rate and hard currency imports had been tightly controlled before the initiation of the 1968 reform; therefore the repeal of import restrictions should have resulted in hard currency trade deficits, not surpluses, because enterprises would import more and the exchange rate would be too low to induce the Hungarians to increase exports.

[6]Tyson, 1984.

[7]*Kuelkereskedelmi Statisztikai Evkoenyv* (*Hungarian Yearbook of Foreign Trade*, henceforth *KSE*), 1980, p. 422.

Table 31

HUNGARIAN DEBT AND DEBT INDICATORS, 1971-1982

Year	Net Hard Currency Debt[a]	Hard Currency Exports	Hard Currency Debt Service Ratio	Hard Currency Debt Export Ratio
1971	850	1275	NA	.67
1972	1055	1775	.14	.60
1973	2695	1955	NA	.87
1974	1535	2045	NA	.75
1975	2122	2495	.19	.85
1976	3030	2490	.21	1.22
1977	3647	2895	.25	1.26
1978	5787	3150	.36	1.84
1979	6565	4255	.36	1.54
1980	7192	4950	.26	1.45
1981	7001	4885	.42	1.43
1982	6673	5290	.38	1.26
1983	6704	5055	NA	1.33

SOURCES:

Debt: 1971-1974—Lenz, 1981, p. 745; 1975-1982—*International Financial Statistics*, various issues.

Hard currency exports: All years—*KSE*, various years.

Debt-service ratios: 1971-1979—Zoeter, 1981, p. 730; 1980-1982—WEFA, March 1983, p. 35.

Hard currency debt export ratios: 1971-1982—Calculated from net hard currency debt divided by Hungarian hard currency exports.

[a]Between 1975-1983 net debt is defined as gross hard currency debt minus reserves. The Lenz article probably uses a similar definition but is not explicit.

Hungary's commerce in rubles followed suit, declining by 21.6 percent between 1975 and 1980.[8]

These changes in the terms of trade were not only due to the increased cost of energy.[9] Hungary also suffered from increased competition from low-cost suppliers in its traditional markets. Major hard currency export earners in the early 1970s included textiles and steel products. Hungary's comparative advantage in these products

[8]After 1975 ruble prices were calculated on a five-year moving average of market prices. Hungary was spared the full shock of the fall in oil prices until 1982 because of this formula.

[9]For a detailed study of the causes of Hungary's hard currency balance of payments problems see Tyson (1984).

stemmed from low labor costs, but this advantage was steadily eroded through the course of the 1970s as real wages in Hungary climbed and more efficient third world suppliers entered these markets. A deterioration in the terms of trade between agricultural exports, a major hard currency export, and Hungarian hard currency imports also contributed to the country's problems.[10]

In the period 1974 to 1978, modifications introduced in the NEM and the economic policies adopted by the government appeared to slow economic adjustment to the new state of affairs. Although the Hungarian authorities responded to the mounting hard currency trade deficits by increasing exports and more closely regulating imports, they failed to take adequate measures to force the domestic economy to adapt to the new situation. Government policies were geared toward maintaining former rates of growth despite the decline in the terms of trade. In the interest of keeping the overall level of inflation low, the government resisted changing relative prices, despite the enormous changes that had occurred on international markets. Thus, energy in Hungary remained relatively cheap and manufactures relatively expensive, which greatly slowed changes in the domestic structure of production and consumption.

In 1973 the government began to retreat from the initial reforms established in 1968. Between 1973 and 1978 a host of taxes, subsidies, and quotas on Hungarian exports and imports were introduced to prevent arbitrage and protect domestic producers. A reluctance to close loss-making enterprises led to a tax system that in some cases appeared to be enterprise-specific. Central control of investments and wages was tightened, labor mobility was curtailed, and government and agricultural cooperatives were barred from entering several industrial sectors, thereby limiting competition. Inside the Party, opposition to the reform increased as income differentials widened and the ability of low level Party officials to control local enterprises weakened. One of the architects of the 1968 reforms, Rezso Nyers, lost his seat on the Politburo at this time. To a great extent market forces were replaced by ministerial suasion in the guidance of enterprises.[11]

BALANCE OF PAYMENTS ADJUSTMENT

Continued deterioration in both ruble and dollar trade balances coupled with increased costs of borrowing forced the government to

[10]Tyson, 1984, p. 43.

[11]Tardos, 1980.

rethink policies in 1978. In 1979 the authorities introduced an austerity program: Subsidies were reduced, prices and taxes were raised, and a concerted effort was made to close the hard currency trade deficit.[12] The government also made a commitment to reintroduce many of the original elements of the reform and in some areas to go beyond the initial design. Subsequently, various measures were adopted to stimulate competition and force enterprises to be more competitive: relaxation of controls over private enterprise, breaking apart horizontal trusts and combines, merging branch ministries, etc.

By the end of 1981 Hungary had made considerable progress in rectifying its balance of payments problems, at the cost, however, of declines in utilized national increase (Table 32). The hard currency trade deficit had been closed and the hard currency current account deficit narrowed. Because of rising interest rates, however, the authorities' plans to eliminate the current account deficit had been postponed to future years. At this juncture martial law was imposed in Poland. Coupled with Romania's request for a rescheduling, that led to a loss of confidence in Eastern Europe by international bankers. Foreign deposits were withdrawn from Hungarian banks, causing a precipitous fall in

Table 32

HUNGARIAN NET MATERIAL PRODUCT, UTILIZED NATIONAL INCOME, AND INDUSTRIAL OUTPUT, 1970-1982

(Constant prices, 1970 = 100)

Year	Net Material Product	Utilized National Income	Net Industrial Output
1971	105.9	111.3	106.4
1972	112.4	107.2	114.4
1973	120.3	109.3	125.0
1974	127.5	123.1	136.1
1975	135.3	131.1	144.9
1976	139.3	132.6	152.7
1977	150.5	140.9	163.1
1978	156.9	155.0	171.7
1979	159.9	146.4	179.7
1980	158.6	143.7	176.0
1981	162.6	144.7	184.4
1982	166.3	142.7	191.2

[12]Hewett, 1981.

reserves. The government was able to maintain payments on loans only by obtaining a bridging loan from Western central banks and the Bank of International Settlements (BIS) followed by credits from the IMF.[13] The process of closing the hard currency current account deficit had to be greatly speeded up, and austerity measures were tightened.

Although the initial need for a forced rescheduling was avoided, in 1982 the hard currency current account was barely in surplus; only surpluses in hard currency trade with the Soviet Union enabled Hungary to cover interest payments on its debt. The Hungarian authorities continued to be under great balance of payments pressure in 1983. The conditions of the IMF loans and the reluctance of international bankers to increase their exposure to Hungary have forced the government to strive for increasing surpluses on the hard currency current account. These pressures led to a decline in real wages in 1983.

[13]Miller and Barclay, 1984, p. 22.

VI. BALANCE OF PAYMENTS PROJECTIONS FOR HUNGARY

INTRODUCTION

This section projects Hungarian balance of payments and output in the 1980s for four scenarios. In general, 1989 has been chosen as the year for comparison of the projections, because data on principal payments are still fairly good for that year, yet enough time passes so that one can discuss trends. In each scenario net compressible import capacity is projected under varying assumptions concerning Hungarian export growth and import needs. This indicator is then used to assess the balance of payments pressures bearing on the government under the conditions of the particular scenario.

East European countries that are de facto bankrupt, such as Poland and Romania, have only two alternatives when adjusting to balance of payments pressures: reductions in noncompressible imports with a concomitant fall in output or forcing a rescheduling. Their lack of funds and creditworthiness exclude other options. The Hungarians have been able to forestall rescheduling and have joined the IMF and the World Bank. They have maintained their creditworthiness and therefore have continued to have some access to international financial markets and, now, to IMF funding. Consequently, they have had more options available to them than the Poles. They have been able to roll over most of their loans and have the option of increasing net debt slightly to finance imports to expand exports. Despite this leeway, the path on which they tread is very narrow; options of reducing reserves or cutting compressible imports have already been exhausted, and the possibilities for increasing borrowing from the IMF or international bankers are limited and contingent on improvements in the current account.

Four scenarios are described below. The first, and most probable, is one of muddling through. The government does not make any radical policy changes and present trends in export growth continue. Scenario 2, favorable to the Hungarians, assumes that present reform measures are strengthened and lead to substantial increases in factor productivity, which in turn enable Hungary to increase output more rapidly and efficiently than in the recent past. This scenario is less likely to occur because of political obstacles to a more radical economic reform.

The third and fourth scenarios assume external developments unfavorable to Hungary. In scenario 3 the Soviets demand that Hungary close its transferable ruble trade deficit by diverting hard currency exports to ruble trade. Substantial reductions in Hungary's transferable ruble trade deficit in 1984 indicate this scenario is not unlikely. Scenario 4 assumes that international banks refuse to roll over medium or long term loans to Hungary because a political or financial crisis in Hungary or in another member of the Soviet Bloc precipitates a fall in confidence. Hungary's good relations with the international financial community indicate this scenario is unlikely.

The scenarios were designed to capture the policy options open to three sets of actors involved in determining Hungary's future creditworthiness: the Hungarian government, the Soviets, and Western governments. In the first scenario all three actors follow present policies. The Hungarian government continues a gradual process of economic liberalization, the Soviets permit the ruble trade deficit to be narrowed slowly, and Western governments and banks continue to roll over loans. In the second scenario the Hungarian government changes its policies and pushes for more rapid economic liberalization. Subsidies are reduced and competition encouraged in part by increasing imports. In the third scenario the Soviet government changes its policies and demands that Hungary close its ruble trade deficit in 1985. Scenario 4 depicts the consequences of a change in Western attitudes toward Hungary as banks withdraw deposits in Hungarian banks and refuse to roll over loans.

In each case net compressible import capacity will be projected and the resulting debt indicators computed. Subsequently, export and import projections are used to project national output (NMP), utilized national income, and defense spending.

SCENARIO 1: MUDDLING THROUGH

The Hungarian authorities are currently midway through a series of changes in the economic system that began in 1979. The government has made a concerted effort to rely more on market forces in directing the economy. Competition has been increased through the removal of legal barriers to entry into industry by private and cooperative firms. The price system has been tied, if indirectly, to world market prices; and ministerial interference in the management of enterprises has been curtailed.

Changes have not been unidirectional, however. In certain areas, especially in controlling imports, direct intervention by the center has

increased. Ministerial pressure on managers has been used to force enterprises to increase exports to hard currency areas.[1] Imports have been curtailed by import quotas, import permits, administrative pressure, and directives from the Ministry of Foreign Trade. These measures have decreased economic efficiency, as enterprise managers have been forced to use inferior substitutes in production, have faced delays in procuring inputs, and have been shielded from foreign competition. Although competition and markets have been used to allocate resources domestically, they have been of lesser importance in determining hard currency imports.

The inefficiencies that exist in foreign trade have been compounded by barriers to competition in the domestic economy, which retard moves toward greater allocative efficiency. The central authorities continue to provide customized subsidies and tax breaks to loss-making enterprises to prevent layoffs. They try to control wages, ostensibly as a form of incomes policy, but also to limit income differentials and prevent wages in profitable enterprises from becoming so attractive that loss-making enterprises would find themselves bereft of workers.

These measures are products of Hungarian political forces that have the potential to slow or even eliminate the changes in the economic system of the immediate past. These forces can be divided into three groups: the populace, the domestic Communist Party, and foreign Communist parties. Discontent with the economic reforms within the populace has two sources: (1) increases in income differentials due in part to differences in effort, but also to differences in access to employment opportunities that provide higher incomes; (2) increased insecurity due to more rapid rates of inflation and to somewhat less employment security.[2]

Ideological opposition to the reform from philosophically committed Party members probably still exists. Of more importance is opposition that has arisen from the loss of political power. Some enterprise managers have claimed that the role of the enterprise Party group in management decisions has been curtailed in recent years.[3] Recent electoral reforms indicate that some power is being transferred from the Party apparatus to the government apparatus at the county and national level. Some changes may also be occurring in the concept of government decisionmaking. Traditionally, in Marxist-Leninist states government decisions were supposedly taken in the interest of the

[1]Crane, 1983.

[2]Some factories have been closed, although workers are still guaranteed a position in another enterprise.

[3]Crane, 1983.

working class as interpreted by the Party. The recent electoral changes in Hungary indicate that government may now be looked upon more as a mediator of divergent interests in the nation. As their political and economic power declines, one would expect the middle and lower echelon apparatchiks to oppose the reform.

Although the Hungarian model has not yet been attacked by other CMEA governments, they have not seen it as a model for themselves (with the exception of Poland). The governments of both East Germany and Czechoslovakia have attempted to differentiate themselves from alternative economic systems (the former from the FRG and the latter from Dubcek era reformers) through reference to the superior qualities of a Soviet-style system. These governments, especially the Czechs, may feel threatened by the greater reliance on markets, profits, and private initiative in the Hungarian system, because success in Hungary challenges their interpretation of socialism and may encourage factions in their own parties to push for similar types of reforms. Similar attitudes in the Soviet Union could well lead to a rollback or at least set strict limits on the direction the reform process may take. Thus the Hungarian government has embarked on a course of expanding the role of markets in the economy, but the changes it may make are limited by domestic and international political forces.

Assumptions of Scenario 1

The first scenario assumes that the present rate of change of the Hungarian reform will continue. Some progress will be made in implementing further changes aimed at increasing the role of markets, but these changes will be limited. The Hungarian leadership is assumed to keep current reform measures in force, but continues to (1) restrict imports in competition with domestically produced goods; (2) subsidize loss-making firms, thereby saving them from bankruptcy; and (3) set prices through the present administrative bargaining process rather than through markets. The central authorities are assumed to continue to control prices and subsidize unprofitable firms, so excess demand persists in many markets, particularly in labor markets, as these firms get subsidies to compete for labor with profitable firms while the central authorities use direct measures to keep wage levels from rising. These brakes on the reform prevent the country from dramatically improving efficiency levels. With labor inputs continuing to decline in industry, economic growth will depend primarily on increasing hard currency imports and inputs of capital.

This scenario also assumes no abrupt changes in the external environment in which the economy operates. No dramatic changes will

occur in the profitability of hard currency exports, and hard currency terms of trade are assumed to remain at the 1983 level. Hungarian exports to the West will continue to be determined by the level of aggregate demand in these markets. Growth in these markets will resume after the recession of 1981–1982, but will not regain the levels of the 1960s. Because the composition of exports and marketing efforts are assumed to remain much the same, the income elasticity of Hungarian exports to market economies is assumed to continue to be 1.88.[4] Hard currency exports to the CMEA stagnate at 1982 levels throughout the entire period as they did in 1983.[5]

Interest rates are assumed to remain high in historical terms—more than 3 percent in real terms—see Appendix Table C.1. Net debt is assumed to decline slightly from the level estimated for 1983—$6160 million. It is assumed to fall by $400 million in 1984 and to stabilize thereafter. In other words Western banks are assumed to roll over all Hungarian debt in 1985 and beyond.

Balance of Payments Projection

Under the assumptions of this scenario, Hungary generates a substantial surplus in net compressible import capacity by 1989—$2790 million (Table 33). Between 1984 and 1989 hard currency exports increase in real terms at an average annual rate of 5.8 percent. In nominal terms they double. In real terms this rate of increase is less than the rate recorded between 1976 and 1983 (about 6.5 percent) and therefore can be considered rather conservative. The slower growth is due to the stagnation of hard currency exports to CMEA countries; exports to the West increase by 6.7 percent per year. Thus if the Soviets resume increasing hard currency imports of Hungarian products, Hungary's hard currency balance of payments would show even greater improvement.

Despite a substantial increase in hard currency exports, Hungary still does not have a surplus on the balance of compressible imports until 1989. Hard currency earnings before then fail to cover interest obligations, noncompressible imports, and amortization of medium term and long term debt. In this scenario Hungary will continue to rely on the good will of its bankers in order to roll over medium and long term debt.

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[4]The derivation of this estimate is given in Appendix C.

[5]*East-West*, 28 February 1984, p. 11.

Table 33

HUNGARIAN BALANCE OF PAYMENTS PROJECTIONS FOR 1989: INITIAL SCENARIO
(Millions of $ U.S.)

	1981	1985	1989
Total Hard Currency Revenue	4778	6200	10200
Market economy exports	4042	5550	9310
Hard currency exports to the CMEA	957	950	1230
Total exports	4999	6500	10540
Net earnings from tourism	132	250	490
Net earnings from shipping	-213	-400	-640
Other	-140	-150	-190
Total Noncompressible Expenditures	NA	-7330	-8370
Noncompressible imports	-5084	-5280	-6830
Net interest paid	-1088	-590	-580
Amortization	NA	-1460	-960
Total Imports (actual or estimated)	-5084	-5600	-9620
Balance for Compressible Imports	NA	-1130	+1830
Policy Response			
New loans	NA	1460	960
Change in reserves	+301	0	0
Net Compressible Import Capacity	NA	+330	+2790

Although Hungary's hard currency balance of payments is in good shape by 1989, the road to this goal is rocky. Net compressible import capacity is negative in 1984 by $510 million. The Hungarian government has stated its intention of running a current account surplus of $400 million in 1984 and of keeping borrowing in check thereafter, so debts will be serviced by cutting into noncompressible imports.[6] The policy response to Hungary's balance of payments problems in the near term involves cuts in essential imports.

Prospective Creditworthiness

In this scenario, Hungary reduces the level of net hard currency debt in both real and nominal terms. The greatest reduction in net debt occurs in the first year of the projection. Net debt declines from $6172 million at the end of 1983 to $5762 million in 1984. Subsequent

[6] *East-West*, 31 January 1984, p. 3.

declines are in real terms as nominal debt stays constant, but the price level of Hungary's exports rises.

Debt service as reflected in debt service ratios is high in this scenario until 1987 when it finally falls below .25 (Table 34). Ratios above this level are considered danger signals, so Hungary's creditworthiness appears precarious at least until 1987. Debt service ratios could turn out to be worse than projected. In this scenario medium and long term debt is assumed to have an average maturity of six years.[7] However, recent borrowings have been of shorter duration so principal payments have become bunched in 1984 and 1985.[8] Hungary may have a severe debt service problem in 1985.

Debt export ratios are also high for the first few years of the period. Unlike debt service, they decline through the course of the period and are at reasonable levels (less than 1.00) by 1986.

As shown by the net transfer to import ratio, Hungary sends a net outflow of resources to the West for the entire period, in contrast to

Table 34

HUNGARIAN DEBT BURDEN IN THE 1980s: INITIAL SCENARIO
(Millions of $ U.S.)

Year	Net Debt	Interest	Principal	Expected Exports	Debt Service Ratio	Debt Export Ratio
1984	5760	640	1290	5540	.3488	1.040
1985	5760	590	1460	6200	.3306	.930
1986	5760	600	1320	6970	.2759	.827
1987	5760	600	1270	7880	.2372	.731
1988	5760	600	1060	8970	.1845	.643
1989	5760	580	960	10200	.1508	.565

Year	Expected Imports	Net Transfer Import Ratio	Debt Service Total Debt Ratio	Amortization Total Debt Ratio	Rollover Ratio
1984	4500	.231	.335	.224	2.168
1985	5600	.106	.356	.253	1.408
1986	6370	.094	.334	.230	1.453
1987	7280	.082	.325	.221	1.472
1988	8370	.072	.287	.183	1.568
1989	9620	.061	.267	.166	1.609

[7]Fontenay, 1982, p. 58.
[8]Miller and Barclay, 1984, p. 23.

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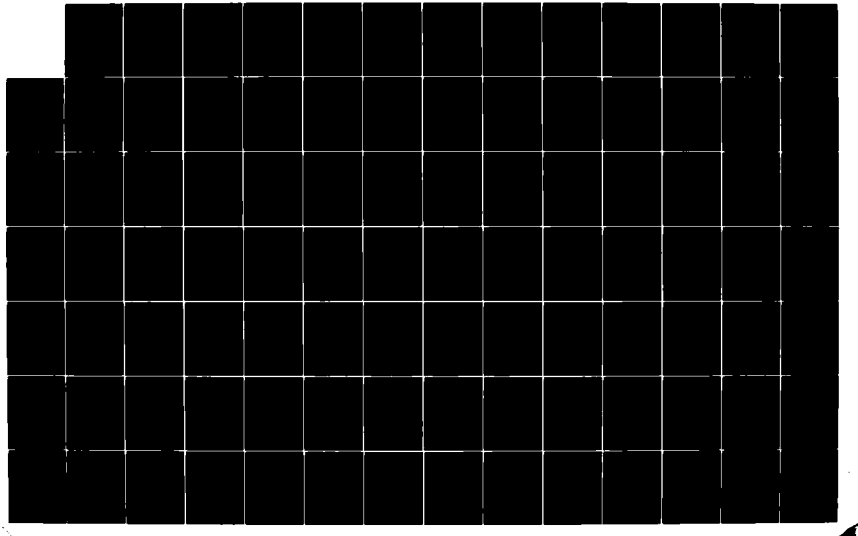

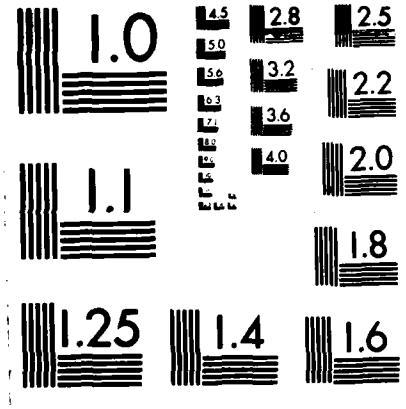

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

the inflows of the 1970s. In other words, Hungary has to run a surplus on hard currency trade to service the debt incurred during the import sprees of the late 1970s. The very high levels of the rollover ratio (greater than 2 in 1984) show the extent of the resource transfer is greater at the beginning of the period than at the end. By 1987 interest payments are fairly small in comparison with the rollover of principal.

Traditional measures of creditworthiness indicate that Hungary will face strong balance of payments pressures through 1986 but that these pressures will decline substantially by the end of the period. Hungary's creditworthiness will be precarious, but if its future is as bright as indicated in this scenario, these problems will have been surmounted by 1989.

Projections of Net Material Product, Utilized National Income, and Defense Spending

Economists in both the East and West agree that reduced supplies of hard currency imports coupled with pressure to generate hard currency surpluses to service the debt have been a primary cause of Hungary's recent economic stagnation.[9] To this point the study has examined the difficulties Hungary will face in servicing its debt and paying for those imports considered most necessary by the Hungarian authorities. This section will project the effect on Hungarian output and utilized national income through 1989 of the limitations on Hungarian imports imposed by the burden of servicing the hard currency debt. It will also attempt to show how these difficulties affect Hungarian expenditures on defense over the course of the next several years.

Output and utilized national income are projected using a small econometric model described in detail in Appendix D. In this model net material product is divided into five components, a series is projected for each of these and then the output of each sector is summed to compute NMP. Utilized national income is calculated as the difference between NMP and net exports.

Military spending is projected under the assumption that it takes a fixed share of UNI (3 percent). This assumption is consistent with Hungarian military budgets for the 1970s and early 1980s and with those reported by other East European countries.

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[9]*Heti Vilaggazdasag* (*World Economy Weekly*), 17 December 1983, p. 4; and Hewett, 1981, p. 484.

The figures for expenditures on personnel and other categories (maintenance, operations, and acquisitions) were computed using extrapolations from 1978 estimates by Alton et al. (1981, p. 409). Personnel costs were computed by inflating Alton's 1978 figures for military pay and subsistence using index numbers for earnings by government law enforcement employees and cost of living indexes, respectively.[10] These forint estimates of personnel costs were used to estimate the proportion of the military budget devoted to personnel in 1982 (18 percent). This proportion was assumed to remain constant for the entire period and was multiplied by the estimates for total military expenditures to calculate personnel costs. The remainder was assumed to be spent on operations, maintenance, and acquisitions.

Output in this scenario grows slowly (Table 35). NMP in 1984 barely exceeds the 1982 level and UNI is below it. NMP grows at about 3.3 percent per year, about two-thirds the average rate of the 1970s, and is roughly 19 percent greater in 1989 than it was in 1982. Utilized national income rises more slowly, as the country recovers from the decline projected for 1984. Defense expenditures mimic the pattern of utilized national income growth, as expenditures rise by less than 20 percent over the course of the period (Table 36).

In this scenario Hungary maintains and improves its creditworthiness, but output projections indicate some difficult years, especially in 1984 and 1985. These difficulties could be compounded if principal payments are bunched more closely than assumed here.

One way of avoiding the slow growth in output and consumption projected in this scenario would be to increase net hard currency debt.

Table 35

HUNGARIAN OUTPUT PROJECTIONS: INITIAL SCENARIO

	NMP		UNI	
Year	(1982 forints)	(1982 = 100)	(1982 forints)	(1982 = 100)
1984	701.8	101.7	665.9	97.4
1985	729.6	105.7	711.1	104.0
1986	753.9	109.2	733.2	107.3
1987	776.7	112.5	754.6	110.4
1988	800.2	115.9	779.5	114.0
1989	824.9	119.5	806.1	117.9

[10] *Statisztikai Evkoenyv* (*Hungarian Statistical Yearbook*, henceforth *SE*), 1982, pp. 57, 244.

Table 36

HUNGARIAN MILITARY EXPENDITURES: INITIAL SCENARIO

	UNI		Expenditures		Military Expenditures		Personnel Expenditures	
Year	(billion 1982 forints)	1982= 100	(billion 1982 forints)	1982= 100	(billion 1982 forints)	1982= 100	(billion 1982 forints)	1982= 100
1984	665.9	97.4	20.0	98.9	3.6	100.0	16.4	98.7
1985	711.1	104.0	21.3	105.6	3.8	106.7	17.5	105.4
1986	733.2	107.3	22.0	108.9	4.0	110.0	18.0	108.7
1987	754.6	110.4	22.6	112.1	4.1	113.2	18.6	111.8
1988	779.5	114.0	23.4	115.8	4.2	116.9	19.2	115.5
1989	806.1	117.9	24.2	119.7	4.4	120.9	19.8	119.5

The government's options are limited in this regard, especially in the first part of the period when this is of most concern. Hungary's loans from the IMF are predicated on substantial progress in rectifying its balance of payments problems. Not only are these loans conditional on progress made in this area, they are also of fairly short duration, so Hungary would not be able to stretch out the adjustment process any more than it already has by turning to the IMF for new loans. Loans from Western bankers are dependent to a great degree on how serious Hungary appears to be in coping with its hard currency balance of payments problems. Hungary's recent return to the syndicated loan market was possible only because of its progress in generating a current account surplus in 1983.[11]

The Hungarian authorities have ruled out any recourse to a moratorium on the debt or on forcing a rescheduling, possibly because the experiences of Romania and Poland confirmed their belief that rescheduling often leads to greater economic hardship. Consequently, the probability that Hungary will desire or be able to increase net debt is low.

Because Hungary's options for stretching out the external adjustment process are limited, a second option would be to speed up the process of internal adjustment. This is the option examined in the next scenario.

[11]Miller and Barclay, 1984, p. 22.

SCENARIO 2: SUCCESSFUL EXTENSION OF THE REFORM

An Overview of the Reform

Since the early 1960s the Hungarian hard currency trade balance has followed a pattern similar to that predicted by a Keynesian model:[12] During periods of boom Hungary records mounting trade deficits; equilibrium is subsequently restored at the price of economic austerity. Thus swings in the trade balance from deficit to surplus have been counterbalanced by swings in the domestic economy from boom to bust.

The 1978 decision to close the hard currency current account deficit involved two policy decisions. The first followed the pattern of the past. Consumption was to be limited and investment reduced in order to restore equilibrium. The second decision has been to try to break the pattern of the past and opt for "export-led" growth. The central authorities decided to return to and in some areas go beyond the 1968 reform in order to stimulate more rapid increases in factor productivity and to make the economy more export-oriented.

Since the 1978 decision the Hungarian authorities have gradually introduced numerous changes in the economic system so as to "harden" the enterprise budget constraint and decrease the latitude for bargaining between the ministries and enterprises over tax rates and prices. The government has concentrated on three areas in this drive: expanding the role of markets in the allocation of factors of production and determination of output, increasing gains from trade, and increasing enterprise independence.

Increasing the Role of Markets. In comparison with members of the Organization for Economic Cooperation and Development (OECD), Hungary's industry is inefficient. For example, employees in Austrian industry are 75 percent more productive than their Hungarian counterparts.[13] Capital output and materials output ratios are higher and labor productivity lower than in OECD countries. These differences are partly due to allocative inefficiency.

For example, capital markets have been nonexistent in socialist Hungary. Although most capital has been allocated through the National Bank since 1968, throughout the 1970s central preferences played a greater role in determining the choice of investment projects

[12]Stern, 1973, Ch. 6.

[13]Nyers, 1982, p. 43.

than realistic assessments of relative rates of return.[14] This problem has been compounded by incentives for enterprise managers to overestimate the returns on projects. These managers, have faced a "soft" budget constraint: Enterprises, and frequently their managers, have been bailed out by the central government if the rate of return on an investment fails to cover interest charges.[15] Consequently, penalties for overly optimistic investment projects have been low. Furthermore, enterprises have been compelled to set aside part of their profits for investments. Financial investment opportunities were nonexistent until 1982, so profitable enterprises sometimes invested in low margin projects, because they had no alternative.[16]

The Hungarian authorities have made a concerted effort to remedy these defects by encouraging the development of capital markets. Since 1982 they have begun to permit enterprises and municipalities to issue and purchase bonds, thereby inviting them to compete for funds and to provide profitable enterprises with alternatives to marginal in-house investments.[17] The government is also attempting to "harden" the budget constraint by permitting more enterprises to be liquidated, thereby posing managers with a real threat to their jobs; it has also attempted to emphasize rates of return rather than central preferences in determining who receives loans.[18] Thus some progress has been made in creating the rudiments of a market for capital.

Bureaucratic interference in the labor market has also created allocative inefficiency. Limits on pay raises by enterprise and by job category have made it difficult for enterprises to pay workers their marginal revenue product. Consequently, workers have not been given adequate financial incentives to move to those enterprises or occupations where they are most productive. These restrictions on wages, however, have also been loosened in recent years, and enterprises have been given greater freedom to divide the wage fund as they wish. In 1984 restrictions tying wage increases to increases in profits were greatly reduced for a select group of enterprises.[19] Furthermore, by opening up the private sector and permitting small groups of workers in factories to bid on maintenance and special jobs, the government has widened the alternatives open to labor.

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[14]Tardos, 1980.

[15]Kornai, 1983, p. 230.

[16]Tyson, 1983, p. 289.

[17]*Figyeloe*, 19 January 1984, p. 14.

[18]Hoos, 1983.

[19]Wiesel, 1984, p. 7.

The central authorities have also attempted to create competitive markets for intermediate and final goods. Because of balance of payments pressures they have not adopted the most efficient solution: lowering import barriers. They have, however, attempted to generate more competition among domestic firms through trust-busting and lowering barriers to entry. The central authorities have gradually dismantled several trusts, especially those in the food industry. They have encouraged state enterprises and municipalities to set up subsidiaries and increased possibilities for citizens to form cooperatives or their own businesses.

Increasing Gains from Trade. The second area in which the authorities hope to improve economic performance has been in exploiting gains from trade. They face difficult problems in this area. A major policy goal has been the preservation of full employment. In Hungary this means every person of working age is entitled to a job. It has been interpreted to mean that every person is entitled to keep the job he now has as long as he so desires. As a consequence, the government has been very reluctant to close loss-making factories. To preserve markets for these firms, a very protectionistic import policy has been pursued by controlling the issue of import permits. Although permits are rarely formally denied, enterprise managers find it almost impossible to procure them, if a domestically produced substitute or imports from the CMEA are available.[20] This policy has encouraged enterprises to produce import-substitutes and has made exporting more difficult as enterprises are forced to substitute inferior, domestically produced inputs for components imported from hard currency areas. Moreover, the protected home market is more attractive to producers than the competitive hard currency export markets.

Although the Hungarian authorities have not discarded this system, they have made other changes in the economic system to induce enterprises to pay more attention to gains from trade.[21] One major improvement has been in the price system. Raw materials are now priced at the cost of importing them from hard currency areas, thereby providing enterprise managers with accurate indicators of the cost of these goods to their foreign competitors, and forcing them to cost their own inputs using prices prevailing on world markets. This permits managers to accurately judge the profitability of their own exports.

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[20]Gacs, 1980.

[21]In 1982, at the time of the Hungarian liquidity crisis, a strict system of import quotas was instituted and a 20 percent surcharge was levied on hard currency imports of components. This surcharge was dropped 1 April 1984 and import quotas have been gradually lifted (*FBIS*, 5 April 1984, p. F5).

Prices of domestically sold manufactured goods are also determined or at least influenced by prices of potential competitive imports or export prices. Prices of hard currency exports and prices of similar goods sold on the domestic market are linked indirectly through the profitability of exports. This system is known as the "competitive" price system. It links the markup on goods sold on the domestic market to that garnered from hard currency exports in an attempt to link total enterprise profits to the profitability of exports. For example, if the cost of earning a dollar of foreign exchange equals the exchange rate, the enterprise can levy a 6 percent markup on domestically sold goods. If the enterprise makes a 25 percent markup on hard currency sales, a domestic markup of 12 percent can be levied.[22] In effect, this system is an attempt to mimic the market, while providing domestic producers protection from import competition.

To date this system has kept managers apprised of the opportunity cost of raw materials and energy and has thereby contributed to more rational export production decisions. Hungarian economists have criticized it, however, for providing disincentives to export (marginally profitable exporters have an incentive to drop out of the market) and for being open to abuse as enterprises manipulate costs to make hard currency exports appear more profitable.

Increasing Enterprise Independence. The central authorities are still grappling with the problem of differentiating between the state as owner and the state as regulator. On the one hand, the state takes a proprietary interest in enterprises, which has often involved close supervision of the management through the intermediary of the branch ministry. This leads to a loss of enterprise independence and the temptation for ministry officials to modify regulations to improve conditions for "their" enterprises. On the other hand, the state sets economic parameters to which enterprise managers are to adapt. These two roles have often had contradictory effects.[23] The state has tried to eliminate some of the negative consequences by reducing the role of the branch ministries. This was achieved in part by consolidating three branch ministries into the Ministry of Industry in 1980 and reducing the number of employees in the new ministry. The government has also set up boards composed of outside experts in the industry, as well as ministry officials, to evaluate enterprise managers.

[22]Marer, 1983, p. 163.

[23]Tardos, 1980.

Assumptions of Scenario 2

Although the Hungarian government has taken several measures to strengthen market forces in the country, rigid constraints on imports, a continued reluctance to "harden" the budget constraint, and problems in separating proprietary functions from regulatory ones have watered down many of the possible improvements in efficiency these measures ought to have induced.

In this scenario, systemic changes are assumed to increase the rate of capital productivity growth by 2.4 percentage points and that of labor by 1.3. The extent of the increase in rates of productivity growth are assumed to equal the fall in capital and labor productivity growth that occurred between 1974 and 1979, the years of retrenchment of the reform.[24] The rate of growth of the productivity of labor in industry declined from 7.5 percent per year between 1968 and 1973 (the first years after the introduction of the reform) to 6.2 percent between 1974 and 1979. The rate of growth in the productivity of capital fell from −.4 percent per year between 1968 and 1973 to −2.8 percent per year between 1974 and 1979. Although this assumption is heroic because external factors also contributed to lower increases in productivity, the differences in these rates were assumed to equal the differences in present productivity growth that withdrawing the strictures introduced in 1974 and 1979 and implementing new measures would provide to the country. These differences were incorporated into the model by assuming that labor and capital productivity will improve and labor and capital inputs will therefore appear to increase by the rates of productivity growth—i.e., the capital stock will appear to be increasing at 2.4 percent and manhours worked by 1.3 percent more per year than in the base case.

All other assumptions aside from productivity growth were assumed to be the same as those in the base case. One could argue that more rapid output growth would lead to a more rapid increase in hard currency exports. The problem of servicing the debt appears to be well in hand in the initial scenario, however, so the more interesting question is the likely input of reform on output and UNI. Consequently, the effects of successful reform were confined to the domestic economy. The external sector is affected only to the extent that greater output is possible given the same levels of hard currency imports as in the base case.

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[24]Although the decision to return to the principles of the economic reform was made in 1978, the systemic changes (price reform, dissolution of trusts, amalgamation of the branch ministries into the Ministry of Industry, etc.) did not occur until 1980. For this reason 1979 was included in the period of retrenchment.

Balance of Payments Projections and Creditworthiness

Export growth remains the same in this scenario, so net compressible import capacity and debt service indicators are the same as in the initial scenario.

Projections of Net Material Product, Utilized National Income, and Defense Spending

Both output and utilized national income are substantially greater in this scenario than in the base case (Table 37). By 1989 output is 7.4 percent and UNI is 7.5 percent higher than in the initial scenario. In other words, consumers would be much better off. Output increases by 4.4 percent per year rather than 3.3 percent and utilized national income by 5.0 percent rather than 3.9 percent, a full percentage point difference in the rate of growth. In this scenario Hungary regains the average rate of growth of the late 1970s and appears capable of maintaining a politically more acceptable rate of growth for the rest of the decade.

Military spending in this scenario is roughly 8 percent higher than in the base case; personnel and equipment expenditures are higher by the same amount (Table 38).

This scenario has several interesting implications for the Hungarian political scene. If the present reform measures do succeed in increasing productivity to the extent assumed in this scenario, Hungary will have solved the problem of maintaining rapid rates of output growth while preserving external balance, a problem that has plagued the leadership since World War II. In this case the political position of the

Table 37

HUNGARIAN OUTPUT PROJECTION: REFORM SCENARIO

	NMP		UNI	
Year	(1982 forints)	(1982=100)	(1982 forints)	(1982=100)
1984	714.3	103.5	678.4	99.2
1985	750.0	108.6	731.5	107.0
1986	782.9	113.4	762.3	111.5
1987	815.3	118.1	793.2	116.0
1988	849.3	123.0	828.6	121.2
1989	885.6	128.3	866.8	126.8

Table 38

HUNGARIAN MILITARY EXPENDITURES: REFORM SCENARIO

	UNI		Military Expenditures		Personnel Expenditures		Equipment Expenditures	
Year	(billion 1982 forints)	1982= 100	(billion 1982 forints)	1982= 100	(billion 1982 forints)	1982= 100	(billion 1982 forints)	1982= 100
1984	678.4	99.2	20.3	100.7	3.7	101.7	16.7	100.5
1985	731.5	107.0	21.9	108.6	3.9	109.7	18.0	108.4
1986	762.3	111.5	22.9	113.2	4.1	114.3	18.7	113.0
1987	793.2	116.0	23.8	117.8	4.3	119.0	19.5	117.5
1988	828.6	121.2	24.9	123.1	4.5	124.3	20.4	122.8
1989	866.8	126.8	26.0	128.7	4.7	130.0	21.3	128.5

reformers would be very strong and the probability that the reform would succumb to pressures to reinstate more bureaucratic control would be low. It should also make the Hungarian model a much more attractive alternative to other East European governments. Although the Poles have drawn on the Hungarian experience for ideas and guidelines for their own reform, other countries in Eastern Europe have been slow to hail the Hungarian model primarily for ideological reasons, but also because the Hungarian record in growth and in controlling its hard currency debt has not been outstanding. If the reform is as successful as projected in this scenario, other East European governments may give the Hungarian reform another look.

SCENARIO 3: THE NO SOVIET DEFICIT CASE

Western analysts have frequently pointed out the importance of Hungary's surpluses in hard currency trade with CMEA countries for covering Hungary's hard currency interest payments.[25] Hard currency trade surpluses with its CMEA partners, especially the Soviet Union, have accounted for Hungary's entire hard currency trade surpluses in recent years.

This trade is eminently rational from an economic point of view; it forms part of a trade triangle among the Soviet Union, Western Europe, and Hungary. The Soviets export energy to Western Europe, which exports semi-processed materials and machinery to Hungary,

[25] *East-West*, 28 February 1984, p. 11; and WEFA, September 1983, p. 101.

which exports grain to the Soviet Union. Each of the actors has a comparative advantage; one would imagine that the gains from trade are substantial.

This trade is quite different from trade in transferable rubles, in which the bulk of CMEA trade takes place. Transferable ruble trade in the CMEA is conducted through five-year treaties, which provide a framework for negotiating annual trade agreements. Rough aggregates for exports and imports by commodity group are negotiated at the ministerial level and then specific exports by particular commodities are negotiated by bureaucrats from the Ministry of Foreign Trade and employees of foreign trade organizations. Because the transferable ruble cannot be used to purchase what one desires from the exporting country,[26] interest payments on ruble loans are very low (2–3 percent per year), and surpluses in trade with one country cannot be transferred to cover deficits in trade with another, each individual country has incentives to run deficits in transferable ruble trade. No country willingly runs an export surplus, so balanced bilateral trade becomes the rule.

The system used to set prices in transferable ruble trade provides incentives to balance trade by commodity group, as well as in the aggregate. CMEA countries use five-year moving averages of world market prices as the basis for negotiating transferable ruble prices. Although this method provides some common ground for setting prices of raw materials, it has several problems for setting prices of machinery and other manufactures. In the CMEA many of these goods are of inferior quality or are not backed up by servicing networks; therefore Western prices (which include these characteristics in the price) are often not reliable indicators of the value of these goods. Many of the countries are reluctant to exchange raw materials for manufactures; they attempt to insure equal imports of raw materials for raw material exports.

Hard currency trade between CMEA partners is conducted differently. If a country wishes to import "hard" goods[27] in quantities above the levels stipulated in the trade agreement, it will generally do so, but only for hard currency. For example, several East European countries wish to import more oil from the Soviet Union than it agrees to sell for transferable rubles. The Soviet Union charges them the same price for this oil as it does West European importers and payment is made in hard currency. In the same fashion Poland exports

[26]The exporting country decides what can be purchased and what cannot.

[27]Hard goods can be sold easily on world markets at the same price as similar goods produced in the West.

some coal and Hungary some food for hard currency over and above levels agreed in the trade agreements concerning transferable ruble trade.

Despite the rationality of this trade,[28] two factors make it problematic that Hungary will be permitted to continue to run substantial hard currency trade surpluses with the Soviet Union.[29] The first is ideology. The Soviet Union has made some attempt to set up an alternative trading system in the Bloc. The official currency in this system is the ruble, not the dollar; and trade is "planned" for long periods of time, thereby supposedly guaranteeing fixed sources of supply. The introduction of trade between CMEA partners using hard currency instead of the ruble and undertaken on a short term basis rather than in the context of five-year plans undermines Soviet claims concerning the superiority of planned trade over the market. Soviet willingness to conduct hard currency trade in the past, however, and the continued unwillingness of CMEA countries to ship above-plan exports for transferable rubles indicate that this ideological barrier may not be an important one.

The second problem is Hungary's transferable ruble trade deficits with the Soviet Union. The Soviet Union has permitted all the East European countries (with the exception of Romania) to run transferable ruble trade deficits over the past few years to cushion their adjustment to the rise in the price of Soviet oil. Although the size of these deficits have varied from country to country and from year to year, the Soviets will probably not let this state of affairs exist indefinitely. In fact, both Poland and Hungary have seen this deficit reduced in recent years, Poland's very rapidly in 1982 and Hungary's more slowly in 1983.

Hungary faces two possibilities concerning the speed and manner in which these deficits will be reduced in the coming years. The first was incorporated into the initial scenario: The deficit is assumed to be gradually eliminated by 1987 in four equal installments. The increases in exports are assumed to be primarily machinery or other manufacturers and do not subtract from hard currency exports. They will be diverted from domestic consumption. In great measure, this has been

[28]Prices in this trade reflect the opportunity cost to the country of exporting the additional quantities.

[29]A third factor may be Soviet desire to balance its hard currency trade with Hungary. In the past, the Soviets have pressured both Yugoslavia and India to balance hard currency trade flows. However, it is difficult to believe that the Soviets would reduce purchase of Hungarian foodstuffs just to balance hard currency trade if this entailed increasing imports from a Western supplier. If the Soviets increased hard currency exports of oil to Hungary in order to balance hard currency trade flows, the Hungarians could reexport it for hard currency.

the route the Soviets have permitted the Poles to take. The second possibility is one more preferable to the Soviets. In this case, Hungary would close its transferable ruble deficit by diverting goods now exported to the Soviet Union for hard currency to transferable ruble trade and hard currency export earnings would fall. This possibility is analyzed below.

This scenario can also be construed as an assessment of continuing deterioration in Hungary's terms of trade with the Soviet Union. Between 1980 and 1982 Hungary's ruble terms of trade fell by roughly 7 percent and have continued to decline in 1983 and 1984. Even if the Soviet Union does not compel Hungary to close the trade deficit, this scenario reflects the burden a continued decline in ruble terms of trade would impose on the Hungarian economy.

Assumptions of Scenario 3

In this scenario I assume that the Soviet-Hungarian discussions taking place over hard currency trade will be resolved in 1985 to the detriment of the Hungarians. Hungary will be requested to eliminate its deficit in ruble trade by diverting present hard currency exports to the Soviet Union to transferable ruble trade. This deficit is assumed to equal 440 million transferable rubles in 1984, four-fifths of the 1983 level.[30] This figure was then multiplied by the ruble dollar exchange rate (1 ruble = $1.38)[31] to obtain a dollar estimate of the diverted exports, $610 million in 1982 dollars.[32] Nominal estimates were projected by inflating this figure by the price index for exports to market

[30]Four-fifths of the 1983 level is assumed to equal the 1984 deficit. This figure was chosen under the assumption that in the absence of a Soviet ultimatum to eliminate the deficit in 1985, Hungary would reduce the deficits in equal increments until it would disappear in 1987.

[31]CIA, 1982.

[32]Normally one would use the cross ruble-forint and forint-dollar rates employed in Hungary rather than the official Soviet rate to convert ruble exports to dollar exports. In this case the rate used would be one ruble equals $0.62 (calculated from implicit rates used in recorded trade figures) (*Heti Vilaggazdasag*, 16 February 1984, p. 4), which would lead to far less of a fall in hard currency exports than the rate used here. The official Soviet rate was chosen, however, because the implicit rates in Hungary are used primarily to influence export decisions by manufacturers. Throughout the 1970s Hungarian manufacturers generally found ruble exports more profitable than exports to Western markets. In the 1980s the government has kept the ruble exchange rate low and steadily devalued the forint against the dollar to stimulate hard currency exports and limit incentives to export to ruble areas. Because exports of "hard" goods are stipulated in treaties, the Hungarian exchange rate has little or no bearing on these exports. The Soviet dollar-ruble rate is used, however, when valuing exports against imports of "hard" goods. Hard currency exports to the Soviet Union are "hard" goods, so that is the rate used here.

economies to calculate nominal declines in hard currency exports to the CMEA.

Balance of Payments Projections

In this scenario, hard currency earnings increase by about 70 percent in nominal terms and one-quarter in real terms between 1984 and 1989 (Table 39). This is considerably below the levels projected in the base case (84 percent and 35 percent, respectively) and is entirely due to the diversion of hard currency exports to ruble exports.

Because noncompressible import levels and debt service are assumed to remain the same, net compressible import capacity is substantially less in this scenario. Net compressible import capacity is only $750 million in 1989. In contrast to the base case, net compressible import capacity remains less than –$300 million through 1985; in the base case Hungary already had a surplus of over $300 million by this time. If the

Table 39

HUNGARIAN BALANCE OF PAYMENTS PROJECTIONS FOR 1989: NO SOVIET DEFICIT SCENARIO

(Millions of $ U.S.)

	Base Case	No Soviet Deficit Case
Total Hard Currency Revenue	10200	9370
Market economy exports	9310	9310
Hard currency exports to the CMEA	1230	400
Total exports	10540	9710
Net earnings from tourism	490	490
Net earnings from shipping	-640	-640
Other	-190	-190
Total Noncompressible Expenditures	-8370	-8370
Total noncompressible imports	-6830	-6830
Net interest paid	-580	-580
Amortization	-960	-960
Total imports (estimate)	-9620	-8790
Balance for Compressible Imports	+1830	+1000
Policy Response		
New loans	960	960
Change in reserves	0	0
Net Compressible Import Capacity	+2790	+1960

Soviets demanded that Hungary eliminate its ruble trade deficit by 1985 by converting hard currency CMEA exports to ruble exports, Hungary would face a difficult period in which hard currency imports would be greatly constrained and would have problems servicing its hard currency debt.

Prospective Creditworthiness

The only change in assumptions in this scenario concerns hard currency exports to the USSR, so many of the debt indicators projected in Table 34 stay the same. Debt and debt service remain unchanged, as do debt service to total debt ratios, amortization to total debt ratios, and rollover ratios. Some deterioration occurs in debt service and debt export ratios (Table 40). The debt service ratio actually increases in 1985 and only returns to a respectable level in 1988. Debt to export ratios remain high (over 1.0) until 1986, after which they decline fairly rapidly. The net transfer to import ratio is negative for the entire period but stays fairly low except in the first two years of the scenario. As in the base case, there will be a net transfer of resources from Hungary to the West and in some years the transfer will exceed 20 percent of the value of Hungarian hard currency imports. In those years debt service will impose a considerable burden on the Hungarian economy.

Despite the increased burden imposed by the need to quickly eliminate the ruble trade deficit, Hungary still improves its creditworthiness greatly by the end of the period. In 1989 traditional debt burden indicators show that Hungary is in solid financial shape.

Table 40

HUNGARIAN DEBT BURDEN IN THE 1980s:
NO SOVIET DEFICIT SCENARIO

Year	Net Debt	Expected Exports	Debt Service Ratio	Debt Export Ratio	Expected Imports	Net Transfer Import Ratio
1984	5762	5539.4	.349	1.04	4498.6	−.231
1985	5762	5557.9	.369	1.04	4964.4	−.119
1986	5762	6287.0	.306	0.92	5687.8	−.105
1987	5762	7160.0	.261	0.80	6560.7	−.091
1988	5762	8193.5	.202	0.70	7594.3	−.079
1989	5762	9368.9	.164	0.61	8786.9	−.066

Projections of Net Material Product, Utilized National Income, and Defense Spending

The extent of the cost of the rapid elimination of the ruble trade deficit to Hungary is illustrated in Table 41. NMP in the base case grows more slowly than during the 1970s (3.3 percent per year). In this scenario the additional burden imposed by the Soviet Union slows this rate even more. NMP growth averages 3.0 percent per year, about 90 percent of the rate projected in the base case and 55 percent of the average rate for the 1970s (5.4 percent).[33] This is a low rate of growth for a CPE and one would expect that the leadership would attempt to find alternative policies to escape this low growth scenario.

Utilized national income projections are even more pessimistic than those for NMP. By 1989 UNI levels are only 16 percent above 1982 levels. Because net investment has already been reduced to a level under that of 1975 in real terms, these projections imply that personal consumption will have to decline in the first years of the scenario and then increase slowly thereafter.

Military expenditures are projected as a fixed portion of UNI, so they stay below the levels projected in the base case for the entire period. Between 1984 and 1989 the average increase is 3.6 percent per year (Table 42).

Because of the detrimental effects of balancing the ruble trade deficit on the Hungarian economy, the Hungarian leadership has a strong incentive to convince the Soviet authorities either to stretch out the

Table 41

HUNGARIAN OUTPUT PROJECTION:
NO SOVIET DEFICIT SCENARIO

	NMP		UNI	
Year	(1982 forints)	(1982=100)	(1982 forints)	(1982=100)
1984	701.8	101.7	665.9	97.4
1985	720.2	104.3	695.5	101.7
1986	743.1	107.6	719.5	105.3
1987	766.3	111.0	744.1	108.9
1988	790.1	114.4	769.5	112.6
1989	815.0	118.0	796.3	116.5

[33] *SE*, 1980, p. 87.

Table 42

HUNGARIAN MILITARY EXPENDITURES:
NO SOVIET DEFICIT SCENARIO

	UNI		Military Expenditures		Personnel Expenditures		Equipment Expenditures	
Year	(billion 1982 forints)	1982=100	(billion 1982 forints)	1982=100	(billion 1982 forints)	1982=100	(billion 1982 forints)	1982=100
1984	665.9	97.4	20.0	98.9	3.6	99.9	16.4	98.7
1985	695.5	101.7	20.9	103.3	3.8	104.3	17.1	103.1
1986	719.5	105.3	21.6	106.9	3.9	107.9	17.7	106.6
1987	744.1	108.9	22.3	110.5	4.0	111.6	18.3	110.3
1988	769.5	112.6	23.1	114.3	4.2	115.4	18.9	114.0
1989	796.3	116.5	23.9	118.3	4.3	119.4	19.6	118.0

period of adjustment or balance the deficit by increasing exports of machinery and other manufacturers, rather than by diverting goods sold for hard currency to transferable ruble exports. Unfortunately, the Hungarians have little to bargain with, unless they argue that declining living standards would lead to domestic unrest and the Soviets believe it. An alternative strategy would be to try to slow the speed of external adjustment by increased borrowing from the West.

SCENARIO 4: *LIQUIDITY CRISIS*

In 1982 Hungary experienced a run on its banks by international depositors. In the wake of the declaration of martial law in Poland and Romania's request for a rescheduling, depositors in Hungarian banks began to withdraw their funds. Somewhat surprisingly, the Soviet banks were among the first to withdraw; they too faced a liquidity squeeze because of Reagan administration pressure to restrict lending, increased unease by international bankers, and declines in prices of important Soviet exports on international markets. The Soviets were accompanied by Middle Eastern and Western banks, pushing Hungary to the brink of default in the early part of 1982. Only a bridging loan provided by the Bank of International Settlements in Basle pushed through with the help of the Bank of England enabled Hungary to weather the storm.[34]

[34]Miller and Barclay, 1984, pp. 10, 21.

Later in the year Hungary obtained loans from the IMF, which helped assuage its most pressing financial needs, and by 1983 Hungary was one of the few East European borrowers that had successfully returned to private international financial markets for medium term credits. However, like the rest of its Warsaw Pact compatriots (with the exception of the Soviet Union), long term private financing is still largely unavailable to the Hungarians. They have had to run large hard currency trade surpluses to pay the interest and part of the principle due on hard currency debts and have relied on short term debt and loans from the IMF and the World Bank for their financing needs.[35]

If the share of short term debt in total Hungarian debt rises, Hungary's external financial position will become more unstable. In the 1982 liquidity crisis Hungary had to deal only with an outflow of deposits and repayments of that part of its debt coming due. A substantial amount of debt posed no problems because it was long term; repayment was not due until after the financial crisis had passed, by which time lenders looked on Hungary with a more favorable eye. As more East European and Hungarian debt becomes short term, however, a large part of this debt can be quickly called in. Consequently the region may become even less financially stable than during the 1982 liquidity crisis.

Assumptions of Scenario 4

This fourth scenario can be characterized as a run on Hungarian banks by hard currency depositors. Political upheaval in Romania, outright default by the Polish authorities, or another turn for the worse in Soviet-Western relations is assumed to precipitate the flight of international depositors from Hungarian banks in 1985. Western banks are then assumed to refuse to roll over loans to Hungary in subsequent years, so Hungary also has to generate surpluses to repay all of its debts in addition to the sums needed to meet interest payments.

Two variants of this scenario are discussed: (1) A true run on Hungarian banks in which all deposits and short term loans are called in plus banks refuse to roll over long term and medium term credits falling due. (2) A more muted fall in confidence in which international lenders keep short term deposits and loans roughly at present day levels, but decide to start a long term withdrawal from Eastern Europe by refusing to roll over any medium or long term credits.

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[35]Miller and Barclay, 1984, pp. 10, 21.

In the first variant of this scenario Hungary's short term debt is assumed to equal $3390 million in 1985.[36] Reserves plus assets are assumed to equal their September 1983 level ($1390 million). The difference between Hungary's estimated short term obligations in 1983 and Hungarian reserves minus $150 million, considered an absolute minimum for reserves,[37] equals payments of short term principal, which must be generated by a trade surplus. This figure is $2150 million and is assumed to equal the outflow of hard currency necessary to cover calls on deposits and repayments of short term debt in 1985. After 1985 Hungary receives no new money; principal payments are made as they come due.

The assumptions in the second variant are the same as those in scenario 1 with the exception of those concerning new loans. In the initial scenario medium and long term debt is rolled over in 1985 and thereafter; in this scenario these debts are paid as they come due and no new money is forthcoming.

To make the implications of a loss of confidence in Hungary by Western banks as easily traceable as possible, all the assumptions concerning export growth, noncompressible imports, and interest rates in the base case are adopted here. The only change in assumptions concerns the ability of Hungary to roll over its debt.

Variant One: Total Withdrawal

A true run on Hungarian banks would bankrupt the country. Under the assumptions of this variant of the scenario, total debt service in 1985 would be $4200 million, leaving only $2000 million for imports, less than half the level of 1983, which in turn was below the noncompressible level. Because the Hungarian economy needs imports of intermediate goods to operate,[38] such a severe cut would lead to bottlenecks and a rapid decline in hard currency exports, which would exacerbate repayment problems. Hungary would be forced to request a rescheduling or go into default, using its hard currency earnings to continue to import rather than to service its debt.

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[36]In September 1983 gross Hungarian hard currency debt totaled $8520 dollars. Subtracting long term obligations ($4730 million) and the projected hard currency current account surplus in 1984 ($400 million) leaves a total short term debt of $3990 million (IMF, 1984).

[37]This is the lowest level reached in 1982.

[38]In 1982 the ratio of total imports to NMP was .47 and the same ratio for hard currency imports was .24.

The effects on output of such a scenario illustrate the adverse effect that such a fall in confidence on the part of the international banking community would have on the country. If imports could indeed be cut to the $2 billion level in 1985, NMP would be roughly 5 percent less than the 1982 level; more important, UNI would only be 70 percent of its 1982 level. Hungary is highly reliant on hard currency imports, so it is likely that output would fall by even more than the model projects.

These declines are comparable to those experienced by Poland in 1982 after the imposition of martial law. These sorts of shocks are usually accompanied by high levels of domestic unrest. The Hungarian authorities might find they lack the will to enforce these types of cuts and would probably request a rescheduling instead.

Variant Two: Phased Withdrawal

A second variant was also examined: a gradual withdrawal of funds by Western banks as part of a strategy of leaving the East European market. In this variant Hungary is able to keep its short term liabilities and assets roughly at current levels but is unable to roll over medium and long term funding.[39] Consequently, Hungary's net debt service is substantially higher than in the base case, in which all these debts were rolled over after 1984.

Balance of Payments Projection

Table 43 presents projections for two years of this scenario: 1985, the year when the withdrawal is assumed to begin, and 1989. By 1989 most of the effects of the withdrawal have subsided; the fall in interest payments due to repayment of loans begins to compensate for the lack of new financing. By that year Hungary's net compressible import capacity is positive and the country appears to absorb the fall in credit without unduly cutting into imports.

The picture changes dramatically in 1985, the year when the credit cutoff is assumed to occur. Estimated imports are $4.2 billion, $1.4 billion less than in the base case. In real terms they are 75 percent of the 1982 level. Because 1982 levels were already below noncompressible levels, such a drop would impose a heavy burden on the economy. The total gap between debt service commitments plus import needs and hard currency resources is $1130 million in 1985. Hungary would face

[39]This is roughly analogous to Hungary's experience in 1983, as the country and the region were, for all intents and purposes, frozen out of the medium and long term bond and syndicated loan markets.

Table 43

HUNGARIAN BALANCE OF PAYMENTS PROJECTIONS FOR 1985 AND 1989: LIQUIDITY CRISIS SCENARIO
(Millions of $ U.S.)

	Base Case		Liquidity Crisis	
	1985	1989	1985	1989
Total Hard Currency Revenue	6200	10200	6200	10200
Market economy exports	5550	9310	5550	9310
Hard currency exports to the CMEA	950	1230	950	1230
Total exports	6500	10540	6500	10540
Net earnings from tourism	250	490	250	490
Net earnings from shipping	−400	−640	−400	−640
Other	−150	−190	−150	−190
Total Noncompressible Expenditures	−7330	−8370	−7380	−7490
Total noncompressible imports	−5280	−6830	−5280	−6830
Net interest paid	−590	−580	−590	−160
Amortization	−1460	−960	−1460	−500
Total Imports (estimate)	−5600	−9620	−4150	−9540
Balance for Compressible Imports	−1130	+1830	−1130	+2710
Policy Response				
New loans	1460	960	0	0
Change in reserves	0	0	0	0
Net Compressible Import Capacity	+350	+2790	−1130	+2710

a large net compressible import gap in that year, a gap equal to over one-fifth of noncompressible imports.

Prospective Creditworthiness

Traditional indicators of creditworthiness improve greatly in this scenario, as Hungary is assumed to pay off its debt rapidly (Table 44). Debt service ratios are below levels considered questionable by 1987 and debt export levels hit respectable levels by 1985. The reason for this improvement is captured in the net transfer to import ratio. In 1985 this jumps to .49, as Hungary is forced to cut imports and increase resource flows abroad to keep from going bankrupt. This ratio falls to a manageable level by 1987 and in 1988 and beyond begins to fall below the pre-crisis era levels.

Table 44

HUNGARIAN DEBT BURDEN IN THE 1980s:
LIQUIDITY CRISIS SCENARIO
(Millions of $ U.S.)

Year	Net Debt	Interest	Principal	Expected Exports	Debt Service Ratio	Debt Export Ratio
1984	5762	641	1292	5539	.349	1.040
1985	4307	593	1456	6198	.331	.695
1986	3167	448	1139	6965	.228	.455
1987	2210	329	958	7883	.163	.280
1988	1568	222	642	8968	.097	.175
1989	1072	158	495	10197	.064	.105

Year	Expected Imports	Net Transfer Import Ratio	Debt Service Total Debt Ratio	Amortization Total Debt Ratio	Rollover Ratio
1984	4498.6	−0.231	0.335	0.224	2.168
1985	4149.1	−0.494	0.476	0.338	—
1986	5378.0	−0.295	0.501	0.360	—
1987	6595.5	−0.195	0.583	0.434	—
1988	8095.8	−0.108	0.556	0.410	—
1989	9543.8	−0.069	0.609	0.462	—

Projections of Net Material Product, Utilized National Income, and Defense Spending

The reason why the improvement in traditional measures of Hungary's creditworthiness are problematical can be found in the output projections given in Table 45. Compared with the base case, NMP is 1 percent less in 1989 and about 3 percent less in 1985. These differences are significant, but not extreme. The major differences in the two scenarios are shown in the disparities in utilized national income. UNI is roughly 1 percent less in 1989, but 12 percent less in 1985. Hungary has already reduced investment severely, so the brunt of this reduction in UNI would have to be borne by consumption. Although other East European countries, most notably Poland, have forced their populations to accept reductions in living standards of more than 12 percent, this decline is very large and could lead to domestic turmoil. The Hungarian authorities would probably seriously consider forcing banks to reschedule rather than trying to service their obligations.

Military expenditures follow the same pattern as UNI. The 1985 problems would lead to a reduction in expenditures of about 12 percent in comparison with the initial scenario (Table 46).

Table 45

HUNGARIAN OUTPUT PROJECTION:
LIQUIDITY CRISIS SCENARIO

	NMP		UNI	
Year	(1982 forints)	(1982=100)	(1982 forints)	(1982=100)
1984	701.8	101.7	665.9	97.4
1985	706.7	102.4	627.5	91.8
1986	731.6	106.0	672.1	98.3
1987	760.9	110.2	713.4	104.4
1988	791.1	114.6	761.1	111.3
1989	819.9	118.8	798.9	116.9

Table 46

HUNGARIAN MILITARY EXPENDITURES:
LIQUIDITY CRISIS SCENARIO

	UNI		Military Expenditures		Personnel Expenditures		Equipment Expenditures	
Year	(billion 1982 forints)	1982=100	(billion 1982 forints)	1982=100	(billion 1982 forints)	1982=100	(billion 1982 forints)	1982=100
1984	665.9	97.4	19.98	98.9	3.6	99.9	16.4	98.7
1985	627.5	91.8	18.82	93.2	3.4	94.1	15.4	93.0
1986	672.1	98.3	20.16	99.8	3.6	100.8	16.5	99.7
1987	713.4	104.4	21.40	105.9	3.8	107.0	17.5	105.7
1988	761.1	111.3	22.83	113.0	4.1	114.2	18.7	112.8
1989	798.9	116.9	23.97	118.6	4.3	119.8	19.6	118.4

VII. OUTLOOK FOR HUNGARY

ECONOMIC OUTLOOK

Creditworthiness

In all scenarios except the liquidity crisis, Hungary's creditworthiness improves steadily during the 1980s (Table 47). It would probably remain intact even if the country were forced to divert a substantial share of its hard currency exports to the Soviet Union to ruble trade, a finding that belies the accepted wisdom in the financial community. In all the scenarios, however, traditional measures of creditworthiness still indicate caution on the part of lenders until 1986 or 1987. By 1989, Hungary should be a good credit risk. By that year debt service and debt export ratios are well within the ranges considered acceptable by international bankers.

The high proportion of short term debt in total Hungarian debt (45 percent in 1983) is worrisome, however. As shown by the liquidity crisis scenario, a run on Hungarian banks would be catastrophic. The country would slide into bankruptcy and the declines in utilized national income would be very large.

The figures for net compressible import capacity indicate that 1984 and 1985 promise to be difficult years for Hungary in its attempts to solve its debt problems. In 1984 net compressible import capacity is negative in all the scenarios, often by hundreds of millions of dollars; in 1985 it is slightly positive. A sudden fall in confidence by Western bankers in these years could still push Hungary into default. If the political and economic climate becomes no worse than it was immediately after the declaration of martial law in Poland, Hungary should be able to ride out moderate fluctuations in the international economic environment by reducing imports.

Output and Consumption

Output projections in most of the scenarios are not optimistic. Because of a declining labor force in industry, limited increases in hard currency imports due to debt service obligations, and a low rate of investment, output growth falls well below the level of the 1970s in all but the reform scenario. Annual growth rates of 3 percent are probably

Table 47

HUNGARIAN SCENARIOS: PROJECTIONS TO 1989

Scenario	Assumptions Differing from the Initial Scenario	Net Compressible Import Capacity	Net Debt	Debt Service Ratio	NMP	UNI	Military Spending
		(millions of dollars)			(1982 = 100)		
1. "Muddling through"	—	+2,790	5,760	.15	119.5	117.9	120
2. Successful reform	Capital augmenting technological change is 2.4% and labor augmenting technological change is 1.3% per year	+2,790	5,760	.15	128.3	126.8	129
3. No ruble trade deficit	Hard currency exports are $610 million less than in first scenario	+1,960	5,760	.16	118.0	116.5	118
4. Liquidity crisis[a]	No long term or medium term debt is rolled over	−1,130	4,310	.33	102.4	91.8	93

[a]Figures for 1985.

adequate for keeping the population quiescent, especially after the lean years between 1980 and 1983. Considering the adjustment problems of Romania and Yugoslavia and the economic decline of Czechoslovakia, the Hungarian populace may be relieved to be able to improve its standard of living, even if slowly, during a period when those around them are experiencing declines. At these rates of growth, living standards in Hungary will still remain considerably below those of the developed countries of Western Europe, including Austria, the Western country with which Hungarians most readily compare themselves. If West European and Hungarian living standards remain so different, political and economic dissatisfaction in the country may increase.

HUNGARIAN ECONOMIC POLICY OPTIONS

External Options

The Hungarian authorities have made continued solvency an important policy goal throughout the 1980s. The experiences of Romania, Yugoslavia, and Poland with reschedulings have confirmed the Hungarian authorities in their belief that rescheduling is something to be avoided. Hungary is even more dependent on trade than these countries; a cutoff in trade credits would have a more devastating effect on it than on its neighbors.

Consequently, Hungary will probably continue to try to increase hard currency exports to all available markets and restrain hard currency imports throughout the 1980s. The no Soviet deficit scenario indicates the leadership will have a strong incentive to resist conducting a greater share of trade in transferable rubles, because that would leave a smaller flow of hard currency to service the debt. Although Hungary is not averse to increasing trade with its CMEA partners (unlike Romania, which preferred to trade with countries outside the CMEA during the 1970s), it will probably not support Polish and Czech policy statements calling for greater technological independence from the West and greater trade flows with the Bloc. Rather, the Hungarians will probably continue to push for "monetization" of the transferable ruble and closer inter-enterprise ties between trading partners.[1]

[1]Pecsi, 1981.

Domestic Policies

Under the assumptions in the reform scenario, a policy of continued economic liberalization would lead to large increases in the rate of growth of output and consumption. Will these efforts to expand the reform continue, or will the reform undergo another period of retrenchment similar to that between 1974 and 1978? Because reform measures can be directed toward different economic sectors, it is useful to pose this question for state-owned industry, agriculture, and the private sector.

Paul Marer has discussed the difficulties of implementing economic reforms in centrally planned economies in the framework of these three areas. He has pointed out that reforms can be easily implemented in agriculture because every CPE has numerous collective farms (which makes it easier to create markets for agricultural output and inputs) and because land and agricultural capital can usually be switched quite rapidly from the production of one crop to another. Expansion of the private sector is also easy because almost all CPEs continue to have a small private handicraft and service sector. Reforms in this area, however, often run into ideological criticism and some domestic discontent if private and public sector income differentials appear substantial.

According to Marer, the major stumbling block to successful implementation of economic reform lies in the state industrial sector. Traditionally, the state and Communist Party apparatus have concentrated their administrative energies in this area. They have made the decisions on investments and the allocation of inputs and output. Naturally, these bureaucracies oppose measures to weaken their economic power. Moreover, some Communist Party factions often find it in their political interest to challenge the ideological basis for reforms in state-owned industry. Industrial sectors in CPEs also tend to be monopolized, thereby diminishing the increased allocative efficiency gained by using markets to allocate resources. This sector is also an important employer; some powerful worker constituencies, especially in heavy industry, may become unhappy if traditional relative wage ratios change to their detriment. For these reasons economic reforms have generally been unsuccessful in this sector in CPEs.

At this point Hungary's economic reform is well-established in agriculture because this sector has efficiently increased output. The reform has been introduced (with some misgivings) in the private sector but may not be as durable. Despite recent moves to liberalize government policies in this area, the official ideology continues to frown on large differences in wealth and income and, to some extent, private activity. Opposition among sections of the populace and the

Party and past government policy changes in regard to the private sector have caused uncertainty in the direction of reform in this area.

The true test of the reform and the greatest area for improvements in factor productivity growth remain in the state-owned industrial sector. The Hungarian government appears intent on gradually introducing changes into this sector. In particular, it wants to introduce more competition by encouraging the formation of small firms; more accountability by making enterprise managers more independent and placing greater stress on profits; and more allocatively efficient, by making domestic prices better reflect the opportunity costs of producing the product domestically rather than importing it. The government is still hesitant about closing loss-making enterprises and encouraging greater income differentiation, even if differentials are due to differences in effort. The Hungarian economic system in the state industrial sector is "neither plan nor market."[2]

The policy choice confronting the Hungarian authorities is whether to continue onward or retreat. At present the momentum is directed toward the development of market socialism rather than a retreat to a Soviet-style system. The ultimate choice will probably hinge on the following factors:

- The success of the reform in increasing economic output and assuring economic well-being. The reform is currently popular in Hungary because allocation by price has replaced allocation by queue. Improved quality and variety have also contributed to its popularity. Increases in income and output, however, have been small in recent years. If the reform can generate output increases like those projected in the reform scenario, the leadership would be bound to continue with it.
- The attitude of the leadership of the Soviet Union and other CMEA countries. To this point the Soviets have looked upon the Hungarian reform benignly. They themselves made no move to adopt such a reform, but they have not put up any roadblocks to its implementation. If, however, the Soviet leadership perceives economic reforms in Hungary leading to political reforms that challenge the leading role of the Party or generate published criticism of the Soviets, they would undoubtedly curb the Hungarian experiment.
- The attitude of the Hungarian Party. One of the great unsolved mysteries of the Hungarian reform has been the attitude of the Party. Although one can see the political rationale

[2]Bauer, 1983.

of the Party leadership for introducing the reform, it is still surprising that the Party bureaucracy has been so acquiescent to changes that have caused a diminution of its power. When Janos Kadar decides to give up his position as First Secretary, the role of the Party bureaucracy could be decisive in determining his successor. The price of support from the bureaucracy may be a restoration of some of the powers of the apparatchik and a retreat from the reform.

WESTERN POLICY OPTIONS

The goal of Western policymakers is to induce the Hungarian leadership to adopt policies that are most consistent with Western interests. Below Western policy options will be discussed in the context of three presumed policy goals:

- That Hungary continue to service its debt to the West,
- That Hungary become more independent from the Soviet Union while becoming more integrated economically and politically with the West,
- That Hungary moderate its contribution to Warsaw Pact defenses.

The first objective is assumed to be held by all of Hungary's creditors; the second and third are assumed to be held only by some.

Servicing the Debt

Present Western policies have been quite successful in encouraging the Hungarians to service their debt obligations and preserve Hungarian creditworthiness. The West welcomed Hungary to the IMF and the World Bank, and with the exception of a loan from the Bank of International Settlements in 1982 (before IMF membership had been extended) has delegated the job of making balance of payments adjustment loans to the IMF. The IMF in turn has encouraged the Hungarians to adopt policies geared toward maintaining its creditworthiness and has monitored Hungary's progress in dealing with its debt problems. Individual Western governments have had virtually no role in negotiations concerning Hungary's balance of payments problems. This tactic has evidently allayed Soviet fears of the IMF and ensured that balance of payments adjustment loans are granted on a financial, not political, basis, thereby contributing to the likelihood that Hungary will overcome its balance of payments problems.

It will probably continue to be the most successful policy for ensuring repayment of Western loans. Western governments and banks have the capacity to severely damage the Hungarian economy. Hungary's debt service ratios are still high and many of its loans are short term. If Western creditors decide to pull out quickly, the country would either be forced into a default or suffer a severe drop in output and consumption. Consequently, if Western governments and banks want to continue to receive prompt payment of loans owed them, some portion of the debt needs to be rolled over. Given Hungary's high debt service ratios and economic difficulties, which are due in part to the burden of debt service, the country is overborrowed. Lenders should avoid adding to Hungary's net debt, so loans should be made with caution.

Increasing Integration with the West

Western policy toward Eastern Europe has been to encourage diversity among the countries and pluralism within them. Aside from human rights considerations, this policy has been predicated on the assumptions that an independent Eastern Europe would be a less reliable Soviet ally, thereby weakening the Soviet Union; and more pluralistic nations would have aims more compatible with the West, because the citizens of these countries are assumed to have aspirations more in tune with those of Western governments than with the Communist Party elites.

Given these assumptions, the West has cause to support the Hungarian reforms. Hungary is markedly different economically from its East European brethren because of the reforms and therefore pushes for different economic policy changes in the CMEA than its partners. It is doubtful, however, that this type of diversity weakens Hungarian allegiance to the Soviet Union.

The reform also has expanded the scope for interests other than those espoused by the Party to be heard in Hungary. Political liberalization, although not necessarily a corollary to the reform, has definitely accompanied it.

Although the West may look on the Hungarian economic reform favorably, there is not necessarily much that Western policymakers can do to foster it. Open praise by Western leaders causes more embarrassment than pleasure in Budapest. The Hungarians have taken advantage of the benefits from both the United States and the EEC that these policies of "differentiation" have offered. U.S. relations with Hungary are the best of any Warsaw Pact country, partly because of the decision to grant Hungary most favored nation status. Hungary is

also negotiating with the EEC for special status, and various heads of EEC countries have had a warm welcome in Hungary. Western governments could encourage further economic changes in Hungary by pushing for relaxation of Hungarian import controls, encouraging investment in Hungarian free trade zones, and supporting moves toward making the forint convertible.

Decreasing Military Expenditures

A third objective, perhaps shared only by some of Hungary's Western creditors, is to limit Hungary's contribution to the Warsaw Pact. To this point Hungary's expenditures on its armed forces have been minimal, and the Hungarian forces are considered to be of fairly low value in an East-West conflict.[3] NATO would like to keep things that way.

Because expenditures are so low, efforts to weaken the Hungarian economy and thereby lessen its military capabilities would probably be counterproductive. The decision to keep military spending low appears to have been determined by political, not economic, forces. Poland, for example, is in far worse economic shape, yet has increased the share of output going to the military during the economic crisis. Thus, a policy of economic warfare against Hungary could cause decisionmakers to channel more output to the military, rather than less, and could also cause them to think over their commitment to servicing their debt. A policy of economic denial would provide very limited benefits to the West at considerable economic cost to Hungary and possibly to its Western creditors as well.

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[3]Cason, in Clawson and Kaplan, 1982, p. 154.

VIII. ROMANIA'S HARD CURRENCY BALANCE OF PAYMENTS PROBLEMS

YEARS OF GRACE

Romania has long been the *enfant terrible* of the Soviet Bloc. From an official condemnation of the invasion of Czechoslovakia to the decision to attend the Los Angeles Olympics, the Romanian government has shown its willingness to stick a finger in the eye of the Soviet Union.

Romania's inclination to separate itself from the rest of its brethren in the CMEA has also exhibited itself in its trade relations. Romania conducts a far smaller share of its total trade with CMEA members than any other country in the group. In 1981 Romania conducted only 38.7 percent of its total trade with the CMEA; the next lowest shares in the Bloc were those of the USSR (47.6 percent) and Hungary (51.3 percent of total trade).[1]

These figures are the consequence of the development strategy adopted by the Romanian government in 1958.[2] By 1958 Romania had made great progress in increasing both industrial and total output, despite the burdens of reparations to the Soviet Union and the repair of the damage caused by World War II. The government relied on extensive means to achieve this growth. Agricultural labor was transferred to industry, and a large percentage of total output was reinvested in industry. Thus both capital and industrial labor inputs were increased rapidly, leading to large increases in industrial output. Growth was also rapid because the labor transferred to industry was more productive than it had been in agriculture. Increases in output were slowed, however, by the need to generate trade surpluses to first make reparations to the Soviet Union and later to buy out Soviet shares in Soviet-Romanian joint-stock companies, which dominated much of Romanian industry. Pressures created by the domestic turmoil in neighboring Hungary and in Poland in 1956 also slowed the rate of growth at that time as more goods were channeled to consumption.

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[1] *Statisticheskii Ezhegodnik Stran*, 1982, p. 311.

[2] Montias, 1967, p. 201.

By 1958, the Romanian Communist Party felt itself in a position to seek even more rapid rates of economic growth. The Party saw industrialization as the key to these increases[3] and decided to raise the rate of investment by diverting a higher percentage of output from consumption to accumulation. Romania was also to increase imports of capital goods from the West to be paid for by traditional Romanian exports of lumber, agricultural products, and petroleum. The government planned to pressure its CMEA trading partners to accept machinery in place of raw materials exports in payment for capital goods imports from this area.

This decision to pursue rapid industrialization was made precisely when other countries in the CMEA, most notably Czechoslovakia and the Soviet Union, began to push for closer economic integration in the CMEA.[4] In the early 1960s, Nikita Khrushchev attempted to integrate the CMEA more closely through improved cooperation in planning and greater specialization. The Romanians interpreted this policy to mean that Romania was to provide raw materials in exchange for manufactures from Czechoslovakia and East Germany.[5] Although all the Soviet motives for this decision are not clear, the Soviet desire for Bloc unity at a time when Sino-Soviet relations were worsening, a wish to limit East European demands for Soviet raw materials, and a belief that greater specialization would generate large interbloc gains from trade probably all played a role.

The Romanian government actively opposed this policy. It saw industrialization as the route to economic development and believed Khrushchev's policies would mean that the country's economic policy would be determined by a supranational agency in which Romania would have little control.[6] The government began to increase the amount of trade it conducted with the West in part to increase its independence and also to procure more advanced technology. It continued to pursue this policy throughout the 1960s and the 1970s, long after the Soviets had given in to Romanian demands not to create a supranational CMEA planning authority.

Romania was one of the best suited countries in the CMEA for pursuing such a policy of expanding trade with the West. Its rich endowments of raw materials and agricultural land provided it with commodities that could be easily sold on Western markets. Moreover, because

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[3]Montias, 1967, p. 201.

[4]Montias, 1967, p. 209.

[5]Montias, 1967, p. 206.

[6]Montias, 1967, p. 217.

the country had little industrial plant, it was free to adopt Western or Soviet standards when purchasing new machinery.

This policy was successful. Increased trade with nonsocialist countries coupled with the rapid reallocation of the workforce to more productive jobs and high rates of investment enabled the Romanian government to record growth rates in NMP averaging 9.1 percent per year and in industrial output of 11.8 percent between 1965 and 1979.[7] No other country in Eastern Europe has claimed rates of growth of this size.

Romania's turn to the West did not result in a major opening of the economy, however. Between 1965 and 1980 Romanian NMP grew 3.5 times (1965 prices) and exports grew 7.7 times in nominal terms.[8] Considering that dollar prices more than doubled in this period, exports may have grown more slowly in real terms than net material product. One reason for the slow growth of trade was import-substitution policies. By the early 1980s Romania produced its own passenger aircraft, automobiles, and several types of machine tools. As a consequence of this policy, the percentage of Romania's total output that is traded has been low compared with that of other centrally planned economies in Eastern Europe.[9]

Romania's policy of relying on extensive means for growth and adopting import-substitution policies has had its drawbacks. The movement of labor from agriculture to industry has contributed to slow rates of increase in agricultural output. Import-substitution policies have tended to make Romania more vulnerable to external shocks, because even in good years imports tend to be limited to industrial inputs and investment goods. If an external shock makes it necessary to cut imports (as happened in 1981 and 1982), "essential" imports have to be cut, rather than consumption goods, and industrial output is affected.

ROMANIA'S FALL FROM GRACE

In 1974–1975 Romania experienced its first problems with its policy of increasing trade with the West. Although still self-sufficient in oil at the time, recession in the West coupled with a continuing investment boom at home led to a deterioration in the hard currency balance

[7] *Anuaral Statistic al Republicii Socialiste Romania* (the *Romanian Statistical Yearbook*, henceforth *AS*), 1980, p. 88.

[8] *AS*, 1982, pp. 42, 253.

[9] For example, in 1981 Hungary's total trade to NMP ratio was .97, Poland's was .84, and Romania's .23.

of payments. The government responded by increasing exports, especially to the OPEC countries, and curtailing imports. These measures were successful. In 1976 Romania posted a hard currency trade surplus, yet the economy still grew by 10 percent.[10]

Romania's success in solving its balance of payments problems in the mid-1970s may have made policymakers sanguine concerning the ease with which the economy could adjust to external shocks. Because of a continued boom in investment, Romania's hard currency balance of payments began to deteriorate again in 1977. As the investment drive continued, Romania began to import oil in large volumes as domestic production declined, and refining and petrochemical projects came on stream that needed large quantities of oil to operate. In 1978 as oil prices rose, so did the volume of Romania's oil imports, from 8 million tons in 1976 to over 15 million tons in 1980; the cost of these imports rose even faster, from $735 million to $3.8 billion.[11] Thus Romania's deteriorating trade balance was due in great measure to the rapid rises in the price and volume of oil imports.

Jackson (1984) has attempted to identify the various factors that led to the 1981–1982 balance of payments crisis. Aside from the changes in oil prices and imports discussed above, he also mentions the destruction caused by the 1977 earthquake and crop losses from two years of bad weather in 1980 and 1981. Increases in interest rates made it more difficult to service the debt. The recession in Western Europe also made it more difficult for Romania to expand exports.

Nonetheless, much of the 1981 crisis was brought on by the Romanians themselves. First, World Bank economists discovered that because of the use of a domestic price for oil substantially lower than the world market price, Romania may have been exporting refined products for as much as $25 a ton less than the price of the crude imported to produce these products.[12] In 1979 and 1980 the portion of the increased imports of oil that was refined and exported resulted in a net loss to the Romanian economy. This mistake was a consequence of Romania's insistence on maintaining a highly centralized, Stalinistic economic system.

Second, up until 1980 the Romanian government continued to push for rapid increases in investment and output. Investment booms in Soviet-type economies generally increase demand for domestically produced raw materials, many of which are traditional hard currency exports, and for machinery imports, so investment booms generally

[10]Tyson, 1984, p. 83.

[11]*Economic Memorandum.*

[12]Jackson, 1984.

cause the balance of payments to deteriorate. Romania's was no exception.[13]

A third policy mistake was the introduction of a new law in 1981 stipulating that each foreign trade organization has to balance hard currency import payments with hard currency export receipts.[14] Although this law was supposed to improve Romania's creditworthiness by forcing the foreign trade organizations (FTOs) to balance hard currency trade, it had the opposite effect. The FTOs responded by not paying their import bills as they waited for payments for exports. Romania's failure to pay its bills coupled with the Polish debt crisis led to a loss of confidence in the country in the international financial community. Suppliers and banks began to cut off credit.

The Romanian government exacerbated the decline in confidence by refusing to discuss the problem. Bankers complain that the New York based representative of the Romanian Foreign Trade Bank refused to answer the telephone when called. Other Romanian bank officials also refused to respond to letters, telexes, or calls, so the international banking community was left in the dark concerning Romania's intentions and resources. The banks lost confidence and pulled out as fast as possible, forcing Romania into a rescheduling in 1982 and 1983.

AFTER THE FALL

Caused in great measure by the loss of confidence in the banking community, Romania experienced a dramatic turnaround on its current account in 1981 and 1982. As suppliers' credits disappeared, imports could not be purchased. Exports were initially maintained at former levels and then fell more slowly than imports, declining 15 percent in nominal terms in 1982 and continuing to fall in 1983. A lack of credit caused Romania to have to pay cash for imports, and the hard currency current account swung into surplus. Making a virtue from necessity, Ceausescu has continued with a policy of pushing exports and curtailing imports to reduce Romania's debt and restore its creditworthiness. This policy has paid off to the extent that 1984 may pass without a Romanian rescheduling.

It is difficult to measure the cost of Romania's adjustment. The rate of growth in net material product has declined, and utilized national income fell in 1981 and 1982.[15] Moreover, some observers believe that consumption figures for 1980 and later years have been falsified. Meat

[13]Tyson, 1984, p. 77.

[14]Shireff, 1981, p. 18.

[15]WEFA, September 1983, p. 117.

and in some cases bread are rationed; travelers to Bucharest and other cities report meager supplies of consumer goods and food. To the outside observer the decline in living standards appears substantial.

IX. ROMANIA'S CREDITWORTHINESS IN THE 1980s

INTRODUCTION

This section explores implications of possible future developments in hard currency export earnings, import needs, and debt service for Romanian creditworthiness in the 1980s. The poor quality of Romanian output and investment data and the lack of a series for hard currency imports in constant prices have prevented construction of a model for output projections.

Net compressible import capacity is computed for three scenarios: a base case in which Romania continues to be shunned by international banks and has very limited access to new credits; a rescheduling or reentry scenario in which Romania reenters the loan market in 1985 either by forcing its creditors to reschedule or through a return of confidence in the country on the part of the international financial community; and a third scenario in which Romania makes amends with the Soviet Union and in return is allowed to import oil for transferable rubles rather than hard currency.

These three scenarios were designed to capture the probable states of the world the Romanian government could face. The first is predicated on the very bad reputation Romania has with international banks. Many banks reportedly refuse to extend credits to Romania because of their experience with the 1982 rescheduling. If these attitudes persist the base case is likely.

The second case, the rescheduling scenario, becomes more probable if Romania continues to service its debt promptly or, somewhat contrarily, if the Romanian government decides it will be impossible to service its debts. In the past, countries that have had very poor financial records have been able to return to international financial markets after a period in which they displayed financial discipline. Romania should be no exception.

The first act of the third scenario already appears to have been played out. Romania has requested oil imports from the Soviet Union to be paid in rubles and has been turned down.[1] The Soviets may reconsider the tradeoff in the future, however.

[1] *East-West*, 22 May 1984, p. 7.

No reform scenario is discussed in this section. There is little possibility of such a change given the present intellectual and political climate in Romania. Economic reforms in both Poland and Hungary were preceded by a fairly open debate among economists and the party concerning the weaknesses of the old system and the changes needed to improve it. This debate helped create a political force in the party, among factory managers, and in the intelligentsia that supported and helped implement the reforms.[2] Although one journal, *Revue Romaine des Sciences Sociales. Serie des Sciences Economiques*, contains articles concerning the rationalization of the Romanian economic system, there is still no debate within the Romanian leadership over economic reforms.

The political system in Romania also appears unconducive to economic reform. Nicolae Ceausescu has centralized political and economic power in the hands of members of his family. Political opponents are kept off-base through frequent administrative shuffles and a large secret police establishment. Because of Ceausescu's political style there is no organized political group outside the party and within it the real decisions are made at the top. Given Ceausescu's penchant for monopolizing power, a decentralizing economic reform is unlikely. Moreover, if Ceausescu is deposed, the mechanism will probably be a palace revolt by the army or the Politburo. His successor will then be more interested in centralizing power than in spreading it.

THE INITIAL SCENARIO

Assumptions

International bankers have stated that Romania has been almost frozen out of international financial markets, primarily because of the uncooperative way it handled its balance of payments problems in 1981 and 1982.[3] Romania has found it next to impossible to obtain new credits from international commercial banks. In this scenario Romania is assumed to be able to roll over only $605 million of loans in 1984 and only $400 million in subsequent years.[4] In other words, the country

[2]The reforms in Poland have been stymied despite the existence of this group. The climate for reform in Romania should be even worse.

[3]The Romanians have reputedly welshed on some foreign exchange contracts with the Swiss, which has also earned them a bad reputation.

[4]The $605 million figure has been cited by the Romanian authorities for new loans in 1984 (*Economic Memorandum*). The $400 million figure roughly corresponds to planned medium and long term borrowing in 1985. This figure was assumed to equal annual medium and long term borrowings for the rest of the decade. Although the Romanians

is forced to pay off about all its debt. This assumption is consistent with Romanian policy statements; Ceausescu has declared that Romania must become debt free.

Loans to Romania were made at several interest rates and in several currencies, so projecting interest payments presented a problem. Roughly two-thirds of Romanian loans are in dollars and about 30 percent in Deutschmarks or Swiss Francs. All three currencies are freely convertible; therefore, theoretically long run real rates of return ought to be the same for loans in all currencies. Consequently, all loans were treated as if they were granted in dollars.

Rates on loans owed to commercial banks were assumed to equal the London Interbank Offer Rate (LIBOR—the rate international banks use to lend money among themselves) plus 1-3/4, the rate set in the two commercial reschedulings.[5] Because some commercial loans before the reschedulings were granted at lower rates, this assumption may lead to interest rate estimates that are too high. The amount by which payments may be overestimated would decline through the course of the period, however, as lower cost loans are paid off. Total interest payments on commercial loans were then calculated using a proxy series for LIBOR rates and official Romanian data on commercial loans.[6]

Interest rates on debt to CMEA banks, Western governments, and international lending institutions were more difficult to project because these lenders generally do not grant loans at market rates. In this instance estimates of rates on loans granted by the United States Commodity Credit Corporation, a major source of guaranteed U.S. loans, were used as a proxy for rates on guaranteed loans.[7] Debt owed to CMEA banks, the IMF, and the World Bank are assumed to have been granted at the same rate as guaranteed Western credits. Because rates on World Bank loans range between 7 and 11-3/5 percent, the rates assumed appear plausible (World Bank data).

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plan to increase the level of short term borrowing, they also plan to increase short term lending to importers of Romanian goods. For this reason additional net short term flows are assumed to be zero.

[5]WEFA, September 1983, p. 114.

[6]A series for U.S. AAA corporate bonds (Appendix Table A.1) was used for LIBOR rates under the assumption that Eurodollar rates must closely follow U.S. domestic rates (Energy Information Agency, henceforth EIA, 1982, p. 30).

[7]These estimates were based on the projections of AAA bond rates cited above (EIA, 1982, p. 30). Commodity Credit Corporation loans are granted at rates .25 percent above the treasury bill rate (information provided by the Commodity Credit Corporation) and treasury bill rates are assumed to be .5 percent lower than AAA bond rates (based on the average differential between 1980 and 1982—IMF, 1983, p. 47), so rates on guaranteed Romanian debt are assumed to be .25 percent lower than the projections for AAA bond rates.

Noncompressible imports were split into two components: net imports of oil and other hard currency imports. Gross imports of oil are highly dependent on the volume of Romanian exports of refined products. Romania has incurred net hard currency losses on these transactions in recent years as at times the prices Romania has paid for crude have exceeded the prices it has received for exports of refined products. Consequently, the government reduced these exports in 1982. Whether exports will continue to decline will depend on the vagaries of world market prices for crude and refined products and Romanian government decisions. Thus it is impossible to predict gross Romanian exports of refined products. In fact, even the Romanian government has little idea of the future amounts of these exports. Some official Romanian export projections for 1983 indicated that these exports would be halted, and others showed they would continue to constitute a large share of hard currency exports.[8] Therefore, projections were made for net rather than gross imports.

Romania is assumed to remain a net importer of oil in the 1980s. Although Romanian net oil imports have fluctuated greatly in recent years, imports are assumed to stabilize at 3.5 million metric tons a year, slightly below their levels in 1983 (about 3.6 million tons). This estimate is substantially below net imports in 1979 and 1980 when they were close to 9 million tons. Nevertheless, the Romanians have published plans in which net imports were to be cut to 3.5 million tons in 1984. Although this figure may underestimate Romanian import needs, it should be a good minimum estimate. This estimate was then converted to barrels[9] and multiplied by a series of oil price projections to compute the value of oil price imports.[10] The figure was inflated with the import price series used in the previous scenarios to obtain nominal figures for oil imports.

Noncompressible imports of commodities other than oil were assumed to equal 1980 levels ($4273 million or $4500 million in 1983 dollars). 1980 was chosen because in that year the Romanian government began to curb hard currency imports. Therefore, nonoil import levels ought to be a good indicator of what the government considers essential. 1979 or 1981 levels were considered poor indicators because 1979 imports include machinery imports, which would have been compressible, while in 1981 imports were reduced to less than noncompressible levels because of balance of payments problems. Because the Romanian government has concentrated on import substitution as

[8]*Economic Memorandum*, February 1983.

[9]One metric ton equals 7.3 barrels (Lambertini, 1976).

[10]This series was taken from EIA, 1983, p. 29.

the means to overcome the balance of payments crisis, noncompressible import levels are assumed to remain at the 1980 level for the period of projection. This assumption may lead to underestimation of noncompressible imports for later years, if Romania resumes rapid economic growth.

Refined petroleum products have been a large share of Romanian hard currency exports. As stated above, however, they depend on the volume of oil imports; so oil trade is projected net, not gross, and is subsumed under imports. For this reason export projections in these scenarios are less than those provided by the Romanian government and Wharton Econometrics Forecasting Associates. Although these other projections may track gross Romanian exports better, the projections in this section should provide reasonable figures for net export flows.

Nonoil exports in this scenario are assumed to increase at the average annual rate of increase recorded between 1975 and 1982—7.5 percent. Romania provides export data in nominal terms only, so this figure had to be estimated. Nominal data for Romanian nonsocialist exports by commodity were deflated by Hungarian price deflators for nonsocialist exports and then summed.[11] The average annual rate of increase was calculated from these figures. 1983 nonoil exports were then used for a base from which to make projections of real exports. These projections were subsequently inflated using estimates for U.S. GNP price deflators in the 1980s, for lack of a better indicator.

Shipping costs and earnings from other services, primarily tourism, were also projected. Shipping costs were projected net by multiplying nominal hard currency exports times .048.[12] Tourism and other earnings were assumed to remain at the level planned for 1984—$150 million (*Economic Memorandum*). This figure was assumed to stagnate in real terms; to compute nominal earnings it was inflated by the export price projections.

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[11]Hungarian price deflators were used because Hungary is a fellow member of the CMEA, has a centrally planned economy, and has statistics considered to be of better quality than those of other members of the CMEA.

[12]This figure was derived by regressing nominal hard currency exports on net shipping earnings. The adjusted R^2 equaled .883; the coefficient on the parameter estimate had a t value of 7.25. Because of the lack of data, the equation was estimated with only eight observations. The intercept was constrained to equal zero under the assumption that if nothing is exported, no shipping costs would be incurred. No deflator was available for shipping costs, so all figures were in nominal terms.

Hard Currency Balance of Payments

By 1989 Romania has a positive balance in net compressible import capacity in this scenario and has eliminated virtually all of its debt (Table 48). At that time it will probably be considered a good credit risk. Progress to this point will be difficult, however. Net compressible import capacity is over $2 billion in deficit in both 1984 and 1985 and debt service remains high (over $2 billion per year) until after 1987. Expected imports are about 60 percent of noncompressible levels in 1984 and 1985. Debt service takes such a large share of projected import earnings in 1984 that expected nonoil imports are only $400 million more than in 1982. These are very low figures and indicate the Romanian economy will suffer continued supply bottlenecks because of import shortages over the next few years.

Table 48

ROMANIAN BALANCE OF PAYMENTS PROJECTIONS: INITIAL SCENARIO
(Millions of $ U.S.)

	1982[a]	1985	1989
Total Hard Currency Revenue	6282	5260	9010
Hard currency exports	6235	5350	9250
Net earnings from shipping	-139	-250	-450
Other	186	160	210
Total Noncompressible Expenditures	-11481	-7920	-8570
Oil imports	-2462	-700	-1300
Nonoil imports	-2248	-4910	-6360
Total noncompressible imports	-5245	-5610	-7660
Net interest paid	-917	-800	-320
Amortization	-5319[b]	-1510	-590
Total Imports (actual or estimated)	-4710	-3350	-8500
Balance for Compressible Imports[c]	-5199	-2660	440
Policy Response			
New loans	4666[d]	400	400
Change in reserves	-37	0	0
Net Compressible Import Capacity	-2028[e]	-2260	840

[a]Actual figures.
[b]Includes payments of arrears from 1981.
[c]Total hard currency revenue plus total noncompressible imports.
[d]Includes reschedulings.
[e]Since export projections were made assuming no net exports of oil, oil exports were subtracted from total exports to compute this figure.

Given the rate of export growth assumed in this scenario, the greatest squeeze on imports occurs in 1984, rather than 1985 and 1986. Although debt service increases slightly in 1985 and 1986, the rise in exports more than offsets the slightly higher payments. This somewhat belies the notion that Romania has been given a breathing space in 1984, only to be followed by a severe financial bind in 1985 and 1986. The size of the financial flows also indicates, however, that if Romania does not make amends with its international creditors, it could well have difficulty servicing its hard currency debt over the next few years.[13]

Creditworthiness

Because of the large principal payments to be made by Romania, debt service and debt export ratios are high in the first few years of this scenario (Table 49). Debt service ratios do not fall below .25 until 1988, indicating that Romania may be a suspect debtor even at that late date. They exceed the ratios projected for the initial scenario for Hungary by 15 to 20 percent. Debt export ratios, however, fall rapidly. By 1986 they are quite low by international standards. Even if international lenders continue to shun Romania, the country ought to be creditworthy again by 1987.

Table 49

ROMANIAN DEBT BURDEN IN THE 1980s: INITIAL SCENARIO
(Millions of $ U.S.)

Year	Debt	Debt Service	Debt Service Ratio	Debt Export Ratio	Expected Imports	Debt Service Total Debt Ratio	Amortization Total Debt Ratio
1984	7300	2600	.560	1.57	2650	.357	.228
1985	6190	2310	.440	1.18	3340	.374	.244
1986	5160	2100	.352	.86	4270	.407	.275
1987	4110	2020	.295	.60	5210	.491	.354
1988	3220	1730	.220	.41	6520	.536	.400
1989	3030	920	.102	.34	8500	.303	.196

[13]More detailed projections of balance of payments components are provided in Appendix Table E.1.

RESCHEDULING SCENARIO

Assumptions

Some observers of Romania's finances have suggested that Romania may face another financial bind in 1985.[14] Although the initial scenario indicates that continued curbs on imports could enable Romania to service its debt in 1985, the cost to the country in terms of forgone output may be so large that the government may seek to roll over or reschedule loans falling due in that year. This could occur either through a restoration of confidence in Romania on the part of Western bankers or through a formal request for a rescheduling by the Romanian government.

In this scenario Western banks and governments are each assumed to roll over 60 percent of Romanian debt falling due in 1985 and beyond. Rescheduled loans are assumed to be granted for 6-1/2 years with a three-year grace period. These conditions are the same as those imposed by Western governments in the 1983 rescheduling.[15] All other assumptions are the same as in the initial scenario.[16]

Hard Currency Balance of Payments

Rescheduling eliminates some of the pain imposed by external adjustment in the first few years of the projection. In this scenario the deficit in net compressible import capacity is between $500 and $600 million less than it is in the base case (Table 50). This difference could greatly affect Romanian output growth and consumption.

Economies like Romania's are subject to supply multipliers. In theory, increasing input supplies by a certain percentage ought to boost output because supply bottlenecks are eliminated, thereby making production more continuous and improving productivity. When supply inputs are cut, however, the reverse occurs. Reductions in inputs lead to even greater declines in output as bottlenecks multiply and producers of final goods have to battle constantly to ensure supplies of components. Furthermore, as supplies decrease, several allocative decisions that were formerly routine now have to be resolved at higher levels. Because the system is so highly centralized, decisionmakers soon are swamped and more time is needed to obtain a decision.

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[14]Miller and Barclay, 1984, p. 20.

[15]Miller and Barclay, 1984, Table 7.

[16]The projections and data used in this scenario are presented in more detail in Appendix Table E.2.

Table 50

ROMANIAN BALANCE OF PAYMENTS PROJECTIONS FOR 1989: RESCHEDULING SCENARIO
(Millions of $ U.S.)

	Base Case		Rescheduling Scenario	
	1985	1989	1985	1989
Total Hard Currency Revenue	5260	9010	5260	9010
Hard currency exports	5350	9250	5350	9250
Net earnings from shipping	−250	−450	−250	−450
Other	160	210	160	210
Total Noncompressible Expenditures	−7920	−8570	−7940	−9190
Oil imports	−700	−1300	−700	−1300
Nonoil imports	−4910	−6360	−4910	−6360
Total noncompressible imports	−5610	−7660	−5610	−7660
Net interest paid	−800	−320	−820	−640
Amortization	−1510	−590	−1510	−890
Total Imports (actual or estimated)	−3350	−8500	−3960	−8270
Balance for Compressible Imports	−2660	440	−2680	−180
Policy Response				
New loans	400	400	400	400
Rescheduled loans	0	0	620	390
Net Compressible Import Capacity	−2260	840	−1660	610

The Romanian system is one of the most highly centralized economies in Europe. As the past few years attest, the economy has been very vulnerable to supply bottlenecks caused by import reductions. For this reason the increases in net compressible import capacity projected in this scenario could lead to a substantial improvement in output levels and consumption.

By 1989 gains from rolling over principal are more than outweighed by the increased interest and amortization payments due on the rescheduled loans. Net compressible import capacity in the base case is greater than in this scenario, but the difference is not large—about $200 million. Thus over the course of the next few years Romanian policymakers may find it worth their while to attempt to reschedule loans coming due.

Creditworthiness

Debt service and debt export ratios deteriorate in this scenario (Table 51). The deterioration is not serious, however. Romania's overall creditworthiness would probably not be affected by rolling over a share of hard currency debt, especially as the country would still be running hard currency current account surpluses of over $700 million.

Romania's future creditworthiness will be determined by how Romania rolls over its debt in the next few years, not by whether it does so. If the government repeats its performance in 1981 and 1982 when it stopped paying suppliers, yet did not explain to its bankers the types of problems the country was facing, Romania will remain an outcast in the international financial community. If, however, Romania can convince bankers that its finances are sound and it obtains money through normal commercial channels, a return to the loan market could actually improve the country's creditworthiness.

SOVIET OIL SCENARIO

Assumptions

Romania is the only European member of the CMEA not permitted to purchase oil from the Soviet Union for transferable rubles; Romania pays for all its Soviet oil imports in dollars.[17] Although at the official exchange rate the ruble price of Soviet oil is now close to world market

Table 51

ROMANIAN DEBT BURDEN IN THE 1980s: RESCHEDULING SCENARIO
Millions of $ U.S.)

Year	Debt	Debt Service	Debt Service Ratio	Debt Export Ratio	Expected Imports	Debt Service Total Debt Ratio	Amortization Total Debt Ratio
1984	7300	2600	.560	1.57	2650	.357	.228
1985	6810	2330	.442	1.30	3960	.342	.222
1986	6360	2200	.368	1.07	4750	.345	.223
1987	5930	2190	.320	0.87	5660	.369	.245
1988	5610	1980	.252	0.71	6840	.352	.230
1989	5510	1530	.170	0.61	8280	.278	.162

[17] *East-West*, 22 May 1984, p. 7.

prices, other East European countries still derive benefits from purchasing Soviet oil for rubles rather than dollars. In general over half of their exports to the Soviet Union consist of machinery. Prices paid for this machinery are based on world market prices but are actually set through negotiations. Because East European machinery exports are generally of poorer quality than Western exports and exporters do not provide the same service, Western machinery prices are poor proxies for the value of East European machinery. To this point the East European countries have had the best of the negotiations; the relative price of machinery to oil in the CMEA has been much more advantageous to them than prices on world markets. Some researchers have estimated that higher prices for East European machinery prices in CMEA trade have saved these countries billions of dollars.[18]

Romania has not benefited from this trade in part because Moscow has responded to Romania's repeated refusals to toe the foreign policy line by refusing to export petroleum for rubles. In this scenario (see Table 52) Romania agrees to cooperate more closely with Moscow and receives enough oil to cover its net oil import needs—assumed to equal 3.5 million tons a year. Romania pays for this oil in transferable rubles. The real cost to Romania of these imports in dollars is not, however, the official transferable ruble-dollar rate multiplied by the ruble price, but the ratio of the marginal cost of ruble exports to the marginal cost of dollar exports.

Market-determined exchange rates would give an acceptable proxy for this ratio, but Romanian exchange rates continue to function more as units of account than economic parameters that affect resource allocation. In Romania, exports continue to be determined by plan targets and directives, not by the quest of enterprises for profits. Because of the lack of a suitable Romanian proxy for this ratio, ruble-dollar cross rates in other CMEA countries were examined. Both Poland and Hungary attempt to use exchange rates to control trade flows and both have dollar-ruble cross rates considerably higher than the official dollar-ruble rates. Because the Polish economy continues to suffer from acute shortages and exports appear to be determined more by administrative pressure than the quest for profits, the Hungarian cross rates were chosen. In 1982 the ruble-dollar cross rates in Hungary were 46.8 percent of the official Soviet rate.[19] This was the rate used to

[18]Marrese and Vanous, 1983, p. 383.

[19]Implicit ruble-forint and dollar-forint rates were calculated from 1983 trade balances given in dollars and rubles and then the cross rate was calculated from these rates (*Heti Vilaggazdasag*, 18 February 1984, p. 4).

Table 52

ROMANIAN BALANCE OF PAYMENTS PROJECTIONS FOR 1989: SOVIET OIL SCENARIO
(Millions of $ U.S.)

	Base Case		Soviet Oil Scenario	
	1985	1989	1985	1989
Total Hard Currency Revenue	5260	9010	5260	9010
Hard currency exports	5350	9250	5350	9250
Net earnings from shipping	−250	−450	−250	−450
Other	160	210	160	210
Total Noncompressible Expenditures	−7920	−8570	−7540	−7880
Oil imports	−700	−1300	−330	−610
Nonoil imports	−4910	−6360	−4910	−6360
Total noncompressible imports	−5610	−7660	−5240	−6970
Net interest paid	−800	−320	−800	−320
Amortization	−1510	−590	−1510	−590
Total Imports (actual or estimated)	−3350	−8500	−3720	−9190
Balance for Compressible Imports	−2660	440	−2280	1130
Policy Response				
New loans	400	400	400	400
Net Compressible Import Capacity	−2260	840	−1880	1530

calculate the real cost of Soviet oil imports to Romania in this scenario.

Balance of Payments Projections

In 1985 the savings from paying for oil imports in transferable rubles rather than dollars would be roughly $370 million. This is a large sum, considering that total Romanian imports projected for that year are only about $3340 million. These savings could greatly ease supply bottlenecks caused by shortages of other imports. By 1989, although the savings from paying for oil in rubles rather than dollars is greater, the need for the switch declines. Net compressible import capacity is positive in the base case as well as in this scenario and, presumably, import bottlenecks would be less serious at this time. Although by 1989 Romania's net compressible import capacity surplus

is over $750 million greater in this scenario than in the base case, the government could decide foreign policy independence is more attractive than cheaper oil at a time when hard currency is no longer a binding constraint on the economy.

Indicators of Romania's creditworthiness for this scenario are identical to those in the base case. The only change in indicators occurs in noncompressible imports, because changes in imports do not affect the other indicators given. Expected imports were adjusted upward by the increase in funds available due to the savings from paying for oil imports in transferable rubles.

X. OUTLOOK FOR ROMANIA

ECONOMIC OUTLOOK

Projections in this section were made for three scenarios (Table 53): a base case in which Romania continues to be almost frozen out of international financial markets; a rescheduling scenario in which Romania, through threats or renewed confidence among its bankers, is able to roll over 60 percent of its debt owed to Western commercial banks and to Western governments; and a third scenario in which the Soviet Union permits Romania to purchase oil for transferable rubles, instead of hard currency, on the condition that Romania toes the Soviet foreign policy line.

In all the scenarios the next few years will be difficult ones for Romania. In 1984 projected imports are less than 60 percent of non-compressible levels even in the most favorable scenario. Although this result is partially due to the burden of servicing the hard currency debt, it also reflects the low level of projected Romanian exports. These shortfalls are not the product of conservative assumptions concerning export growth. The real rate of growth in Romanian exports is assumed to be 7.5 percent per year, which is the rate recorded by Romania for real nonoil exports in the 1970s and is about the same as the rates projected for Poland and Hungary.

Table 53

ROMANIAN SCENARIOS: PROJECTIONS FOR 1989

Scenario	Assumptions Differing from the Initial Scenario	Net Compressible Import Capacity (millions of $)	Net Debt (millions of $)	Debt Service Ratio
1. No new loans	—	+840	3,030	.102
2. Rescheduling scenario	60% of guaranteed and unguaranteed debt is rescheduled in 1985 and beyond	+610	5,510	.170
3. Soviet oil	The cost of oil imports is 46.8% less than in the first scenario	+1,530	3,030	.102

The low level of exports is the product of Romania's continuing problem with its energy balance. Romania has an energy-intensive industrial structure (steel mills, bulk chemicals plants, oil refineries, etc.). A substantial share of this plant came on stream in the second half of the 1970s, precisely when Romania changed from a net exporter to a net importer of petroleum products. Initially, the Romanian government decided to borrow the money to pay for the energy imports needed to operate these installations at capacity. This decision led to Romania's balance of payments crisis in 1981. At present the government is coping with the lack of energy by operating these plants at less than capacity, cutting household energy consumption and trying to increase lignite production. The resulting drop in the supply of products from these plants has been handled by reducing exports, especially of refined products, and cutting domestic consumption. Consequently, hard currency exports in 1982 and 1983 and the projections in the scenarios have been substantially lower than Romanian export totals for the late 1970s. Romania was able to record very rapid increases in nominal exports in those years because prices of its refined petroleum exports were growing rapidly. Once these exports are stripped away, however, Romania's hard currency export capacity is quite limited; the country will probably find it difficult to generate the volume of exports needed to finance imports and service its debt.

In these scenarios interest payments do not become an intolerable burden. Payments peak at about $900 million in 1984 and decline fairly rapidly thereafter. Considering the hard currency trade surpluses of over $1500 million recorded in 1982 and 1983, Romania will have little problem in covering the interest owed in 1984 and beyond.

The major problem facing the Romanians will be amortization payments. Despite the declines in total interest projected in 1985 and 1986, debt service remains above $2 billion in these years because of principal coming due. Unfortunately, the Romanians may pay dearly for past escapades in these years. Because of their intransigence in the face of bankers' demands for complete financial data in 1981 and their refusal to discuss their debt problems until late in that year, bankers have been unwilling to roll over Romanian debt. Even a partial rollover would make the lives of Romania's economic managers much easier. It remains to be seen, however, whether Romania can patch up its relations with its bankers before 1985. If not, the country may push for another rescheduling or will have to continue to impose the austerity measures that have been in force since 1981. If the former course is chosen, Romania will continue to be in disfavor with the international financial community; if the latter, the political position of the leadership may deteriorate.

ROMANIAN POLICY OPTIONS

Domestic Policy Options

Even with rescheduling, 1985 and 1986 will be lean years for the Romanians. Considering the declines in both living standards and investment suffered since 1981, a major goal of the Romanian government will be to find policies that will ease the pressure on consumption and permit the country to increase investment again.

The Romanian government has three potential policy options that could meet one or both of these goals. The first option is to relax present strictures in the command system. The government has recently introduced production quotas for private plots and curtailed private agricultural markets.[1] Although designed to increase agricultural supplies for state procurement agencies and to make peasants more self-sufficient, supply and demand theory predicts that the quantity of produce supplied will decline, because state procurement prices are considerably lower than private market prices. Directives have also been drafted to curtail energy use by forbidding individuals to run appliances. By removing these directives, encouraging production on peasants' private plots, and giving artisans greater freedom to provide services and household goods, the Romanian government could improve the quality of life without channeling state resources away from exports or investments.

A second option is to continue to try to squeeze more output out of workers while reducing consumption. This appears to be the policy of the Romanian government at present. Aside from the levies on private plots and attempts to reduce household use of energy, the government has implemented a new wage system in which managers and workers are paid by the task rather than by the hour.[2] In many factories, output is determined by the supply of inputs and parts, so most workers will be penalized for faulty supply decisions made by the center. Needless to say, these changes are probably unpopular with the general population. However, these strictures may allow the government to further reduce consumption, thereby releasing more goods for export and investment. If workers are too politically weak to resist, this policy may be effectively employed to service the hard currency debt.

Although not necessarily conducive to more rapid rates of output growth, a consistent, decentralizing economic reform could substan-

[1]Moore, 1984, p. 3.

[2]Moore, 1984, p. 4.

tially increase living standards and hard currency exports. However, reforms are unlikely to be adopted. The Romanian Communist Party has stressed the superiority of central planning over markets and has shown no inclination to change the economic system. Ceausescu has centralized political and economic power. Moreover, managers and economists have not been able to form an interest group that could push for coherent economic reforms.

Foreign Policy Options

In foreign policy Romania has two options that can affect its ability to service its debt. In scenario 3, the Soviet Union agrees to satisfy Romania's petroleum needs through exports sold for transferable rubles rather than dollars in exchange for Romania's agreement to follow Soviet foreign policy. There has been some talk that such an agreement would be reached in 1984, but the two sides have not come to terms.[3] Moreover, the Soviets are now making these imports more expensive for other members in the Bloc so the benefits of a rapprochement are declining.

The second foreign policy option is to continue to play the maverick in the CMEA. Romania's decision to attend the Los Angeles Olympics indicates the choice of the government is to uphold Romanian national interests abroad and generate Western support, which may be translated into subsidized credits. If this policy permits Romania to roll over 60 percent of its loans in 1985 and beyond, its benefits will be substantial, overshadowing in the short run the advantage of purchasing oil for transferable rubles.

A third foreign policy alternative, adopting nonaligned status and dropping out of the Bloc, would probably lead to direct Soviet intervention and is therefore infeasible.

WESTERN POLICY OPTIONS

Western governments have three policy goals in relation to Romania: (1) prompt payment of interest and principal due on the debt, (2) continuation of Romania's independent foreign policy in the Bloc, and (3) improved observance of human rights in Romania.

[3] *East-West*, 22 May 1984, p. 7.

Payment of Debt Service

A combination of Ceausescu's pride, the desire to reduce dependency on Western banks, and pressure from the IMF induced Romania to meet its debt service commitments and pay up its arrears in 1984. Despite the problems bankers had with the Romanian government before rescheduling, the process of sorting out Romania's debt problems has led to a resolution, whereas the Polish problem has still not been resolved. The IMF refused to disburse loans until Romania made up its financial arrears and began to work out its problems with its creditors. The shock of being dumped by its bankers also may have made the Romanian government more aware of the importance of living up to its obligations. Given past experience, Western policymakers may be well-advised to let the IMF and the banks continue to bear the burden of working with the Romanians on servicing their debts.

Although the IMF has been effective in pressuring the Romanians to pay their debts, it has not helped the Romanians minimize the cost of hard currency current account adjustment. The IMF program has concentrated on increases in relative energy prices, devaluation and unification of the exchange rate, and increasing capital charges. As pointed out by WEFA, these changes are necessary but not sufficient conditions for improving allocative efficiency in Romania.[4]

Romania continues to be a highly centralized command economy in which allocative decisions are determined through plan targets and ad hoc directives from the center. Enterprise managers are rewarded for meeting targets for output and exports, not for maximizing a synthetic indicator such as profits and value added. An important component of external adjustment is the reallocation of imports from domestic consumption to exports and the substitution of domestically produced goods for imports. The cost of adjustment is minimized when those imports are curtailed for which the least cost domestic substitutes are available and inputs are redirected to the most profitable exports.

The incentive system in Romania is poorly designed to induce managers to make decisions consistent with these goals. The changes the IMF have pushed are predicated on the assumption that Romanian enterprises will respond like firms in a market economy. Because the incentive systems are so different, these changes will probably elicit responses different from or far weaker than hoped. The IMF may be better off pushing for the relaxation of curbs on private production in agriculture and the service sector and for greater use of synthetic indicators for evaluating managers than to pursue specific changes in prices.

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[4]WEFA, March 1983, p. 126.

The IMF's failure to affect the operation of the domestic economy may have long run implications for Romania's ability to service its debt. Consumer discontent could break out in the form of strikes, such as those in the coal mines in 1977, or the country may have difficulty in increasing exports at a rapid enough rate to cover debt service.

Increasing Romanian Independence from the Soviet Union

Aside from repayment of the debt, some Western governments have an interest in fostering Romanian independence from the Soviet Union. Although a direct quid pro quo probably could not exist, even partial rescheduling of Western loans would be of considerable benefit to the Romanians, if the assumptions of the second scenario hold true. Because commercial banks are still reluctant to lend to the Romanians, extension of official export credits could ease Romania's way back into international financial markets and lessen the immediate burden of servicing its debt.

New loans to Romania need not be beneficial, however. Loans for the development of the Olcit automobile in cooperation with Citroen and the BAC-11 airliner with British Aerospace probably have been more of a burden than a benefit to Romania. Neither of the two products is being produced profitably, leaving Romania with substantial debts but without the means to repay them. Thus Western governments and banks could be doing both themselves and Romania a service by independently assessing projects to be financed.

Improving Human Rights

Both the United States and West Germany have expressed concerns over human rights violations in Romania. U.S. reluctance to renew most favored nation status and a West German refusal to take part in rescheduling discussions have been credited with forcing the Romanian government to repeal an education tax on emigrants.[5] Despite these limited successes, credit policies alone are unlikely to affect this area, considering the general disregard for human rights in Romania.

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[5]WEFA, September 1983, p. 114.

XI. CONCLUSIONS

ECONOMIC OUTLOOK

Creditworthiness

According to the scenarios projected for these three countries, East European debt problems are far from over. Poland fails to restore its creditworthiness, and Hungary and Romania both face difficult obstacles as they attempt to meet their debt obligations. Of the three countries, at present only Hungary retains international creditworthiness; Romania and Poland have already forced their creditors to reschedule their loans. Paradoxically, this makes Hungary the most vulnerable to its creditors. If international banks withdraw their deposits and refuse to roll over short term loans, Hungary would probably request a rescheduling, thereby severely damaging its creditworthiness. Because the banks have already withdrawn what money they can from Poland and Romania, the financial reputations of these two countries can only improve. A summary of the projections was given in Table S.1.

To some extent Romania has the lightest debt burden of the three countries. Debt export ratios are slightly higher than Hungary's between 1984 and 1986, but thereafter rapidly fall below Hungarian levels. Yet Romania is projected to bear the heaviest burden in terms of servicing the debt. In the initial scenarios net debt service is substantially greater in relation to expected imports than it is for Poland or Hungary, mainly because Romania is assumed to be unable to roll over debt coming due. Romania has poor relations with international banks; the country's treatment of its creditors before rescheduling in 1982 destroyed its international financial reputation. The banks' response to Romanian financial behavior indicates that forcing creditors to reschedule can impose heavy financial penalties on the borrowers.

Output and Consumption

Formal output projections were made only for Poland and Hungary; no model was constructed for Romania because data were lacking on hard currency imports in constant prices and the capital stock and output series were of poor quality. The model for Hungary projected slow

to moderate growth. Rates of increase in NMP were generally two-thirds the level of the 1970s.

Polish growth rates were higher than those of Hungary; in some scenarios they averaged more than 5 percent per year. However, even then Polish output failed to regain its previous 1978 peak until 1987 or later. Polish utilized national income projections were even more depressing. In some scenarios per capita levels failed to regain 1978 levels even by 1989.

Although no formal projections were made for Romania, the country's debt burden indicates the next few years will probably show low growth in contrast to the very rapid rates of increase recorded in the 1960s and 1970s. Output increments will have to go to exports, not investment; and imports, especially of investment goods, will continue to be restrained. Although limitations on capacity to absorb new investment and labor shortages probably would have led to a decline in growth rates in the absence of balance of payments problems, import cuts have caused a much more rapid deceleration.

EAST EUROPEAN POLICY OPTIONS

Policymakers in all three countries face a difficult problem. They wish to increase living standards, but they also need to service their hard currency debt. They recognize there is a tradeoff between these goals.

Default

One possible solution to this problem would be for these countries to default on their debts. In a de facto rather than de jure sense, this was the strategy Romania and Poland adopted in 1982. To this point this strategy has worked well for Poland. Bankers have agreed to reschedule loans on good terms (95 percent of principal and 65 percent of interest in 1983), and Western governments have not declared Poland in default despite its refusal to make any interest or principal payments on guaranteed loans.

Romania's experience has been less fortunate. Despite eventually reaching a rescheduling agreement with its bankers, it followed rather than forestalled a precipitous reduction in imports due to a credit cut-off that led to declines in Romanian output and consumption in 1981 and 1982. Hungary, despite debt problems of roughly the same magnitude as Romania's, managed to forestall a rescheduling in 1982. The difference in the effect on consumption and output levels has been

dramatic. The Hungarians were able to reduce imports gradually and thereby protect living standards. Disruptions in industrial output have occurred, but on a far smaller scale than in Romania; and efficiency losses have been correspondingly smaller. Although systemic differences played a role in cushioning the effect of import curbs in Hungary, continued access to credit in Hungary's case versus a cutoff for Romania was probably the crucial difference in the cost of adjustment for the two countries.

Poland has probably found the benefits of rescheduling to be greater than Romania, because its debt problems have been so much more severe. It owes roughly $26 billion in hard currency; Romania's debt totals $8.9 billion. Poland recorded hard currency exports of roughly $5400 million in 1983, and Romania managed to export $6250 million. Therefore, bankers had less money out to Romania than to Poland and could take a harder line in negotiating, because the alternative to rescheduling, writing off the loans, was potentially less damaging and Poland's wherewithal for servicing the debt was so limited. Second, Romania handled its debt problems very badly. The country used up all its goodwill with its bankers. Bankers say the Poles have adhered to rescheduling agreements and have negotiated in good faith during rescheduling sessions, thereby somewhat improving their low standing in international financial circles. Romania has preferred to service its hard currency debts in 1984, despite the continued stress on the economy, rather than plead for another rescheduling.

Although Poland has signed a series of rescheduling agreements with Western banks, it continues a moratorium on debt service payments on loans guaranteed or granted by Western governments. The Poles and Western governments resumed negotiations on this debt in the fall of 1983. Eventually, the Poles may have the choice of repudiating their debts or making at least some payments.

What will be the incentives for not repudiating the debt when the prospect of restoring creditworthiness will still be so remote? First, the Polish economy, like that of Romania and Hungary, is integrated into the world economy. Poland depends on imports for many components, parts, and raw materials to keep its industrial plant operating. Second, despite the importance ascribed to coal and other raw materials in Polish exports, more than 50 percent of hard currency exports consist of manufactures. Thus the economy is very sensitive to the supply of international credits and access to export markets. Debt repudiation would exclude Poland from international financial markets and reduce access to export markets. The country had a taste of this when it shut down communications after the imposition of martial law and found trade severely curtailed as a result.

As long as commercial banks are happy to do business with Poland, and Western governments are unwilling or unable to make formal default a credible option, Polish incentives for reaching a rescheduling agreement with Western governments are confined to improving political relations with Western governments, restoring part of its financial credibility, gaining membership in the IMF and promises of new credits, preferably subsidized. The length of present negotiations implies that the marginal benefit of the former has yet to outweigh the costs of the increases in debt service.

Whose side is time on? The moratorium scenario indicates that if Poland intends eventually to repay its loans, the costs of the moratorium may soon outweigh the benefits as debt arrears pile up. Also if its relations with Western governments are to improve, the problem of guaranteed debt will eventually have to be solved. Western governments offered very generous rescheduling terms (90 percent of both principal and interest) in 1981, so Poland may soon find it advantageous to strike a deal.

Reform or Not to Reform

Because default does not appear to be in the cards, how have these countries dealt with the tradeoff between output and debt service? Poland and Hungary have taken the route of economic liberalization. This choice has been made because of, not in spite of, balance of payments pressures. Past economic reforms in Eastern Europe have resulted from economic stress. Slowdowns or declines in growth, domestic upheavals in part due to low levels of consumption, and balance of payments crises have been the usual predecessors of economic liberalization. The current changes in Hungary and Poland are no exceptions. In both countries the leadership perceives the reforms as the only way to resolve the balance of payments crises and generate economic growth. Given the assumptions under which the projections of the reform scenario were made, the perception is correct; reforms are the only reasonable solution.

The reform scenarios are presented as ancillary to the base cases primarily because these governments have had limited success with reforms in the past. Although economic crisis provides the impetus for liberalization, it also provides a rationale for recentralizing decision-making. Both of these characteristics can be found in the Polish and Hungarian reforms. Balance of payments pressures led to a very strict regime of import quotas in Hungary while central intervention in enterprise affairs was being diminished. In Poland the introduction of enterprise independence in management was followed by central

allocation of hard currency imports and many intermediate goods. To some extent the authorities have taken with one hand what they have given with the other.

Of the two countries, Hungary has much the more coherent policy toward economic liberalization. The question Hungarian policymakers must answer is how fast market forces are to replace central directives and to what extent. Whether market forces should gain greater sway has already been answered affirmatively.

In Poland the reform is still a muddle. Whether market forces are to be allowed greater sway and whether managers will be rewarded on the basis of profits rather than other criteria are still pertinent questions. The price system is irrational; the government uses price controls on luxury goods, while financing by the printing press deficits partly caused by subsidizing loss-making enterprises. Excess demand is still a major problem after four years of recession.

In Romania the balance of payments crisis has had little effect on the economic system, and under the present Romanian leadership is unlikely to do so in the future. Although the government has put through changes in relative energy prices and in exchange and interest rates, in fulfillment of agreements with the IMF, the incentive system is unchanged. Output and export targets remain of greatest importance for managers, not profitability, and economic decisionmaking continues to be highly centralized. In such a system there are few incentives or guides for managers to adjust their input and output mixes efficiently in light of balance of payments pressures. Consequently, Romania will probably continue to pay a high price domestically for external balance.

Closer Integration with the CMEA

"Closer Integration with the CMEA" has been a perennial slogan in Eastern Europe since the early 1960s. Trade sections of five-year and annual plans usually call for increased trade and integration with the other members of the group. Of the three countries analyzed in this report, each has a very different approach to economic integration. Scenarios for the three countries varied accordingly.

Since martial law was declared in Poland, the Jaruzelski regime has espoused the idea of greater integration. Its success has been mixed. In 1983 exports in constant prices to nonsocialist countries grew more rapidly than to the Bloc; current plans envision a continuation of this. In fact, Poland conducts a higher proportion of its total trade with the West now than it did in the late 1970s. Financial help from the rest of

the Bloc, with the exception of the Soviet Union, has been nonexistent; and Soviet help has diminished markedly over the past few years.

Jaruzelski's dreams for expanding CMEA cooperation have failed, because to generate the hard currency they need to service their own debts and obtain needed imports, his partners have had to export to the West the products Poland needs. Furthermore, the CMEA countries have at most limited capacity to produce the components, raw materials, and machinery Poland needs to keep its industrial plant operating. These products can often be purchased only in the West, so Poland has been forced to focus its attentions on Western export markets. Poland's debt service burdens have also compelled it to push hard currency exports, rather than exports to other CMEA countries. For these reasons no scenario was developed in which Polish-CMEA trade expands rapidly to the benefit of the Polish economy. In the "no Soviet trade deficit" scenario Poland suffers little harm from being forced to close its trade deficit with the Soviet Union.

In Hungary the leadership has espoused an even-handed trading policy. Trade with the West has risen, but relations with CMEA partners have also been maintained. CMEA trade as it is currently conducted, however, is considered a hindrance rather than a help in solving Hungary's financial problems and improving the functioning of the economy. Because CMEA customers are more easily satisfied than their Western counterparts, they fail to provide Hungarian enterprises with the competitive demands they need to improve performance. The unreliability of CMEA deliveries, the lower quality of CMEA inputs, and CMEA demands that orders be submitted over a year ahead of time make it very difficult for Hungarian enterprises using these inputs to respond quickly to the market, lessen inventories, and operate at more efficient levels. Greater integration into the CMEA in its present form would run counter to the Hungarian government's push to make enterprises more responsive to the market and more efficient.

Romania has taken the most anti-CMEA stance of any member country. The leadership has consciously attempted to redirect trade away from the organization to other markets since the early 1960s. This policy has been successful. Romania conducts a smaller share of its total trade with the CMEA than any other member country. Paradoxically, Romania is one country that could benefit from the expansion of one aspect of CMEA trade enjoyed by Poland and Hungary: access to petroleum priced in transferable rubles. As shown in the "Soviet Oil" scenario, such a change would benefit Romania, because the real cost of purchasing oil for transferable rubles in terms of the quantity of manufactures exported would be far less than to purchase it for dollars. Thus, the only country that could obtain benefits from

closer integration with the CMEA is the one that has taken the most antagonistic stand to the organization.

WESTERN POLICY OPTIONS

Eastern Europe's current economic difficulties present both quandaries and opportunities for Western policymakers. Ensuring the prompt payment of debt service presents policymakers with a headache, as both Poland and Romania have not met past obligations. The ability to extend or withhold new credits, however, ought to provide policymakers with an effective instrument in their dealings with East European governments. The ability of credit policies to affect East European policies will be discussed below for three goals: repayment of credits, increasing East European independence from the Soviet Union, and military spending.

Repayment of Credits

Poland and Romania have forced their creditors to reschedule, and Poland has continued to refuse to pay interest and principal due to Western governments, which would naturally like to get their money back. The question is how.

One option is to withdraw from Eastern Europe. In that case Western governments and possibly banks would refuse to roll over loans coming due, withdraw deposits from East European banks, and thereby retreat from the area. This policy would force Hungary to default on its loans and would put severe pressure on Romania's economy. Its effect on Poland would be nil, because Western governments have already implemented these measures.

A second option is a partial rollover of East European debt. As shown in the last Romanian scenario, that country's economic position would become much easier. If Hungary is to remain solvent, it has to induce its creditors to follow such a policy. For Western governments and banks, this policy has the advantage of at least partial receipt of the debt owed now while improving prospects of further repayment as debt levels become more manageable.

A third option is to advance "new" money to these countries—increase net debt. The Polish government is arguing for new money as the price for its acquiescence to a rescheduling of its 1982 and 1983 loans. Although the Romanians and to some degree the Hungarians eschew this policy alternative, this decision may be more one of necessity than virtue, because the two countries would find it difficult to

obtain large new loans on international financial markets. Past Western experiences with this policy have been unhappy ones. All three countries have used long term commercial loans to finance imports of industrial inputs and raw materials as well as capital goods, which could generate the exports needed to pay off the loans in the future. Poland and Romania have used export credits to finance such ill-thought out projects as Berliet bus production in Poland and the Olcit automobile project in Romania. Hence confidence in their ability to use new money productively is low. According to the assumptions of the reconciliation scenario, however, Poland could benefit substantially from an infusion of new credits, if the new money were used to spur hard currency export production. Such an infusion could be beneficial to Poland's ability to service its debt, but the policy would have to be considered high risk.

Because all three countries permit limited forms of foreign investment, Western governments could pressure these countries to seek new money in the form of equity rather than loans. Poland has half-heartedly pursued this option by encouraging investment by foreign citizens of Polish origin. Limitations on repatriation of profits and the size of the companies have kept investment inflows small, however. Hungary has recently created free trade zones to encourage foreign investment, but few companies have responded.

These governments could also be encouraged to convert loans into equity, although this suggestion is unlikely to be accepted. Poland especially would benefit if some of the mammoth investment projects financed by foreign credits were turned over to Western creditors in lieu of loan repayments. Many of these projects (the Ursus Tractor Factory, Huta Katowice, the RCA-Corning Glass color picture tube project, for example) are either incomplete or operating far below capacity. Western creditors may be able to provide better management and better utilize these plants than the Poles. This ploy could simultaneously reduce Polish debt and increase output and hard currency exports.

Fostering East European Independence from the Soviet Union

Yugoslavia probably epitomizes the policies that the West would prefer to see in Eastern Europe: a nonaligned foreign policy and an economic system that differs sharply from the Soviet model. Hungary and Romania represent two different types of possible independence in the Bloc. Hungary has constructed an economic system markedly dif-

ferent from the Soviet model. Romania has adopted an independent foreign policy that often involves decisions flouting Moscow's wishes.

Western credit and economic policies have had some influence on the ability of these two countries and also of Poland to pursue an independent course. Part of the rationale for providing credits to Eastern Europe in the 1970s was to increase their economic integration with the West and thereby reduce their economic and political dependence on the Soviet Union. Western credits enabled Romania and Poland especially to finance purchases of equipment and plant, permitting them to industrialize rapidly.

To some extent this policy worked. All three countries rapidly increased trade with the West and have integrated their economies more closely into the world economy. The large volume of trade conducted with the West was financed by short term credits; all three countries became very vulnerable to sudden cutoffs in credit in terms of both financing imports and servicing their hard currency debt. They also became more vulnerable to increases in interest rates and declines in aggregate demand on major export markets.

Increased vulnerability has not appeared to have made credit availability a very effective foreign policy instrument for increasing independence. Poland, which was the most vulnerable, has retreated into the Bloc. Romanian foreign policy independence was pursued for domestic reasons, rather than because of Western credit policies, although the decision to attend the Los Angeles Olympics may have been made with an eye to ensuring most favored nation status and better access to government-guaranteed credits. In Hungary an informal quid pro quo between the 1982 Western bailout and policies favoring increased ties with the West may exist, but support of Soviet policies remains the keynote of Hungarian foreign policy.

In a limited fashion, Western credit policies may have helped create a climate in which more independent foreign or economic policies can be pursued in Eastern Europe, but East European governments still operate within the context of continued subservience to the Soviet Union. Although Czechoslovakia and Bulgaria have chosen not to exploit the environment to become more independent, at one time or another Poland, Hungary, and Romania have. Has the cost of these credits to the West been worth the incremental increases in East European independence?

Western credit policy costs have come in two forms: guaranteed credits subsidized by Western governments and losses caused by reschedulings or default. The bulk of loan guarantees to the Soviet Bloc have gone to the Soviet Union and Poland. Romania has also benefited from subsidized credits. To the extent these subsidies

encouraged Poland to adopt the more relaxed domestic and foreign policies that characterized the 1970s and early 1980s, the return on these subsidies was probably high. The same probably holds true for the benefits the West derives from Romanian foreign policy independence. Easier access to Western credits permitted these governments to buy off their populations, however, and thereby refrain from economic liberalization rather than encouraging reform, which runs counter to Western interests.

If one adds the cost of rescheduling, the present refusal of Poland to service its guaranteed debt, and the imposition of martial law in Poland, the calculus swings the other way. Western governments have lent far too much money to Poland, and the political return since martial law has been zero.

The size of the increment in independence does not correspond to increases in the price paid. Extension of moderate amounts of guaranteed credits may contribute to an improvement in the climate for independence, but permitting these countries to overborrow is counterproductive. The Soviet Union sets the limits on policies of independence in this region. Western credits will not change this situation.

DEFENSE SPENDING

Because of the close connection between the financial health of these countries and their economic well-being, it is logical to think that an extension can be made to military expenditures. This extension was made for Poland and Hungary by projecting military expenditures using output projections partially determined by import levels. The projections indicate military expenditures in both countries will be 20–40 percent more per year in 1989 than in 1980.

Projections for both countries indicate that a greater share of the military budget will be available for operations, maintenance, and procurement than in the 1970s. This conclusion could be caused by underestimation of personnel expenditures due to underreporting of increases in the cost of living. Changes in the prices of military equipment due to price reforms or increased charges for imports could also have biased the calculations. Given the very large nominal increases in the Polish defense budget and the rise in Hungary's figures, a closer examination of reported defense costs would be worthwhile.

Stagnation of utilized national income due to East Europe's hard currency balance of payments problems has not had the same effect on the share of output devoted to defense in the three countries. Poland has increased its military expenditures since its economy began to

decline. The Romanian government claims it has reduced expenditures, and the Hungarians report military expenditures take much the same share of national expenditures that they did during the 1970s. If better relations between Poland and the West were to be followed by a reduction in the share of UNI devoted to defense to 1978 levels, projections of Polish military spending would fall by a third.

Appendix A

CREDITWORTHINESS ASSUMPTIONS FOR POLAND

HARD CURRENCY EXPORTS

Coal Exports

Because of the importance of coal exports to Poland, hard currency exports are divided into coal and noncoal exports. As Poland's recent success in recovering the markets it lost in the Solidarity period attests, exports of coal are constrained by supply-side factors such as mine capacity and the length of the workweek, not by demand.

These capacity limits in the production of coal have been revealed by the production levels reached in 1982 and 1983 (roughly 190 million tons). Coal output is assumed to stagnate at this level between 1983 and 1985, so export growth will depend on substituting other domestic energy sources, mainly lignite, for hard coal. Although some increases in capacity are planned between 1985 and 1990, the increased output will probably go to domestic consumption, not hard currency exports. The 1984 estimates of coal exports to hard currency areas were those of the Polish Ministry of Mining and Power (22.5 million tons). Estimates for later years were 26 million tons.[1] The Polish authorities have speculated that hard currency coal exports could reach 28 million tons in the 1980s, but past performance indicates that the more conservative estimate is the more probable one.

The Polish authorities price Polish coal at slightly below the delivery cost of U.S. coal to Europe. For this reason estimates of U.S. coal export prices to Europe based on delivery prices to U.S. industrial customers were used to project Polish prices for 1985 and beyond.[2] The

[1] *The Journal of Commerce*, 29 March 1984.

[2] EIA (1983, p. 131) U.S. coal price estimates were given in dollars per million BTUs. Estimates were made using the following equation: Polish price = U.S. price × 25.06 × 1.102311 + 8, where 25.06 is the number of million BTUs per short ton of coal, 1.102311 is the conversion factor from short tons to metric tons, and 8 is the average cost of shipping a ton of coal to Europe from the United States. (BTU conversion factors from EIA, 1983, p. 239; transportation costs from International Energy Agency, 1982a, p. 157.)

average of Poland's actual 1983 prices and the price estimate for 1985 was used for the 1984 estimate.

Noncoal Hard Currency Exports

Noncoal hard currency exports were assumed to be demand determined. The declines in noncoal hard currency exports experienced in 1981 and 1982 are unquestionably partially due to supply-side constraints, especially shortages of hard currency imports.[3] These constraints are incorporated into the projection by choosing 1983 hard currency exports as a base. The low level of hard currency exports in that year is assumed to capture supply-side constraints. Increases from this base are assumed to be determined by the income elasticity of demand for Polish exports of market economies. This elasticity measure was calculated by regressing logged real nonsocialist Polish exports[4] on logged market economy GDP.[5] The series runs from 1960 to 1979. The estimated equation used in the export projections is:

$$\log(\text{Hard Currency Exports}) = \underset{(-22.2)}{-4.11} + \underset{(44.7)}{1.88} \times \log(\text{GDP}) \quad \text{(A.1)}$$

t statistics are given in parentheses. A first order autoregressive process was assumed.

The elasticity estimate suffers from the inclusion of Polish coal exports and the exclusion of a variable for price differentials between Polish exports and domestic prices in the market economies. Poland can be characterized as a price taker on hard currency export markets and the composition of Polish hard currency exports is somewhat similar to the composition of all imports of market economies, so the exclusion of the price term may not be of importance.

Estimates of market economy demand for Polish exports were then calculated using this elasticity measure and estimates for increases in market economy GDP. Increases in OECD GDP for 1984–1985 were taken from the March 1983 issue of *OECD Economic Outlook*. GDP projections from the International Energy Agency, an OECD agency, were used for both developing market economies and post-1985 OECD growth rates.[6] Growth rates for developing countries and the OECD

[3]Olechowski, 1982, p. 20.

[4]*RS*, various years; and *RSHZ*, 1982, p. 5.

[5]United Nations, 1980, p. 391.

[6]International Energy Agency, 1982b, pp. 23, 160.

were weighted in the Polish export demand function by their average share in Polish exports between 1975 and 1982.[7]

Estimates for coal and noncoal hard currency exports are in real terms, so these figures had to be converted to nominal amounts. This was done with estimates of U.S. import price deflators for 1983 and 1984.[8] Because Polish exports and imports are somewhat similar in composition to U.S. reverse flows and are denominated in dollars, U.S. import price deflators were deemed to be the best proxy available. U.S. GNP deflators were used from 1985 to the end of the period for lack of a better measure.[9]

NET SERVICES AND TRANSFERS

Net services were calculated excluding interest. Poland generally runs a surplus in payments for transportation and in tourism. Transfers from Polish citizens or relatives of Polish citizens living abroad also provide Poland with an inflow of hard currency. Official Polish government estimates of net services in hard currency were available in nominal terms for the 1984–1985 period. The figure for 1985, inflated with the price inflator for hard currency exports, was used for the 1986–1989 period.

POLISH NONCOMPRESSIBLE IMPORTS

Noncompressible imports were split into nonagricultural (industrial) and agricultural imports. The decline in Polish output between 1979 and 1982 provided a test of the noncompressible level of hard currency imports. Some level between those of 1979 and 1980 equals the level necessary to keep the economy operating at close to capacity. In 1979 the economy was operating at close to capacity, but imports of investment goods continued to be significant. Therefore imports in this year were probably above the noncompressible level. In 1980 the Polish authorities attempted to reduce hard currency imports to the lowest level consistent with trying to maintain industrial output and dampen civil unrest. NMP and industrial output declined considerably in that year, 6.0 percent and 4.1 percent, respectively.[10] Cuts had apparently been made in noncompressible hard currency imports. Because much

[7]*RSHZ*, 1982, p. 4.
[8]OECD, 1983, p. 128.
[9]EIA, 1982, p. 30.
[10]*RS*, 1981, p. 70.

of the fall in output in 1980 was due to declines in construction and agriculture, however, and decreases in industrial output were primarily due to a fall in output of the extractive industries (decreases not directly attributable to reductions in hard currency import levels), the 1980 level of imports is probably a good, if conservative, estimate of noncompressible industrial imports.

Agricultural imports are generally considered to be noncompressible. In the case of Poland, however, agricultural imports have borne the brunt of reductions in Polish hard currency imports since 1981.[11] Therefore, they are assumed to be partially compressible. Noncompressible agricultural imports were computed in the following manner: Agricultural imports that do not have domestically produced substitutes were considered noncompressible; these are included in the 1980 base, calculated for industrial hard currency imports. Imports of meat, sugar, and dairy products are considered compressible and are excluded from the calculations.

Grain and soybean imports were considered to be partly noncompressible so these are dealt with separately. Unofficial U.S. Department of Agriculture projections of Polish soybean and grain imports; U.S. domestic corn, wheat, and soybean prices; and transportation costs to Poland for 1983–89 were used to compute noncompressible import levels of these products. Projections of Polish hard currency expenditures on grain and soybeans based on these data were then inflated by the export price deflator and then added to other noncompressible imports.

DEBT SERVICE

Interest

Debt service is composed of interest payments plus principal due. Because Polish debt is denominated in a variety of currencies, and loans have been made at several different interest rates, projections of interest due will fluctuate greatly depending on assumptions concerning interest rates in the lending countries and the rate of exchange among the various currencies. To avoid the problem of currency fluctuations, interest is calculated as if all loans were in dollars and granted at a single rate. International trade theory suggests that over the long run the real rate of return on assets of similar risk in two different currencies ought to be the same, so this is a plausible assumption.

[11]Declines in Polish hard currency imports in the 1976–1981 period were almost exclusively confined to investment goods.

As a larger and larger share of the unguaranteed loans has been rescheduled, differences in interest rates have diminished on these loans. At present the bulk of these loans carry interest rates of 1-3/4 or 1-7/8 above LIBOR. Consequently, the simplifying assumption was made that all unguaranteed debt carries interest charges of 1-3/4 percent above LIBOR, the rate specified in the 1984 rescheduling. Unfortunately, a series for LIBOR interest rate projections consistent with other projections used in the estimation of exports was not available. A series for U.S. AAA corporate bonds was used in its stead under the assumption that Eurodollar rates must closely follow U.S. domestic rates.[12]

Guaranteed loans posed a more difficult problem. These are frequently offered in the currency of the country granting the guarantee and below market rates. In this instance estimates of rates on loans granted by the United States Commodity Credit Corporation, a major source of guaranteed U.S. loans, were used as a proxy for rates on guaranteed loans.[13] Soviet, Western guaranteed, and third world loans to Poland were assumed to be granted at these rates.

Amortization

Official Polish data were used for repayments of principal. These schedules had to be corrected for delayed payments and unpaid principal. Late interest and principal on Western guaranteed loans and loans by the Soviet Union and the third world are assumed to be paid in 1984 with the addition of interest for the period during which the payments were late. However, repayment is assumed to take place only following an agreement to reschedule both interest and principal according to the pattern of past rescheduling agreements—90 percent of both principal and interest with a five-year grace period. Principal from these reschedulings has been added to the official repayment schedule to calculate principal payments in 1989, the first year when it would fall due.

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[12]EIA, 1982, p. 30.

[13]These estimates were based on the projections of AAA bond rates cited above (EIA, 1982, p. 30). Commodity Credit Corporation loans are granted at rates .25 percent above the treasury bill rate (information provided by the Commodity Credit Corporation) and treasury bill rates are assumed to be .5 percent lower than AAA bond rates (based on the average differential between 1980 and 1982—IMF, 1983, p. 47), so rates on guaranteed Polish debt are assumed to be .25 percent lower than the projections for AAA bond rates.

LOANS

As principal comes due it is assumed that it is rescheduled according to the terms of the Paris agreement in the case of guaranteed and non-Western loans and the 1983 rescheduling agreement between Western banks and the Polish government for unguaranteed Western loans.[14] Aside from rescheduling, no new money is assumed to be available to the Poles. Because the Polish government has set itself the goal of covering its interest payments by export earnings by 1986, interest is assumed to be partly rescheduled only through 1985; after 1985 Poland is assumed to reschedule principal only.

HARD CURRENCY DEBT

Net hard currency debt was calculated using official Polish figures plus late payments on interest and principal owed to Western governments.[15] Interest on these late payments is capitalized and added to net debt. Changes in net debt after 1982 are due to repayments and recycled funds made available through rescheduling.

Poland's debt is denominated in several currencies with dollar liabilities accounting for about two-thirds of the total. A depreciation of the dollar, very likely in 1985 and 1986, would cause total debt to rise in dollar terms. This would be offset by an increase in the value of Poland's hard currency exports, many of which are denominated in Deutschmarks. Because of the enormous problems of projecting currency movements, changes in the dollar values of debt and exports were assumed to roughly offset each other.

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[14]The Paris agreement calls for a 90 percent rescheduling of interest and principal due. The 1983 agreement between Western banks and Poland calls for 95 percent rescheduling of principal and 65 percent rescheduling of interest. Principal reschedulings come with a five-year grace period.

[15]*RS*, 1983.

Table A.1

POLISH NONCOMPRESSIBLE IMPORTS, EXPORTS, AND DEBT DATA: INITIAL SCENARIO

Year	Import Price Deflator	Corn Prices $	Wheat Prices $	Soymeal Prices (short tons)	Soymeal Imports (million metric tons)	Soymeal Prices (metric tons)	Nongrain Hard Currency Imports	Grain Import Projections	Noncompressible Imports
1984	1.035	110	160	200	0.85	211.44	7855.6	3.0	8485.4
1985	1.055	115	155	200	0.85	211.44	8287.7	3.0	8908.4
1986	1.059	120	155	200	0.85	211.44	8776.7	3.0	9400.4
1987	1.066	125	160	205	0.90	215.97	9355.9	3.1	10024.6
1988	1.071	130	165	210	0.95	220.51	10020.2	3.2	10735.3
1989	1.070	135	170	220	1.00	229.58	10721.6	3.3	11489.1

Year	Hard Currency Coal Exports (metric tons)	Coal Export Prices	Hard Currency Coal Exports	Projected OECD Growth Rates	Projected Third World Growth Rates	Export Price Deflator	Balance On Services	Noncoal Hard Currency Exports	Nominal Hard Currency Earnings
1984	22.5	58.6	1351.46	.0325	.047	1.025	400	4733.6	6485.0
1985	26.0	66.0	1855.64	.0320	.047	1.055	400	5331.9	7587.5
1986	26.0	66.8	1988.94	.0320	.047	1.059	420	6028.7	8437.6
1987	26.0	67.7	2148.78	.0320	.047	1.066	450	6861.5	9460.3
1988	26.0	68.8	2338.73	.0320	.047	1.071	480	7846.1	10664.8
1989	26.0	70.2	2553.37	.0320	.047	1.070	520	8963.5	12036.9

Year	US AAA Bond Rate	Debt	Total Interest	Principal Payments	Relent Interest	New Loans	Expected Imports with Rescheduling	Net Compressible Import Capacity
1984	.104	27424.6	2747.7	14584	2270.86	13164.3	4588.49	-3896.9
1985	.103	29654.0	2898.9	2003	2394.00	1837.0	6916.60	-1991.8
1986	.104	29470.8	3163.1	2369	0.00	2185.8	5091.31	-4309.1
1987	.104	29321.9	3143.5	2094	0.00	1945.0	6167.88	-3856.7
1988	.104	29171.2	3127.2	2047	0.00	1896.3	7387.02	-3348.3
1989	.101	28712.9	3023.3	4981	0.00	4522.6	8555.29	-2933.8

Table A.2

POLISH HARD CURRENCY EXPORT AND DEBT DATA: REFORM, NO SOVIET DEFICIT, AND RECONCILIATION SCENARIOS

Reform Scenario

Year	Percentage Increases in Real Nonsocialist Exports	Nominal Export Projections	Nominal Hard Currency Earnings	Net Compressible Import Capacity	Expected Imports with Rescheduling
1984	1.126	6232.4	6632.4	-3749.5	4735.9
1985	1.126	7403.7	7803.7	-1775.7	7132.7
1986	1.126	8828.4	9248.4	-3498.3	5902.1
1987	1.126	10596.9	11046.9	-2270.2	7754.4
1988	1.126	12779.2	13259.2	-753.9	9981.4
1989	1.126	15396.7	15916.7	945.9	12435.1

No Soviet Trade Deficit Scenario

Year	Increase in Ruble Exports (millions of rubles)	Nominal Hard Currency Earnings	Net Compressible Import Capacity	Expected Imports with Rescheduling
1984	0	6485.0	-3896.9	4588.49
1985	375	7410.4	-2169.0	6739.48
1986	375	8260.5	-4486.2	4914.19
1987	375	9283.2	-4033.9	5990.76
1988	375	10487.7	-3525.4	7209.90
1989	375	11859.8	-3110.9	8378.18

Polish Noncompressible Imports, Exports, and Debt Data, Reconciliation Scenario

Year	Increases in Real Hard Currency Exports	Nominal Hard Currency Export Earnings	Debt	Debt Service Payments	Principal Payments	Interest	Relent Interest	New Loans	Net Compressible Import Capacity	Expected Imports
1984	16.8	6383.3	27424.6	17330	14584	2747.7	2271	13164.3	-3998.6	4486.81
1985	8.1	7772.9	32555.8	4900	2003	2898.9	2394	3637.0	-6.5	8901.96
1986	8.1	8860.3	32372.6	5830	2369	3457.7	0	2185.8	-4180.9	5219.51
1987	8.1	10176.2	32223.7	5530	2094	3438.0	0	1945.0	-3435.4	6589.23
1988	8.1	11740.5	32073.0	5470	2047	3421.7	0	1896.3	-2567.1	8168.18
1989	8.1	13544.7	31614.7	8290	4981	3309.1	0	4522.6	-1711.9	9777.25

Table A.3

POLISH NONCOMPRESSIBLE IMPORTS, EXPORTS, AND DEBT DATA: MORATORIUM AND DEFAULT SCENARIOS

Moratorium Scenario

Year	Nominal Hard Currency Export Earnings	Debt	Principal Payments	Interest Paid	Relent Interest	New Loans	Net Compressible Import Capacity	Expected Imports
1984	6485.0	27623.0	5676	1536.99	1181.23	5147.10	−2885.0	5600.36
1985	7587.5	30071.0	1303	1598.45	1223.55	1207.00	−1791.8	7116.65
1986	8437.6	31447.2	1452	1737.88	0.00	1360.55	−2792.1	6608.28
1987	9460.3	32971.6	1526	1727.52	0.00	1433.85	−2384.0	7640.64
1988	10664.8	34656.7	1496	1716.96	0.00	1400.45	−1883.0	8852.32
1989	12036.9	34485.0	2114	3563.59	0.00	1942.35	−3187.4	8301.67

Default Scenario

Year	Nominal Hard Currency Export Earnings	Debt	Principal Payments Owed	Interest Owed	Relent Interest	New Loans	Net Compressible Import Capacity	Expected Imports
1984	4076.96	28507.7	14584	2747.68	0	0	−4408.4	4076.96
1985	4815.65	31521.9	2003	3014.23	0	0	−4092.8	4815.65
1986	5371.80	34888.6	2369	3366.66	0	0	−4028.6	5371.80
1987	6036.91	38617.2	2094	3728.69	0	0	−3987.7	6036.91
1988	6823.83	42747.2	2047	4129.93	0	0	−3911.5	6823.83
1989	7716.33	47193.6	4981	4446.42	0	0	−8219.2	3269.91

Appendix B

MODELING THE POLISH ECONOMY

CONSTRUCTION OF THE MODEL

One purpose of this report is to project the effect of Polish balance of payments problems on output and consumption. To make these projections a small model of the Polish economy was constructed using time series covering the various components of net material product.

The model was kept simple to permit easy tracing of the effects of balance of payments pressures. NMP was broken into its constituents: industry (IO), transportation and communications (TRANS), trade (TRADE), agriculture (AGRI), forestry (FOR), construction (CON), and other contributing sectors (OTH), primarily government services. Annual net output projections were made for each of these sectors in constant (1977) zlotys and then summed to compute NMP. Utilized national income was calculated by subtracting net exports, dollar (NED) and ruble (NER), converted into 1977 domestic zlotys, from NMP.

$$NMP = IO + TRANS + TRADE + AGRI + FOR + CON + OTHER$$

$$UNI = NMP - NED - NER$$

Industrial Output

Industrial output was assumed to be a function of labor (manhours worked), capital, hard currency imports, and time.[1] The equation for industrial output was estimated by regressing the logged contribution of industry to NMP in zlotys on these four independent variables for the years 1960 to 1980. The production function was assumed to exhibit constant returns to scale, so the coefficients were constrained to equal one. The parameter estimates are given in Eq. (B.1); t values are in parentheses.

[1]Some thought was given to including ruble imports but initial estimates of the coefficient on ruble imports were insignificantly different from zero. This may not be too surprising considering that a substantial share of increases in ruble imports is machinery, which may be of little value to the Polish economy.

$$\log(IO) = \underset{(-3.09)}{-1.540} + \underset{(1.94)}{.200} \times \log(K) + \underset{(5.84)}{.605} \times \log(MHW)$$

$$+ \underset{(4.82)}{.195} \times \log(MD) + \underset{(4.34)}{.032} \times TIME \qquad \text{(B.1)}$$

$R^2 = .9974$ Durbin-Watson = 1.1989

where K equals productive capital, MHW equals manhours worked by labor in industry, and MD equals imports from nonsocialist countries in constant prices.

Data for estimating the equations were obtained from *RS*. Industrial output was computed in 1977 zlotys and was obtained from the tables on national income. The series for "productive" capital in industry was used for the capital stock, while the series on total manhours worked by workers in socialized industry was used as a proxy for labor. The series for nonsocialist imports was taken from *RSHZ*.

Transport and Communications and Trade

Net output of the trade and transport and communications sectors was assumed to be determined by net industrial output. Because both sectors provide the bulk of their services to industry and can easily expand output in the short run, the crucial factor determining net output in these sectors is generally demand by industry, rather than supply-side constraints. Accordingly, net industrial output was used as a proxy for demand for both sector's services. Industrial output is a dependent variable, so a two-stage least squares procedure was used. Because net output does not affect industrial output in trade or in the transportation and communications sectors, the system is recursive. The system used included Eq. (B.1) above and two other equations:

$$\log(TRANS) = \underset{(-14.9)}{-1.76} + \underset{(51.1)}{.978} \times \log(IO) \qquad \text{(B.2)}$$

$R^2 = .9928$ Durbin-Watson = 1.008

$$\log(TRADE) = \underset{(-3.050)}{-.721} + \underset{(22.70)}{.873} \times \log(IO) \qquad \text{(B.3)}$$

$R^2 = .9646$ Durbin-Watson = .625

Both trade and transportation and communications output was computed in 1977 zlotys and taken from the section on national income in *RS*.

Agricultural Output

Estimating an equation for Polish agricultural output posed several problems. Because of pricing and policy changes official data provide a poor basis for estimation. The problem has been compounded by a shift from a policy of relying on imported feed for meat production adopted in the 1970s to a new policy in the 1980s of greater reliance on domestic crop production. Therefore, no production function was estimated; 1982 agricultural output as given in the national income section of *RS* was used as a base and annual output was assumed to increase at the rate posited in the 1983–1985 plan—2.9 percent per year (Polish plan data). This figure depends greatly on the vagaries of the weather and the consistency with which the Polish government attempts to improve the profitability of agriculture and meet demands for agricultural inputs. Given the very low base of agricultural output in the early 1980s, increases of this magnitude should be feasible.

Forestry

Forestry provides a very minor share of NMP, roughly 1 percent. Output has been fairly constant over the past several years, so it is assumed to remain at its 1982 level for the projections.

Construction

Output of the construction sector, like that of the industrial sector, was assumed to be determined by supply-side factors—in this case, labor and the supply of construction materials (cement, lumber, etc.). An attempt was made to include the capital stock in this equation, but the initial specification produced very poor results. A series for the former variable was obtained by multiplying the total number of hours worked in the socialist construction industry by the ratio of total construction workers to workers employed in the socialist construction industry. Gross output of the construction materials industry was used as a proxy for the supply of construction materials. Construction materials output in turn was assumed to be a function of manhours worked and gross fixed assets in the construction materials industry.[2]

[2]Unfortunately, because of lack of data, both output and gross fixed assets in this industry were in nominal terms.

Two-stage least squares were used to estimate the two equations. The parameter estimates are given below.

$$\log(\text{CONMAT}) = \underset{(-14.4)}{-11.66} + \underset{(48.7)}{1.03} \times \log(\text{GFA}) + \underset{(15.87)}{1.878} \times \log(\text{MHWCM}) \quad \text{(B.4)}$$

$$\log(\text{CON}) = \underset{(-25.4)}{-12.27} + \underset{(13.7)}{.637} \times \log(\text{CONMAT}) + \underset{(11.5)}{1.419} \times \log(\text{MHWCON}) \quad \text{(B.5)}$$

Other

A residual category of Other, which consists primarily of government services, is the final component of NMP. This category has grown at a rate somewhat more rapid than that of industrial output. Consequently, two-stage least squares was also used to estimate an equation for projecting the output of this sector. The estimated equation is:

$$\log(\text{OTH}) = \underset{(17.8)}{-4.20} + \underset{(30.2)}{1.156} \times \log(\text{IO}) \quad \text{(B.6)}$$

$R^2 = .9796$ Durbin–Watson = .9488

PROJECTIONS

The number of exogenous variables in this model have deliberately been kept to a minimum. Limiting the number of these variables not only highlights the effect of balance of payments pressure on output, it also eliminates many potential problems associated with estimating input series needed to generate the output projections. In fact, only three series were needed to make projections: the size of the Polish workforce between 1983 and 1989, a series for hard currency imports, and time. In addition, a series for hard currency exports and the ruble trade balance were needed to calculate utilized national income.

To project manhours worked for industry, the construction materials industry, and construction, a series for Polish population between the ages of 15 and 65 projected for 1984 to 1989 by the Foreign Demographic Analysis Division of the U.S. Bureau of the Census was used. These figures were then multiplied by 1982 workforce participation rates, the share of employment of the industries in total employment,

and average number of hours worked per employee in 1982.[3] These products became the labor inputs for the projections. The equations used are given below.

LABOR FORCE (LF) = .711 × LABOR POOL;

MANHOURS WORKED IN INDUSTRY = .2654 × LF × 1.426;

MANHOURS WORKED IN THE CONSTRUCTION MATERIALS INDUSTRY = .01 × LF × 1.551;

MANHOURS WORKED IN CONSTRUCTION = 0.725 × LF × .1161;

Projections for hard currency imports and hard currency exports were taken from the balance of payments projections. Net ruble import projections were taken from Polish plans for 1984; after 1984 ruble trade is assumed to decline linearly until it is in balance in 1988. The decline in the ruble trade deficit is an arbitrary assumption, but it is consistent with past Soviet attempts to reduce the trade gap. Ruble debt service is assumed to be covered by surpluses in ruble trade in services.

Because of sharp declines in Polish factor productivity recorded between 1978 and 1982, the time variable is adjusted in these projections.[4] Joint factor productivity is assumed not to regain its 1979 level until 1983 in these scenarios. In other words, Poland is assumed to have recorded no gains in factor productivity between these two dates. This is incorporated into the model by subtracting four years from the time variable—time equals 21, not 25, in 1984, the first year of the projection.

Capital stock projections were endogenous to the model. The share of national income allocated to net investment in 1981 was assumed to continue for the entire 1983–1989 period. Although this may be low (10.7 percent), Polish plans for 1983–1985 indicate no rise in this share and continuing pressures to increase consumption indicate large increases in investment are unlikely in this decade (Polish plan documents). This figure was then multiplied by the share of industry in capital stock increases in 1981, the latest year for which data were available, to calculate net investment in industry. Net investment in the construction materials industry was calculated by multiplying the share of this industry in total investment times projections of net investment. The figure was for the latest year available—1981. Based

[3]Figures for industry are for laborers only.

[4]Kemme and Crane, 1984.

on these assumptions the output projections were used to estimate annual increments in capital stock. Because investment figures are net of depreciation, no explicit depreciation allowance was calculated in the model. The capital stock equations are given below:

INVESTMENT = UTILIZED NATIONAL INCOME × .107;

PRODUCTIVE CAPITAL IN INDUSTRY = PREVIOUS YEAR'S LEVEL + .329 × INVEST × .947

GROSS FIXED ASSETS IN CONSTRUCTION MATERIALS = THE PREVIOUS YEAR'S LEVEL + .033 × INVEST × 329

These figures were then used to project NMP. Utilized national income was derived from these figures by subtracting net hard currency exports and adding net ruble imports to these projections. Net hard currency exports were obtained from the projections for net compressible import capacity. Net ruble imports projections were described above.

Appendix C

CREDITWORTHINESS ASSUMPTIONS FOR HUNGARY

HARD CURRENCY EXPORTS

Hard currency exports are divided into two types: exports to market economies and socialist economies with which Hungary trades solely in hard currencies (Yugoslavia and China) and hard currency trade in the CMEA. Export growth in these two areas are assumed to have different determinants, and the equations used for projecting these exports were estimated accordingly.

Non-CMEA Hard Currency Exports

Exports to market economies and to socialist countries with which Hungary trades only in hard currency were assumed to be demand determined. The 1982 level of these exports was used as the base. Increases from this base were assumed to be determined by the income elasticity of demand for Hungarian exports of market economies. This elasticity measure was calculated by regressing logged real values of nonsocialist Hungarian exports on logged market economy GDP.[1] The series runs from 1960 to 1980. The elasticity estimate suffers from the exclusion of a variable for price differentials between Hungarian exports and domestic prices in the market economies. Because Hungary can be characterized as a price taker on hard currency export markets and a substantial share of Hungary's exports are subject to quotas and tariffs, Hungarian exports would be priced at the same levels as comparable domestically produced goods. Therefore, the exclusion of the price term may not be of importance. The estimate also suffers from the exclusion of Yugoslavian and Chinese GDP data in the GDP figures used. Because of the errors of measurement in the UN GDP figures and the small effect of any difference between rates of

[1] *KSE*, various issues. Logged Exports = 3.80 + 1.88 × Logged GDP. T values were -12.0 and 26.0, respectively. A first order autoregressive process was assumed. United Nations, 1980, p. 391.

growth in these two countries and those of the rest of the world on world market economy GDP, omission of data from these countries is assumed to insignificantly affect the parameter estimates.

Estimates of market economy demand for Hungarian exports were then calculated using this elasticity measure and estimates for increases in market economy GDP. Increases in OECD GDP for 1983–1985 were taken from the March 1983 issue of *OECD Economic Outlook*. Projections from the International Energy Agency, an OECD agency, were used for both developing market economies and post-1985 growth rates of OECD countries.[2] Growth rates for developing countries and the OECD were weighted in the Hungarian export demand function by their average share in Hungarian exports between 1975 and 1982, 22 and 78 percent, respectively.[3]

Since estimates for non-CMEA hard currency exports are in real terms, these figures had to be converted to nominal amounts. This was accomplished using estimates of U.S. import price deflators for 1984[4] and U.S. GNP deflators from 1985 to the end of the period, for lack of a better measure.[5]

CMEA Hard Currency Exports

In 1982 a substantial share (about 10 percent) of Hungary's total trade with the CMEA was conducted in hard currency.[6] Hungary has been a keen advocate for increases in this trade and until recently was the only country with detailed statistics concerning the composition and volume of this trade.[7] In general, the Hungarians agree to export "hard" goods (foodstuffs, raw materials, and energy) above the levels set in annual bilateral trade agreements only if they receive hard currency in return. In the late 1970s and early 1980s the Hungarians have been able to increase these exports greatly, especially to the Soviet Union. The resulting surpluses have been used to cover deficits in trade with OECD countries.

The determinants of this trade are elusive. Some component of aid is in these transactions, however, because the Soviet Union permits Hungary to run large deficits in ruble trade while Hungary simultaneously registers surpluses in hard currency trade. Even the Soviet

[2]International Energy Agency, 1982b, pp. 23, 160.

[3]*SE*, 1982, p. 13.

[4]OECD, 1983, p. 128.

[5]EIA, 1982, p. 30.

[6]*SE*, 1982, p. 226.

[7]Pecsi, 1981, Ch. 8. Poland and Romania also now provide some information on this trade.

Union values dollars more highly than rubles. Soviet demand for agricultural imports also probably plays a role. Consequently, these exports were assumed to stagnate at 1983 levels in real terms (where they have been for the past few years). Projections in nominal terms were generated by inflating these estimates by the rate of increase in export prices assumed for market economy exports.

NET HARD CURRENCY SERVICES AND TRANSFERS

International Monetary Fund publications give a detailed breakdown of Hungary's balance of payments, so good data are available for past expenditures and earnings for tourism, shipping, and other components of trade in services. This section of the balance of payments has been consolidated into three components: net earnings from tourism, net costs of shipping, and other—a composite of transfers, insurance costs, and undefined expenditures appearing in the balance of payments.

Travel

Hungarian hard currency earnings from and expenditures on tourism have exhibited steady increases in both real and nominal terms throughout the 1970s and early 1980s. More liberalized procedures for entry by foreigners and exit by Hungarians coupled with marked improvements in facilities for tourists have contributed to these increases; recent devaluations of the forint have also helped attract Western tourists. Unfortunately, time series data on expenditures extend only through the early 1970s, making it impossible to use statistical techniques to test which factors have contributed most to this growth. Therefore, the numbers of Western tourists and Hungarians traveling to the West were projected as a function of time under the assumption that the time variable captures the gradual changes in supply and demand that have led to increased tourism. Projections of the number of tourists were then multiplied by the average expenditures per tourist recorded in the most recent year available—1982. These figures, $104 per Western visitor and $187 per Hungarian, were subsequently inflated using the price index for market economy exports to compute net earnings from tourism. The equations used were:

$$\text{WESTERN TOURISTS} = \underset{(128.8)}{\text{EXP}(6.533} + \underset{(15.6)}{.0995} \times \text{TIME})$$

$$\text{HUNGARIAN TOURISTS} = \underset{(120.8)}{\text{EXP}(5.161} + \underset{(15.0)}{.081} \times \text{TIME})$$

where figures in parentheses are t statistics. The F statistics were 242.8. and 226.3, respectively; n =12.[8]

Shipping

Hungary has run a deficit in shipping services in all years for which data is available. This is not surprising considering Hungary is a landlocked country and has no borders with many of the countries that are its major hard currency export markets (Germany, France, and Italy). Because expenditures on shipping closely parallel export receipts, shipping costs were assumed to be a function of exports and were estimated accordingly. No deflators were available for shipping services, so nominal figures were used for both exports and shipping costs. Because increases in Hungarian earnings from shipping closely paralleled increases in expenditures, costs were estimated net of earnings. The equation used to project net shipping costs is:

$$\text{NET SHIPPING COSTS} = \underset{(27.3)}{.061} \times \text{HARD CURRENCY EXPORTS}$$

where the figure in parentheses is a t statistic and n=8.

The intercept term in this model was constrained to equal zero, because shipping costs were assumed to be a fixed percentage of total trade flows. The data used in estimates were taken from IMF, 1982, pp. 235–236.

The major weakness in this method of estimation was the use of exports, rather than total trade, for estimating the equation for projecting net shipping costs. Unfortunately, in this model imports are a residual computed by subtracting debt service and service payments from hard currency earnings, so net shipping cost had to be estimated before imports. Consequently, exports became a proxy for total trade, the real determinant of total shipping costs.

[8]Data for the estimates were taken from *SE*, various years.

Other

A large additional component of Hungarian balance of payments involves transfers, errors and omissions, and other expenditures and sources of revenue. These entries were aggregated to form a third category in service income called Other. In the past, fluctuations in this category have been random. Therefore the simplest assumption was considered the best: This category is assumed to remain stable in real terms. The latest available data, $140 million (1981),[9] were used to establish a base, and this base was converted to nominal figures with the same index as that used for exports to market economies.

NONCOMPRESSIBLE IMPORTS

Tight control of hard currency imports in recent years facilitates the determination of a level for noncompressible imports. Because of curbs imposed between 1980 and 1982, the average level of hard currency imports in those three years was assumed to equal noncompressible levels. This figure ($4846 million 1982) was inflated to compute nominal noncompressible imports for each year.

THE HARD CURRENCY CAPITAL ACCOUNT

Amortization

All short term debt (one year or less) is assumed to be rolled over each year, so amortization of this debt is essentially zero. Amortization schedules for all long term and medium term debt contracted before January 1, 1982, were available from the IMF. New loans after 1982 are assumed to be amortized in equal installments over a six-year period.[10]

New Loans

Hungary is assumed to receive new loans from its bankers but no net inflow of capital. Hungary's hard currency current account deficit in 1982 was $79 million, so all medium and long term loans were assumed to be rolled over in that year. Because current account surpluses of $300 and $400 million are planned for 1983 and 1984,

[9]IMF, 1982, pp. 235–236.

[10]Six years was the average maturity of Hungarian medium and long term loans in 1982 (Fontenay, 1982, p. 58).

respectively, new loans for these years are assumed to equal the difference between amortization and the current account surplus.[11] After 1984, Hungary's current account is assumed to remain just in balance—all loans are completely rolled over.

Debt

The Hungarian government receives interest payments on reserves deposited abroad, so net rather than gross debt is the appropriate base for projecting interest payments. Two figures for net debt were available. One, provided by the Hungarian National Bank, calculates net debt as the difference between total liabilities and total assets. This figure totaled $5300 million at the end of 1982.[12] The second was calculated from data provided by the Hungarian National Bank to the IMF and excludes assets owed to Hungary but not considered part of reserves. This figure was $6460 million at the end of 1982. The second figure was chosen for the study because some assets used to calculate the first figure, such as loans to third world countries, may be fairly risky. Other assets, such as accounts receivable from Western purchasers, although fairly low risk, do not pay interest and therefore should not be subtracted from the base used to calculate net interest obligations. Thus, the higher figure is the more conservative and considered the better estimate.

Hungary's debt is denominated in several currencies with dollar liabilities taking the lion's share. A depreciation of the dollar, very likely in 1985 and 1986, would cause total debt to rise in dollar terms. This would be offset by an increase in the value of Hungary's hard currency exports, many of which are denominated in Deutschmarks. Because of the enormous problems of projecting currency movements, changes in the dollar values of debt and exports are assumed to roughly offset each other.

Interest Payments

Because of the variety of currencies and interest rates of Hungary's loans, projections of interest due will fluctuate greatly depending on assumptions concerning the course of interest rates in the lending countries and the rates of exchange among the various currencies. Projections of exchange rates and interest rates in all the lending countries are highly speculative, so a simple approach to estimating interest

[11] *East-West*, 31 January 1984, p. 3.

[12] WEFA, September 1983, p. 109.

payments was adopted. Interest on all loans was calculated using projections of rates on U.S. AAA corporate bonds under the assumption that exchange rate fluctuations and interest differentials will generate nominal interest rates of this magnitude on total debt.[13] When interest and debt are converted into dollars, interest rates will be roughly the same on all borrowings.

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[13]All interest rates were based on projections of U.S. AAA corporate bond rates (EIA, 1982, p. 30). These rates have been very close to the average rates paid on Hungarian debt given by the IMF (Fontenay, 1982, p. 58) and do not appear to systematically differ from these rates.

Table C.1

HUNGARIAN EXPORT, IMPORT, AND DEBT DATA AND NET COMPRESSIBLE IMPORT CAPACITY: INITIAL SCENARIO

Year	Projected ECD Growth Rates	Import Price Deflator	Projected Third World Growth Rates	Export Price Deflator	US AAA Bond Rate	Current Account Surplus	Debt
1983	.0200	.998	.047	0.975	.111	300	61620
1984	.0325	1.035	.047	1.025	.104	400	57620
1985	.0320	1.055	.047	1.055	.103	0	57620
1986	.0320	1.059	.047	1.059	.104	0	57620
1987	.0320	1.066	.047	1.066	.104	0	57620
1988	.0320	1.071	.047	1.071	.104	0	57620
1989	.0320	1.070	.047	1.070	.101	0	57620

Year	Total Interest	Non-CMEA Hard Currency Exports	CMEA Hard Currency Exports	Net Travel Earnings	Net Shipping Costs	Other	Recorded Amortization	Estimated Amortization	Principal Payments	New Loans
1983	717.3	4501	1745	182	320	136	920.0	97	1017	717
1984	640.8	4928	1666	208	341	140	1041.5	184	1226	826
1985	593.5	5549	1617	244	376	148	1098.5	360	1459	1459
1986	599.2	6272	1623	289	421	156	782.1	543	1325	1325
1987	599.2	7136	1623	343	473	167	600.8	673	1274	1274
1988	599.2	8157	1623	410	536	178	285.0	773	1058	1058
1989	582.0	9316	1605	489	605	191	285.0	724	1009	1009

Year	Net Compressible Import Capacity	Nominal Hard Currency Earnings	Noncompressible Imports	Expected Imports
1983	−758	5096	4836	4062
1984	−507	5539	5006	4467
1985	324	6198	5281	5546
1986	773	6965	5592	6274
1987	1322	7883	5962	7147
1988	1983	8968	6385	8176
1989	2783	10197	6832	9354

Table C.2

HUNGARIAN EXPORT, IMPORT, AND DEBT DATA AND NET COMPRESSIBLE IMPORT CAPACITY: NO SOVIET DEFICIT SCENARIO

Year	Total Interest	Non-CMEA Hard Currency Exports	Hard Currency Exports Diverted to Transferable Ruble Trade	CMEA Hard Currency Exports	Net Travel Earnings	Net Shipping Costs	Other
1983	717	4501	0	877	182	328	137
1984	641	4928	0	899	208	355	140
1985	594	5549	640	948	244	396	148
1986	599	6272	678	1004	289	444	156
1987	599	7136	723	1071	343	501	167
1988	599	8157	774	1147	410	568	178
1989	582	9316	828	1227	489	643	191

Year	Net Compressible Import Capacity	Hard Currency Earnings	Noncompressible Imports	Expected Imports
1983	−758	5096	4836	4078
1984	−507	5539	5006	4499
1985	−317	5558	5281	4964
1986	95	6287	5593	5688
1987	599	7160	5962	6561
1988	1209	8194	6385	7594
1989	1955	9369	6832	8787

Table C.3

HUNGARIAN EXPORT, IMPORT, AND DEBT DATA AND NET COMPRESSIBLE IMPORT CAPACITY: LIQUIDITY CRISIS SCENARIO

Year	Recorded Amortization	Current Account Surplus	Estimated Amortization	Debt	Principal Payments	New Loans	Total Interest
1983	920	300	147	6162	1067	767	717
1984	1042	400	250	5762	1292	892	641
1985	1099	0	357	4307	1456	0	594
1986	782	0	357	3167	1139	0	448
1987	601	0	357	2210	958	0	329
1988	285	*0*	*357*	*1568*	*642*	*0*	*230*
1989	285	0	210	1073	495	0	158

Year	Net Compressible Import Capacity	Hard Currency Earnings	Noncompressible Imports	Expected Imports
1983	−758	5096	4836	4078
1984	−507	5539	5006	4499
1985	−3282	6198	5281	4149
1986	−120	6965	5593	5378
1987	729	7883	5962	6595
1988	1806	8968	6385	8096
1989	2804	10197	6832	9544

Appendix D

MODELING THE HUNGARIAN ECONOMY

CONSTRUCTION OF THE MODEL

One purpose of this report is to project the effect of Hungarian balance of payments problems on output and consumption. To make these projections a small model of the Hungarian economy was constructed using time series data covering the various components of net material product. This appendix provides a brief description of how this model was constructed.

NMP was broken down into five components: industry (IO), agriculture (AGRI), construction (CON), other contributing sectors (OTHER)—transportation, communications, trade, forestry, and government services—and corrections (COR) due to changes in valuation due to taxes and subsidies. Annual projections were made for each of these components and then summed to compute NMP. Domestically utilized national income was then calculated by subtracting net exports, dollar (NED) and ruble (NER), from NMP.

$$NMP = IO + AGRI + CON + OTHER + COR$$

$$UNI = NMP - NED - NER$$

Industrial Output

Industrial output was assumed to be a function of labor (manhours worked), capital, hard currency imports, and time.[1] The equation for industrial output was estimated by regressing the logged contribution of industry to NMP in forints on these four independent variables for the years 1960 to 1981. The parameter estimates with t values underneath are given in

[1]Some thought was given to including ruble imports into the production function. Unfortunately, extreme problems with multicollinearity were generated in initial specifications. For this reason and the desire to make the Polish and Hungarian models as similar as possible, ruble imports were not included in the production function. The exclusion of ruble imports may have resulted in overestimating Hungary's dependence on hard currency imports.

$$\log(IO) = \underset{(-1.90)}{-4.358} + \underset{(2.70)}{.396} \times \log(K) + \underset{(1.99)}{.418} \times \log(MHW) + \underset{(2.02)}{.187} \times \log(MD) + \underset{(1.16)}{.018} \times TIME \quad (D.1)$$

$R^2 = .9568$ Durbin-Watson = .96, n = 21

where K equals capital, MHW equals manhours worked by labor in industry, and MD equals hard currency imports in constant prices. The production function is assumed to be Cobb-Douglas with constant returns to scale. Consequently, the estimates of the coefficients were constrained to sum to one.

Data for estimating the equations were obtained from *SE*. Index numbers were used for industrial output (taken from national income tables) capital stock, industrial output, and hard currency imports. The series on total manhours worked by laborers in socialized industry was used as a proxy for manhours worked in industry. Because private output is less than 2 percent of industrial output, this assumption should have had little effect on the results. The series for dollar imports included imports of agricultural products and consumer goods; almost all agricultural imports are processed in some manner by industry so they become industrial inputs. Consumer goods ought to have been deleted, but pricing and data problems made this impossible for the entire time series. Because they are a small share of hard currency imports (less than 8 percent of total hard currency imports in 1982), their inclusion probably did not greatly affect the estimates.

Agriculture

Estimation of a production function for agricultural value added posed a number of problems. Technological change has proceeded fairly rapidly in this sector, but manhours worked have fallen. Private and public sector inputs and output are difficult to differentiate, yet the two sectors have markedly different levels of efficiency. Furthermore, fluctuations in the weather, which would be impossible to project through 1989, considerably affect output. Because the purpose of the model is to project output levels, not to test hypotheses concerning the origins of agricultural output growth, these problems were avoided by assuming that time provides a good proxy for the changes in factor inputs and technology that have generated increases in agriculture's contribution to NMP. An equation for projecting agricultural value added was estimated by regressing logged output on time. The results

were:

$$\log(AGRI) = \underset{(240.5)}{4.56} + \underset{(7.2)}{.0099} \times TIME \qquad (D.2)$$

$R^2 = .711$ Durbin-Watson = 2.61, n = 22

where AGRI = agricultural value added.

Construction

The contribution of construction to Net Material Product was assumed to be a function of the amount of investment taking place in the country. Unfortunately, in this model the level of investment is determined by available resources (aggregate output), which in turn depends on the quantity of ongoing construction. This simultaneity problem was circumvented by assuming that construction in the current year depends on the volume of investment in the previous year. The estimation results are given below:

$$CON = \underset{(69.0)}{1.018} \times LAGINV \qquad (D.3)$$

$R^2 = .9956$ Durbin-Watson = 1.28

where CON = the contribution of construction to NMP and LAGINV = lagged investment.

Index numbers were used for the series in both cases. The intercept in the equation was constrained to equal 0 as there is little or no economic logic in assuming that there will always be some level of construction regardless of the level of investment.

Other

A residual category, Other, which consists of transportation, communications, trade, forestry, and government services, is the fourth component of NMP. Many of these sectors are devoted to servicing industry, so I assumed that their contribution to NMP is governed by industrial activity—net output in these sectors is determined by the demand for their services by industry, which is determined by net industrial output. Consequently, two-stage least squares was used to estimate equations for projecting industrial output and the output of this sector. The estimated equation is:

$$\log(\text{OTH}) = \underset{(-4.08)}{-.767} + \underset{(21.5)}{.862} \times \log(\text{IO}) \qquad \text{(D.4)}$$

$R^2 = .9605$ Durbin-Watson = .4528

Because the system is recursive, the estimates for the industrial output equation are those given in Eq. (D.1).

Errors

Because of idiosyncrasies of the Hungarian price and taxation systems a large share of value added "disappears" in accounts used to compute the contributions of each sector of NMP. This share is added to sectoral contributions as a correction factor when the Hungarians compute NMP. As there is little or no economic explanation for the size of these errors, this quantity is assumed to remain static in real terms for the period of projection. Contributions to NMP from nonmaterial sectors, a very small part of NMP, were also assumed to remain static and were included in NMP by adding them to the error term.

PROJECTIONS

The number of exogenous variables in this model have been deliberately kept to a minimum. Limiting the number not only highlights the effect of balance of payments pressure on output, it also eliminates many potential problems associated with generating input projections needed to make the output projections. In fact, only two series were needed to make projections: the size of the Hungarian workforce between 1983 and 1989, and a series for hard currency imports in real terms. In addition, series for hard currency exports and the ruble trade balance were needed to calculate UNI.

To project manhours worked for industry, estimates of the number of individuals in four groups in the Hungarian population for 1983 to 1989 were used.[2] The groups were: men between 15 and 60, men older than 60, women between 15 and 55, and women older than 55. The upper age limits were determined by official Hungarian retirement ages. These figures were then multiplied by 1982 workforce participation rates in these groups, the share of employment of industrial physical workers in total employment, and average number of hours worked

[2]Foreign Demographic Analysis Division of the U.S. Bureau of the Census.

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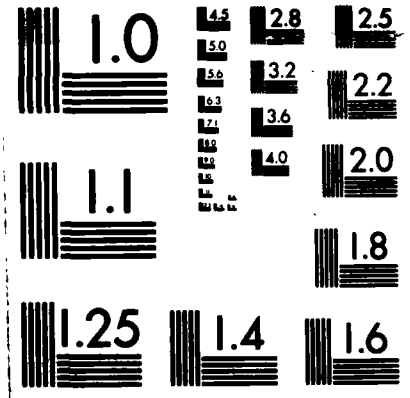

per employee in 1982. These products became the labor inputs for the projections. The equations used are given below.

$$\text{LABOR FORCE} = .8416 \times \text{YOUNG MEN} + .0453 \times \text{OLD MEN} + .7334 \times \text{YOUNG WOMEN} + .0739 \times \text{OLD WOMEN}$$

$$\text{MANHOURS WORKED IN INDUSTRY} = \text{PER} \times \text{LABOR FORCE} \times 1788.52$$

where 1788.52 equals the average number of hours worked annually per worker in industry in 1982 and PER equals the percent of the labor force consisting of physical laborers in industry. PER was projected using the latest available share of the workforce (1981) and then reducing this figure by the average rate of decline in this share since 1976 (−.0043 of the total labor force per year).

Projections for hard currency imports and hard currency exports were taken from the computations used to project Hungarian balance of payments and then deflated using the price deflator series described in the sections on exports. The ruble trade deficit, −14,608 million forints in 1983 (−13,546 million forints in 1982 import prices),[3] was assumed to decline linearly until ruble trade balances in 1987. No Hungarian projections concerning ruble trade were available so the assumption of balanced ruble trade in 1987 is purely arbitrary. Ruble debt service is assumed to be covered by the surpluses Hungary generates in service trade.

Capital stock projections were endogenous to the model. The share of national income allocated to net investment in 1982 was assumed to remain constant for the entire 1984–1989 period. Although this may be low (13.2 percent), Hungarian plans indicate no rise in this share. Industry's share in total investment is also assumed to remain the same as in 1982. Unfortunately, the figure for industry's share is for gross, not net, investment. For lack of a better estimate, I assumed the share of industry in net investment equals its share in gross investment. Based on these assumptions the output projections were used to estimate annual increments in capital stock. Investment figures are net of depreciation, so no explicit depreciation allowance was calculated in the model. The capital stock equations below were constructed using these assumptions.

$$\text{INVESTMENT} = \text{UNI} \times .132;$$

$$\text{CAPITAL IN INDUSTRY} = \text{PREVIOUS YEAR'S LEVEL} + .321 \times \text{INVEST}$$

[3] *Heti Vilaggazdasag*, 18 February 1984, p. 4.

Although the share of investment in national income appears low in historical terms, continued hard currency balance of payments problems and the reductions in real incomes experienced by the populace in recent years make it doubtful that the central authorities will be able to increase investment substantially in the near future. Increases in output will more likely be channeled to exports or consumption instead.

These figures were then used to project NMP. Utilized national income was derived from these figures by subtracting net hard currency exports and adding net ruble imports to these projections. Net hard currency exports were obtained from the projections for net compressible import capacity.

Appendix F

ROMANIAN EXPORT, IMPORT, AND DEBT DATA AND NET COMPRESSIBLE IMPORT CAPACITY

Table E.1

INITIAL SCENARIO

Year	Import Price Deflator	Oil Price Per Barrel	Nonoil Imports	Net Oil Imports (metric tons)	Value of Oil Imports
1984	1.035	26	4657.50	3.5	687.55
1985	1.055	25	4913.66	3.5	697.47
1986	1.059	28	5203.57	3.5	827.25
1987	1.066	32	5547.00	3.5	1007.83
1988	1.071	34	5940.84	3.5	1146.85
1989	1.070	36	6356.70	3.5	1299.31
1990	1.068	37	6788.96	3.5	1426.21

Year	Projected OECD Growth Rates	Projected Third World Growth Rates	Export Price Deflator	Net Tourism and Other	Nominal Hard Currency Exports	Net Shipping Costs	Nominal Romanian Hard Currency Earnings
1984	0.0325	0.047	1.025	153.750	4719.3	226.528	4646.6
1985	0.0320	0.047	1.055	162.206	5352.3	256.911	5257.6
1986	0.0320	0.047	1.059	171.776	6093.2	292.474	5972.5
1987	0.0320	0.047	1.066	183.114	6982.5	335.160	6830.5
1988	0.0320	0.047	1.071	196.115	8039.1	385.879	7849.4
1989	0.0320	0.047	1.070	209.843	9247.0	443.857	9013.0
1990	0.0320	0.047	1.068	224.112	10616.5	509.592	10331.0

Year	US AAA Bond Rate	Short Term Loans	Reserves	Total Interest	Net Hard Currency Debt	Principal Payments
1984	.104	605	525	937.4	7295.1	1664.9
1985	.103	400	525	803.3	6185.3	1509.8
1986	.104	400	525	680.6	5163.7	1421.6
1987	.104	400	525	562.3	4109.0	1454.7
1988	.104	400	525	438.8	3221.6	1287.4
1989	.101	400	525	323.9	3028.5	593.1
1990	.098	400	525	290.7	3172.5	256.0

Year	Noncompressible Imports	Nominal Romanian Hard Currency Exports	Net Compressible Import Capacity	Expected Imports
1984	5345.05	4646.6	-2695.8	2649.2
1985	5611.13	5257.6	-2266.6	3344.5
1986	6030.82	5972.5	-1760.5	4270.3
1987	6554.83	6830.5	-1341.4	5213.5
1988	7087.69	7849.4	-564.5	6523.2
1989	7656.01	9013.0	840.0	8496.0
1990	8215.16	10331.0	1969.2	10184.3

Table E.2

RESCHEDULING SCENARIO

Year	Total Interest	Rescheduled Principal	Net Hard Currency Debt	Principal Payments	Noncompressible Imports
1984	937.432	605.00	7295.10	1664.9	5345.05
1985	815.402	1023.40	6808.70	1509.8	5611.13
1986	774.383	976.60	6363.70	1421.6	6030.82
1987	731.376	1019.62	5928.62	1454.7	6554.83
1988	688.641	967.24	5608.46	1287.4	7087.69
1989	641.254	792.94	5511.30	890.1	7656.01
1990	619.124	793.06	5476.36	828.0	8215.16

Nominal Romanian Hard Currency Exports	Net Compressible Import Capacity	Expected Imports
4646.6	−2695.8	2649.22
5257.6	−1655.3	3955.80
5972.5	−1277.7	4753.12
6830.5	−890.8	5664.00
7849.4	−247.1	6840.57
9013.0	618.6	8274.59
10331.0	1461.8	9676.96

Table E.3

SOVIET OIL SCENARIO

Year	Nonoil Imports	Net Imports (metric tons)	Value of Oil Imports	Noncompressible Imports
1984	4657.50	3.5	321.774	4979.27
1985	4913.66	3.5	326.415	5240.08
1986	5203.57	3.5	387.154	5590.72
1987	5547.00	3.5	471.664	6018.67
1988	5940.84	3.5	536.724	6477.57
1989	6356.70	3.5	608.077	6964.78
1990	6788.96	3.5	667.466	7456.42

Nominal Romanian Hard Currency Exports	Net Compressible Import Capacity	Expected Imports
4646.6	−2330.1	2649.2
5257.6	−1895.6	3344.5
5972.5	−1320.4	4270.3
6830.5	−805.2	5213.5
7849.4	45.6	6523.2
9013.0	1531.2	8496.0
10331.0	2727.9	10184.3

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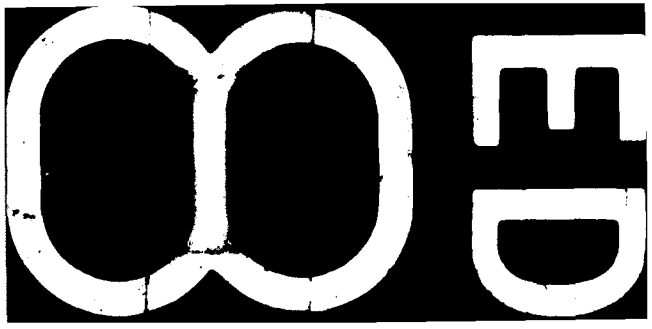
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