

ESSAYS IN INTERNATIONAL FINANCE

No. 160, December 1985

---

LEARNING FROM ADVERSITY:  
POLICY RESPONSES TO TWO OIL SHOCKS

---

STANLEY W. BLACK



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

## ESSAYS IN INTERNATIONAL FINANCE

ESSAYS IN INTERNATIONAL FINANCE are published by the International Finance Section of the Department of Economics of Princeton University. The Section sponsors this series of publications, but the opinions expressed are those of the authors. The Section welcomes the submission of manuscripts for publication in this and its other series, PRINCETON STUDIES IN INTERNATIONAL FINANCE and SPECIAL PAPERS IN INTERNATIONAL ECONOMICS. See the Notice to Contributors at the back of this Essay.

The author, Stanley W. Black, is Georges Lurcy Professor of Economics at the University of North Carolina at Chapel Hill. This Essay, his fourth contribution to the publications of the Section, was originally presented at that university on November 8, 1984, in slightly different form as the Lurcy Inaugural Lecture. Professor Black has also taught at Princeton University and been on the staff of the Council of Economic Advisers. Most recently he was Special Assistant to the Undersecretary of State for Economic Affairs in the Carter administration. He is the author of *Floating Exchange Rates and National Economic Policy* (1977) and many articles on floating exchange rates and macroeconomic policy.

PETER B. KENEN, *Director*  
*International Finance Section*

ESSAYS IN INTERNATIONAL FINANCE

No. 160, December 1985

---

LEARNING FROM ADVERSITY:  
POLICY RESPONSES TO TWO OIL SHOCKS

---

STANLEY W. BLACK



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

INTERNATIONAL FINANCE SECTION  
EDITORIAL STAFF

Peter B. Kenen, *Director*

Ellen Seiler, *Editor*

Carolyn Kappes, *Editorial Aide*

Barbara Radvany, *Subscriptions and Orders*

**Library of Congress Cataloging-in-Publication Data**

Black, Stanley W.  
Learning from adversity.

(Essays in international finance, ISSN 0071-142X; no. 160)

Bibliography: p.

1. Economic history—1971- . 2. Economic policy. 3. International economic relations. 4. Petroleum products—Prices. 5. Unemployment—Effect of inflation on. 6. Inflation (Finance)—Effect of energy costs on.

I. Title. II. Series

HG136.P7 no. 160 [HC59] 332'.042 85-23726

ISBN 0-88165-067-6 (pbk.) [330.9'047]

*Copyright © 1985 by International Finance Section, Department of Economics, Princeton University.*

All rights reserved. Except for brief quotations embodied in critical articles and reviews, no part of this publication may be reproduced in any form or by any means, including photocopy, without written permission from the publisher.

Printed in the United States of America by Princeton University Press at Princeton, New Jersey.

International Standard Serial Number: 0071-142X

International Standard Book Number: 0-88165-067-6

Library of Congress Catalog Card Number: 85-23726

## CONTENTS

|   |  |    |
|---|--|----|
| 1 | INTRODUCTION                               | 1  |
| 2 | THE POLITICAL GAME MODEL                   | 2  |
| 3 | THE OIL SHOCKS AND THEIR AGGREGATE EFFECTS | 5  |
| 4 | DIFFERENCES ACROSS COUNTRIES               | 8  |
|   | The First Oil Shock                        | 8  |
|   | The Second Oil Shock                       | 13 |
| 5 | CONCLUSIONS                                | 16 |
|   | REFERENCES                                 | 18 |



# Learning from Adversity: Policy Responses to Two Oil Shocks

## 1 Introduction

It is notable that many advances in economic analysis have arisen from efforts to understand and cope with adversity. To cite a few examples from economic history, the sixteenth-century influx of gold and silver from America and the resulting inflation in Europe led Locke and Hume to the relationship between money and prices that economists call the quantity theory of money. The conflict between feudalistic landed proprietors and the market economy led Adam Smith to enunciate the principle of the Invisible Hand to describe the workings of the market. The pressure of population on land led Ricardo to the law of diminishing returns and the theory of land rent. The industrial crises of nineteenth-century Europe led Marx to his theory of capitalist development. The Great Depression led Keynes to his analysis of the determination of aggregate demand and employment.

Despite these examples of learning from adversity, forgotten lessons are the rule in the history of economic ideas as much as in today's classrooms. Santayana suggested that those who cannot learn from history are doomed to repeat it. During the inflation of the 1970s, those who had forgotten the quantity theory of money were forced to relearn it.

The 1970s and early 1980s certainly qualify as a veritable cornucopia of economic adversity, with two inflationary booms, two deep recessions, the collapse of the postwar international monetary system, sharp differences in economic performance across countries, a generalized slowdown in the growth of productivity and per capita incomes in the industrialized countries, a crisis of international bank debt in the developing world, rising protectionism in the industrialized countries, and increasing unemployment in Europe.

In this essay I consider one aspect of our recent adverse experiences—the sharp differences in economic performance across countries. What Arthur Okun dubbed the “misery index”—the sum of the rates of unemployment and inflation—was high on average until the recent recovery, but the descent into misery was very uneven across countries. Table 1 below in-

dicates that inflation averaged 9 percent for ten industrialized OECD countries from 1971 to 1983, up from 4 percent in the 1960s. Unemployment also rose, particularly after the second oil shock, from 1979 to 1983. The misery index rose from 6½ percent in the 1960s to 13 percent from 1971 to 1978 and to 16 percent from 1979 to 1983. In 1983 and 1984, it began gradually creeping down again outside of Europe (and the developing countries).

But while misery loves company, does bliss abhor it? Let us look at divergences among countries. Table 1 below shows that the cross-country variability of inflation rates rose fivefold as the average inflation rate roughly doubled. Likewise, the variability of unemployment rates doubled as the average unemployment rate rose more than two and a half times. The world was divided into two camps, with some countries caught in "vicious" circles and others in "virtuous" circles. Four "virtuous" countries, West Germany, Japan, the Netherlands, and Sweden, averaged about 10 on the misery index during the second oil shock, while six other countries, Belgium, Canada, France, Italy, the United Kingdom, and the United States, averaged about 20. What factors enabled one group of countries to do so much better than the other?

Having previously studied the reasons for disparate experiences during the 1970s, the period of the first oil shock (Black, 1982b), I propose to try to answer this question in two stages. After explaining my approach to the problem in section 2, I examine in section 3 the size of the two oil-price shocks and the responses to them, taking the OECD countries as a group, and in section 4 I look at explanations for the different responses across countries to the two shocks.

## **2 The Political Game Model**

When cross-country comparisons are made, the choice of factors to be compared depends, of course, on the underlying hypothesis about causes of disparate macroeconomic performance.

Economists have proposed three hypotheses to explain macroeconomic policy choices. The "political business cycle" hypothesis (Nordhaus, 1975) suggests that politicians are Machiavellian vote maximizers, exploiting the lag between the output-increasing effects and the inflation-increasing effects of expansionary macroeconomic policies. Their object is to fool a my-



opic public into accepting short-run gains in output and employment at the expense of long-run costs of higher inflation. In the Carter administration, the costs of higher inflation came too early for this strategy to work, and the voters were not fooled. President Reagan appears to have had a better sense of timing, putting disinflation first and growth later, although many would attribute that timing to good luck rather than careful planning. Alt and Chrystal (1983) reviewed the empirical evidence for this theory and found it to be rather weak, despite such suggestive examples.

At the opposite extreme, the "new classical macroeconomics" (Lucas, 1976; Sargent and Wallace, 1975) argues that the public is so astute at anticipating policy changes, and markets are so responsive to those changes, that market reactions to systematic policy changes will neutralize their effects on real output. Announcing the end of inflationary policies should be enough to cause inflation to fall without a large rise in unemployment. "Disinflation without tears" should be possible. Unfortunately for this theory, the monetary squeeze of the early 1980s had very large real effects in the form of increased unemployment.

Ascribing perfect rationality and control to one party and myopia to the other seems singularly one-sided, with little justification in reality beyond anecdotes and loaded statistical "tests." More even-handed approaches involving game-theoretic conflict models have recently been suggested.

One conflict model, analyzed by Barro and Gordon (1983), postulates different employment objectives for policy-makers and the public. The government is represented by the central bank setting monetary policy. The public comprises workers or union leaders negotiating wage contracts. Employed workers pursue their own narrow self-interest, desiring a higher real wage and thus a lower overall employment level than the central bank, which aims at social objectives implying higher employment and a lower real wage. Since wage contracts must be set in advance of monetary policy and observed inflation, the central bank and workers can try to outwit each other, leading to a noncooperative inflationary outcome. If they try to cooperate instead, the continual temptation to cheat leads to a breakdown in cooperation. The objection to this model is that it endows the central bank with excessive autonomy, even by comparison with the case of the United States, which has a relatively independent central bank. It does not apply at all to most European countries.

My own approach (Black, 1982a), which I call a political game model,

also places the real wage at the center of conflict. Labor, however, is not opposed by an autonomous central bank but by real, live capitalist entrepreneurs. If labor's interest in a higher real wage is easy to understand, so is businessmen's interest in a lower real wage, within limits set by the need to motivate workers. These two groups, in my view, are far more representative of the real sources of power in democratic industrial societies than are central banks or even finance ministries. Indeed, my argument is that business and labor, acting through political parties, seek to capture control of the tools of macroeconomic policy to advance their own ends, which they naturally regard as society's ends as well.

Some will object that this is a theory of polarized societies, even of class conflict if carried to extremes. But my mentor here is Veblen, not Marx. In fact, I argue in favor of cooperative solutions to such conflicts, while recognizing that in some countries cooperation between business and labor is anathema to both. Others will object to this theory on different grounds. On the one hand, competitive markets and flexible wages and prices will prevent the real wage from deviating from labor's marginal product at full employment. On the other hand, monetary and fiscal policies are only second-best tools to influence the distribution of income between wages and profits. While analytically correct, these arguments are irrelevant to a world of imperfect competition, sticky wages and prices, and third-best choices.

Let us look at the various experiences of industrialized countries to determine whether the political game model helps to elucidate the differences in degrees of "misery" described earlier. (I do not claim that it should explain *all* the differences among countries, only that it should *help* to explain them.)

A simple framework for such comparisons has been suggested by Koopmans and Montias (1971). We wish to explain the macroeconomic outcomes, as measured by inflation and unemployment, achieved by different countries in response to common external shocks. We assume that the observed differences in outcomes can be related to differences in (1) *economic policies*, such as monetary and fiscal policies, (2) *economic structure*, the relationships between policies and outcomes, and (3) the *institutional context* in which such interaction takes place. Before turning to these three factors, however, let us examine the two oil shocks them-

selves and their aggregate effects on macroeconomic outcomes in OECD countries.

### 3 The Oil Shocks and Their Aggregate Effects

In the first oil shock, the price of oil more than tripled in 1974 to over \$11 a barrel from its 1973 level of about \$3 a barrel. Oil revenue of the OPEC countries rose about \$70 billion in 1974, raising import costs and lowering real incomes in the industrialized and oil-importing developing countries alike. Llewellyn (1983) estimates that the price increase directly raised OECD inflation about 2 percentage points. The transfer of real income to OPEC amounted to about 2 percent of OECD gross national product.

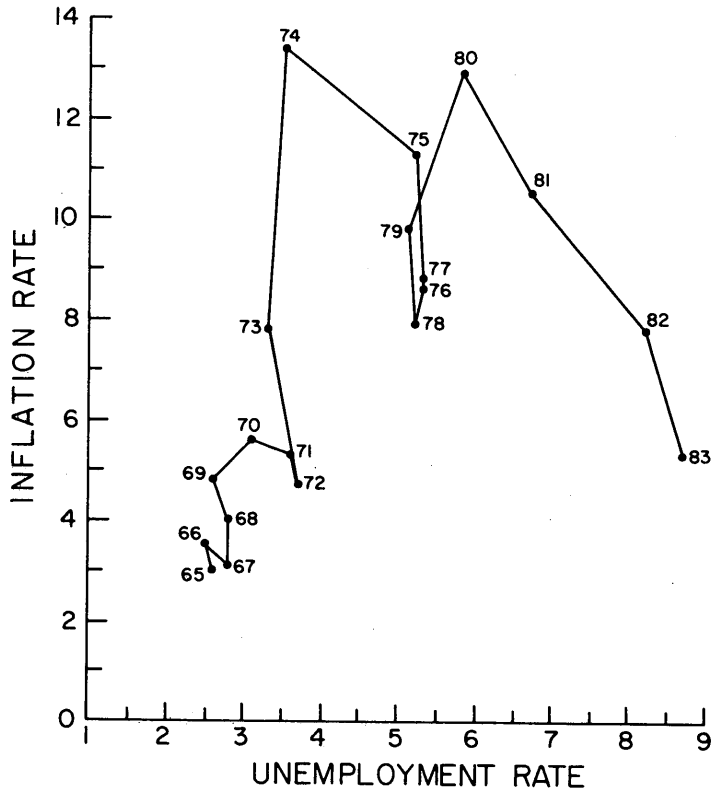
The second oil shock raised the price of oil in 1979-80 from \$13 to \$33, raising OPEC oil revenues about \$180 billion from 1978 to 1980, equivalent to a little over 2 percent of OECD GNP. Thus the two oil shocks were of roughly similar magnitude measured as proportions of OECD GNP.

The aggregate responses of inflation and unemployment in OECD countries are shown in the accompanying figure. In the first oil shock, inflation rose from about 5 percent to a peak near 14 percent and then fell back to 8 percent, while unemployment rose from 3½ percent to 5½ percent of the OECD labor force. In the second oil shock, inflation started from a higher 8 percent level, rose again to about 13 percent, and then fell back to only 5 percent. Unemployment, by contrast, rose from 5 percent to 8½ percent of the labor force, falling to 8 percent in 1984.

It is not hard to explain the differences between these two outcomes in response to similar initial shocks. The February 1974 Washington Energy Conference of thirteen major oil-consuming nations declared in favor of accommodating to the 1974 increase in the price of oil by means of external borrowing rather than rapid reductions in current-account deficits. Financing oil deficits by "recycling" the OPEC surpluses through the Eurocurrency markets was the preferred approach, on the assumption that the inelastic demand for oil could be curtailed only gradually by higher prices. And the failure to allow U.S. energy prices to rise with world prices delayed adjustment still further in the largest economy.

Following this strategy, the OECD countries shifted toward fiscal expansion during 1974 and 1975, cutting tax rates and raising government ex-

INFLATION VS. UNEMPLOYMENT IN OECD COUNTRIES, 1965-83



Source: OECD Economic Outlook

penditures by about 2 percent of GNP in the seven major countries over the two years (Llewellyn, 1983). Monetary policy was accommodative, with long-term interest rates in the seven major countries averaging  $2\frac{1}{4}$  percentage points below the rate of inflation during 1973-75. This compared with long-term rates  $2\frac{1}{2}$  percentage points *higher* than inflation from 1965 to 1972. While inflation averaged 11 percent from 1973 to 1975, monetary expansion kept long-term interest rates from rising above 9 percent, so that real borrowing costs were negative in many cases. Because of

this policy stance, the contractionary effect of the rise in the price of oil was limited to a 2 percentage point increase in the OECD average unemployment rate, while inflation dropped back, but only to 8 percent.

In 1979, by contrast, it was widely agreed among policy-makers that endemic inflation was deleterious to the long-run health of OECD economies. The McCracken Report (OECD, 1977) had called for a gradual reduction in inflation as the primary policy objective, and a number of countries adopted monetary targets consistent with such a goal. After two years of expansion and gradually rising inflation during 1977 and 1978, the United States was also converted to fighting inflation. With this background, the fiscal and monetary response to the 1979-80 oil-price shock was very different. Discretionary fiscal policy *subtracted* an estimated 2½ percent from GNP from 1979 to 1981 in the seven major industrial countries. Monetary policy also was quite restrictive following the U.S. shift to monetary targeting in October 1979. Long-term interest rates averaged almost 2½ percentage points above inflation in the seven largest countries from 1980 to 1982, in contrast to the earlier period. The accompanying figure clearly indicates the results. Inflation came down by 1983 to the levels of the 1960s, but unemployment rose to levels not seen since the 1930s.

This experience has taught us or reminded us of several lessons.

The first has been the rediscovery of the quantity theory of money.

The experience with floating exchange rates since 1973 has also taught us a lot about what can and cannot be expected from exchange-rate flexibility as a means of insulating national economies from external shocks and allowing independence in the choice of monetary policies (see Black, 1976). Put succinctly, there ain't no such thing as a "closed economy." Foreign shocks to inflation and output continue to spill over into the domestic economy. Domestic monetary expansion may have even narrower limits when the exchange rate depreciates than it did when exchange rates were pegged.

The nature of the oil-price shocks has also led to extensive clarification of the theory of international trade in intermediate inputs and to the rediscovery of Hotelling's theory concerning the optimum exploitation of natural resources over time.

The gradual upward adjustment of expectations about future inflation and their subsequent gradual adjustment downward have generated a new

macroeconomic application of the theory of rational expectations. When buttressed with assumptions of price and wage flexibility, it serves as the foundation stone of the new classical macroeconomics.

If all countries had had similar experiences in response to the two oil shocks, these lessons would be all that could be learned from either aggregate data or the experiences of individual countries. But experiences differed greatly.

#### **4 Differences across Countries**

##### *The First Oil Shock*

What, then, can be learned from differences across countries? Table 1 shows the average inflation and unemployment rates and misery indexes for ten industrialized countries in the three periods 1964-70, 1971-78, and 1979-83. During the 1960s, all ten countries registered less than 10 on the misery index. During the 1970s, seven of the ten suffered misery levels between 10 and 15, while Italy and the United Kingdom exceeded 15 and West Germany remained below 10. After the second oil shock, four more countries rose above 15, the Netherlands and Sweden remained between 10 and 15, while Japan dropped back from the intermediate level to join Germany in the relatively blissful region below 10.

In earlier work (Black, 1982b), which is summarized in the first three equations of Table 2, I tried to explain the diverse responses to the first oil shock in terms of differences in policies, economic structure, and institutions. (For an independent analysis of the period that reaches broadly similar conclusions, see McCallum, 1983.) Equation (1) in Table 2 explains the differences in inflation rates across countries by these three factors, equation (2) the differences in variability of unemployment, and equation (3) the interaction of the explanatory variables representing these factors.

*Inflation.* The measure of policy intentions used was an indicator of the anti-inflation stance of monetary policy, obtained by estimating a policy-reaction function for each country to explain the behavior of its discount rate. Instruments of monetary policy like the discount rate can be aimed at domestic inflation or unemployment or at external targets such as the balance of payments, the exchange rate, or foreign interest rates. A higher policy-reaction coefficient for the inflation target (BETAP) comes at the ex-

pense of lower coefficients for the other targets, reflecting choices among policy objectives. In Belgium, Germany, and the United States, monetary policy gave much weight to combatting inflation; in the United Kingdom, it gave a low weight to that objective.

The primary structural factor was the 1973 ratio of net oil imports to total primary energy consumption (PETRO), which measures vulnerability to the oil shock. Canada, the Netherlands, and the United States, with low ratios, all benefited from substantial domestic energy resources; France, Italy, and Japan, with high ratios, were particularly short of domestic energy.

The primary institutional factor was the degree of cooperation in the labor market, as measured by the incidence of strikes (LABREL). The political game model predicts that countries with cooperative labor-management relations will have lower inflation and unemployment than countries with noncooperative relations. On this measure, Germany, Japan, the Netherlands, and Sweden benefited from the most cooperative, or least strike-prone, relationships; Italy and the United Kingdom suffered from the least cooperative relationships. Other countries fell between these two groups.

Notice that this analysis does not claim to explain the inflation process fully, since there is no time-series portrait of its rise and fall. It merely explains the differences among countries. It may be objected that a sample of ten countries is too small to be reliable. But adding countries is not easy. In order to estimate the monetary-policy reaction functions, which were reported elsewhere, I used 202 monthly observations from 1963 to 1979 on 7 variables for each of 10 countries. This gave 14,140 data points, not counting 22 carefully researched dummy variables to allow for political and technical changes in policy behavior. It may also be objected that results based on only ten countries may be dominated by one or two extreme observations, such as the United Kingdom and Italy. But deletion of either of these countries from the sample does not significantly change the results.

*Unemployment.* We know that intercountry differences in unemployment rates are explained in large part by structural differences across countries. This will not surprise those who regard the long-run Phillips curve as vertical, which is economists' jargon for saying that policy affects unemployment only in the short run. Therefore, our variables represent-

TABLE 1  
INFLATION AND UNEMPLOYMENT IN TEN OECD COUNTRIES, 1964-83

|                          | Inflation |       |       | Unemployment |       |       | "Misery" Index <sup>a</sup> |       |       |
|--------------------------|-----------|-------|-------|--------------|-------|-------|-----------------------------|-------|-------|
|                          | 64-70     | 71-78 | 79-83 | 64-70        | 71-78 | 79-83 | 64-70                       | 71-78 | 79-83 |
| Belgium                  | 3.7       | 7.9   | 7.0   | 2.3          | 4.8   | 11.2  | 6.0                         | 12.6  | 18.2  |
| Canada                   | 3.4       | 7.7   | 9.7   | 4.2          | 6.7   | 9.0   | 7.6                         | 14.3  | 18.7  |
| France                   | 3.9       | 9.1   | 11.8  | 2.0          | 3.6   | 7.1   | 5.9                         | 12.7  | 19.0  |
| Germany                  | 2.7       | 5.2   | 4.8   | 0.8          | 2.3   | 4.8   | 3.5                         | 7.5   | 9.6   |
| Italy                    | 3.6       | 12.9  | 17.0  | 5.3          | 6.2   | 8.4   | 8.9                         | 19.1  | 25.4  |
| Japan                    | 5.4       | 10.0  | 4.2   | 1.2          | 1.7   | 2.3   | 6.6                         | 11.7  | 6.5   |
| Netherlands              | 4.8       | 7.8   | 5.2   | 1.0          | 3.7   | 9.0   | 5.8                         | 11.5  | 14.3  |
| Sweden                   | 4.4       | 8.9   | 10.1  | 1.7          | 2.1   | 2.6   | 6.1                         | 11.0  | 12.7  |
| United Kingdom           | 4.4       | 13.3  | 11.3  | 2.9          | 4.7   | 9.7   | 7.3                         | 18.0  | 21.0  |
| United States            | 3.4       | 6.7   | 8.9   | 4.0          | 6.3   | 7.9   | 7.5                         | 13.0  | 16.8  |
| Average <sup>b</sup>     | 4.0       | 8.9   | 9.0   | 2.5          | 4.2   | 7.2   | 6.5                         | 13.2  | 16.2  |
| Variability <sup>c</sup> | 0.8       | 2.6   | 3.9   | 1.5          | 1.8   | 3.0   | 1.5                         | 3.4   | 5.6   |

<sup>a</sup> Sum of inflation and unemployment rates.

<sup>b</sup> Measured by unweighted mean across countries.

<sup>c</sup> Measured by standard deviation.

SOURCE: OECD *Economic Outlook*, 35 (July 1984), Tables R10 and R12; 28 (December 1980), pp. 135-136.



TABLE 2  
CROSS-COUNTRY REGRESSIONS, 1971-78 AND 1979-83

First oil shock:

$$P7 = 10.19 - 3.04BETAP + 5.81PETRO - 3.80LABREL \quad \bar{R}^2 = 0.89 \quad (1)$$

(14.8) (5.0) (5.7) (5.3)

$$SDU7 = 1.66 - 1.10BETAU + 0.42BETAP \quad \bar{R}^2 = 0.52 \quad (2)$$

(6.2) (3.3) (1.5)

$$P7 = 9.53 - 1.65BETAP + 6.03PETRO - 2.46LABREL - 2.99BETAP \times LABREL \quad \bar{R}^2 = 0.96 \quad (3)$$

(20.9) (3.0) (9.8) (4.2) (3.4)

Second oil shock:

$$P8 = 21.72 - 1.47BETAP2 - 10.59LABREL - 2.26DU/RWR \quad \bar{R}^2 = 0.72 \quad (4)$$

(6.1) (1.3) (5.1) (2.2)

$$SDU8 = 1.75 - 1.10BETAU2 - 0.53BETAP2 + 0.91RWR - 0.15FP8 \quad \bar{R}^2 = 0.87 \quad (5)$$

(3.5) (4.4) (2.1) (3.8) (2.0)

NOTE:

*t*-statistics in parentheses below coefficients. *t*-value of 2 significant at 10% level.

P7 and P8—average inflation in each country during 1971-78 and 1979-83, respectively.

SDU7 and SDU8—standard deviation of unemployment during same periods.

BETAP—coefficient of inflation in reaction functions estimated over 1963-79 for discount rate.

BETAU—coefficient of unemployment.

BETAP2 and BETAU2—same coefficients, modified for major policy changes in 1980-81 in France, United Kingdom, and United States by adding 1 to BETAP for United States and United Kingdom, subtracting 1 for France.

Opposite changes made for BETAU.

PETRO—share of oil imports in 1973 energy consumption.

LABREL—dummy variable for degree of cooperation in labor markets.

DU—change in average unemployment from 1971-78 to 1979-83.

RWR—degree of real wage resistance.

PF8—cumulative change in standardized budget surplus from 1979 to 1983.

SOURCE: Black (1982b).

ing policy, structure, and institutions can be expected to explain *short-run* fluctuations in unemployment. A simple way to test this hypothesis is to examine the relationship between the *variability* of unemployment, measured here by its standard deviation over the period 1971-78, and the explanatory variables.

The results of this analysis in equation (2) of Table 2 show that Belgium, France, Germany, and the Netherlands, countries that chose to use monetary policy primarily to reduce inflation and thus had high values of BE-TAP, generally did so at the expense of higher variation in unemployment. Japan and Sweden, countries that placed most emphasis instead on keeping unemployment low and thus had high values of BETAU, were able to keep the standard deviation of unemployment 1 percentage point lower than France and Germany during the 1970s (0.4 vs. 1.4). They did so at the cost of significantly higher inflation than in Germany and slightly higher inflation than in France, which had worse labor relations than the other three countries.

To summarize these results for the first oil shock, we return to Table 1, which shows inflation and unemployment during the period. Germany used to best effect the combination of good labor relations and anti-inflationary monetary policy. Sweden and Japan, which also had cooperative labor relations, followed accommodative monetary policy and suffered higher inflation. The Netherlands seems to have fallen between the other three. In fact, all the countries with moderately cooperative labor relations fell in the middle range of experience with inflation and unemployment, no matter whether their monetary policies were directed against inflation or unemployment or toward external targets. The United Kingdom and Italy, with uncooperative labor markets, suffered by far the worst inflation and unemployment.

The lessons from the experience of the first oil shock appear to be: use tight monetary policy to avoid inflation, reduce dependence on imported oil, and strive for cooperative labor relations. Interestingly, equation (3) of Table 2 shows what appears to be an interaction between cooperative labor relations and the ability to exercise tight monetary control. Germany benefited strongly from both, while Italy and the United Kingdom suffered from their absence.

## *The Second Oil Shock*

In most countries, the reaction to the second oil shock was radically different from the reaction to the first. By 1979, oil consumption as a proportion of GNP in OECD countries had been cut to 89 percent of the 1973 level through substitution of other types of energy and economizing on the use of energy in response to higher prices. By 1983, oil consumption in OECD countries had dropped to 68 percent of the 1973 level in relation to GNP (OECD, 1984, p. 143). As a result, oil dependence does not significantly affect inflation differences in the 1980s.

At the macroeconomic level, we already know that monetary and fiscal policies did not support aggregate demand from 1979 to 1982 but were instead contractionary. The result was an average level of inflation similar to the first oil shock but a smaller increase in inflation (because the level was higher before the second shock). Furthermore, unemployment was higher, and there was a gradual reduction of inflation back toward the levels of the 1960s. The dispersion of inflation and unemployment across countries became even wider. This suggests that some countries had learned the lessons of the first oil shock far better than others.

Table 1 shows what appear to be three groups of countries with different responses to the second oil shock. The first group, Canada, France, Italy, Sweden, and the United States, might be termed the "slow learners," because they reaped the same harvest from the second oil shock as the average outcome of the first shock, namely higher inflation and higher unemployment. The second group, Belgium, Germany, the Netherlands, and the United Kingdom, apparently traded lower inflation for higher unemployment. Japan forms a third group all by itself, achieving much *lower* inflation during the second oil shock with virtually no increase in unemployment.

The different patterns of response to the second oil shock suggest some modifications in the factors that explain those responses.

Significant political changes in France, the United Kingdom, and the United States from 1979 to 1981 led to sharp changes in the orientation of their monetary policies. This can be roughly accounted for by modifying the policy-reaction coefficients attached to inflation (BETAP) and unemployment (BETAU) to increase the BETAP coefficient for the United King-