

O. Bjerkholt and E. Offerdal, editors

Macroeconomic Prospects for a Small Oil Exporting Country

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Macroeconomic Prospects for a Small Oil Exporting Country

edited by

Olav Bjerkholt and Erik Offerdal

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PREFACE

The theme of this book is the macroeconomic planning and policy issues confronting a small open economy with considerable reserves of oil and natural gas. Most of the articles included deal more specifically with the situation of Norway which made her first oil discoveries as recently as in 1969, and in the following fifteen years has grown to become a major oil exporter. Experiences of other countries are also dealt with and compared to those of Norway. Most of the papers have a strong emphasis on methods, and the editors hope that these may be found to be of interest in a wider context.

The contents of the book are edited from papers originally presented at a seminar in Ullensvang, Norway in May 1984. The seminar was organised by the Central Bureau of Statistics, Oslo, to present results from a project on petroleum economics within the institution together with five invited contributors from other countries.

The papers included in the book is divided thematically into four parts. The first part is concerned with the adjustment problems that arise in the transition towards an oil-rich economy that has been experienced by Norway as well as e.g. the United Kingdom, the Netherlands and Canada. In the Norwegian case this adjustment process almost coincided in time with the international recession that followed the oil price increases in 1974 and 1979. The emphasis here is on the need for public policy to ease this transition in a small open economy, and on the importance of oil revenues in adjusting macroeconomic policies. Part two deals with the functioning of international oil and gas markets, and includes modeling approaches to long-term projections of crude oil prices, and the European gas market. Part three comprises papers on the cost and profitability structure of oil and gas fields on the Norwegian continental shelf, and on

the relative merits of different petroleum taxation systems, namely those of Canada and the US. The final part deals with long-run issues such as the regional impacts of oil and gas revenues, the optimal depletion and spending profiles of an oil exporting country and macroeconomic strategies to cope with uncertainty of future oil prices.

A number of persons - apart from the authors - have contributed to make this book appear. The editors would especially like to express their gratitude toward The Norwegian Research Council and the Ministry of Oil and Energy which jointly sponsored the project on petroleum economics in the Central Bureau of Statistics as well as the seminar. Lorents Lorentsen has been in charge of the project, and has acted as advisor to all teams of authors. Similarly, Michael Hoel of the University of Oslo and Dominique Thon of the Christian Michelsens Institute have given valuable comments on some of the papers. The technical staff of the Research Department of the Central Bureau has contributed substantially to many of the papers. Especially we would like to thank Dagfinn Aa for technical computer assistance, Esther Larsen who has drawn the bulk of the figures, and Elin Berntzen, Elisa Holm, Heidi Munkelien, Marit Presthus and Sylvia Staalesen for extraordinary efforts in typing and text processing.

Oslo, March 1985.

Olav Bjerkholt and Erik Offerdal

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PART ONE:

BOOMING OIL SECTOR, STRUCTURAL CHANGE

AND MACROECONOMIC POLICY

OIL DISCOVERIES, INTERTEMPORAL ADJUSTMENT AND PUBLIC POLICY

BY

SWEDER VAN WIJNBERGEN

ABSTRACT

There is increasing suspicion that high but temporary oil revenues may be somewhat of a mixed blessing, unless proper public policy eases the adjustment process to an oil-based economy and, where relevant, prepares for "re-entry" once the oil wells have run dry. The paper discusses to what extent public intervention is needed within the framework of a two-sector, disequilibrium model. The analysis is focused on two issues. Firstly the possibility that spending of oil revenues may result in classical unemployment in a situation with real wage indexation, and which policy measures will be effective in ameliorating this situation. And secondly, the case for subsidies to the non-oil traded goods sector if there are substantial learning-by-doing externalities arising in this sector.

1. INTRODUCTION

"The Economist" (April 9, 1981) compared Norwegian economists to New York psychiatrists, specializing in the diseases of the rich. There is indeed increasing suspicion that high but temporary oil revenues may be somewhat of a mixed blessing, unless proper public policy eases the adjustment process to an oil-based economy and, where relevant, prepares for "re-entry" once the oil wells have run dry. In this paper we will discuss to what extent that is justified; is public intervention needed or not?

Horror stories abound about labour shortages and bottlenecks in the Gulf countries. On the other hand employment benefits of oil bonanza's did not materialise in Latin American oil producers, or for that matter the Netherlands, whose response to gas export revenues gave rise to the phrase "Dutch Disease". In all oil or gas producers, exporters feel pressure from

appreciation, either via high domestic inflation, a strong currency or both. Accordingly most of these countries have seen their traded goods sector decline faced with real wage pressure. The explanation of the real appreciation is clear enough: part of the oil revenues are spent on Non-Traded goods which leads to an increase in the relative price of NT goods (a real appreciation). This in turn draws resources out of the traded goods sector.

Two major problems emerge; one has to do with the adjustment from a non-oil economy to an oil based one, and the other with the "re-entry" problem, or the return to a manufacturing based export sector after oil revenues run out. The first issue concerns the surprising increasing unemployment in Latin-American oil exporters and in Holland that accompanied the increase in oil and/or gas revenues, and its failure to respond to Keynesian demand expansion (Holland in the mid seventies).

The second issue is whether a real appreciation and the concomitant negative effects on the T-goods sector call for (increased) public intervention. This could arise when there exist infant industry type learning by doing externalities in traded goods production. Clearly this is more of an issue in the case of a temporary appreciation, so it plays mainly a role in countries that will run out of oil in the foreseeable future.

Before proceeding to the theoretical analysis it is instructive to briefly look at the experience of Norway and Holland where both issues have come up with remarkably different policy response and outcome.

Although Norway's oil revenues started to flow in significant amounts only when the Statfjord field came on stream in 1979, bringing oil and gas revenues to 15% of GNP in 1980, government spending against oil wealth started earlier in the 70 ties, rising above 50% of GNP in the second half of the seventies. Much of that was spent on grants and subsidies to "sunset" industries, under pressure from a steady appreciation of the Krone (about 20% in real, trade weighted terms) and accompanying increases in unit labour cost.

The resulting current account deficit and increase in foreign debt clearly was a perfectly sensible response to the anticipated future oil revenues, the more so since foreign real interest rates were negative throughout most of the seventies.

More contentious is the channeling of all that extra expenditure towards subsidies for sunset industries, with predictable lack of success. Manufacturing output has been declining or stagnant from 1974 onwards although the devaluation cum wage-price controls in February 1978 provided

temporary relief at the cost of delayed, but much increased inflationary pressure. Labour productivity performance in manufacturing was dismal as a consequence of the featherbedding by the government, especially when compared with similarly placed Holland (cf. fig. 1).

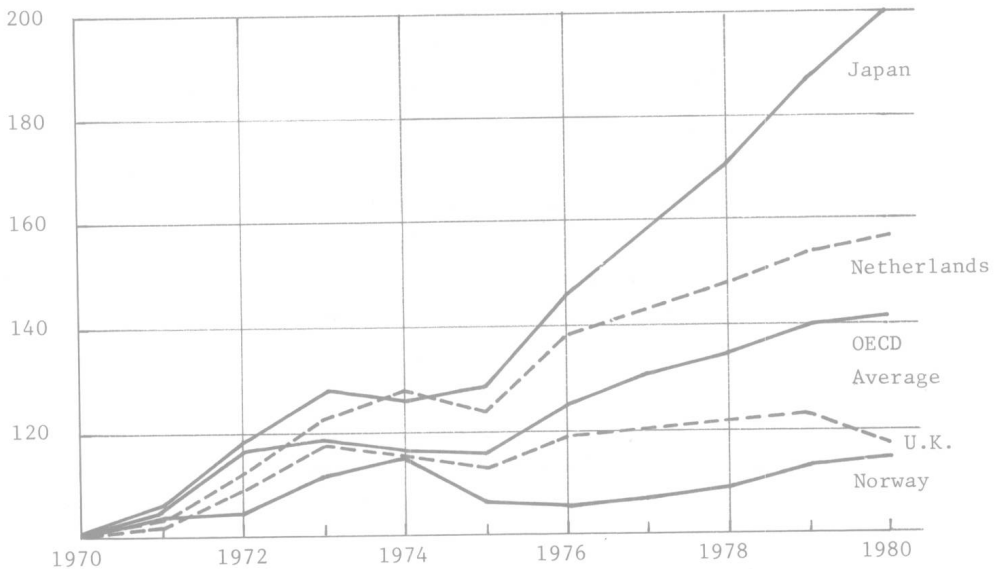


Figure 1. Labour productivity in Manufacturing industry (from Hall and Atkinson (1983)).

Not surprisingly relative unit labour costs (relative to trading partners) were 25% above 1970 levels around 1980.

The micro-economic costs of such King Canut-like fighting-the-tide policies are obvious although not easy to quantify. As the theory developed in the following sections predicts, however, they were highly successful in fighting unemployment, much more so than the more orthodox Keynesian fiscal demand stimulus policies followed in Holland. There is a good reason for that difference in success on the unemployment front as we will see in section 3, where we demonstrate that unemployment, if it arises in response to higher oil revenues, will be classical rather than Keynesian, making demand stimuli an inappropriate policy response.

On Holland we can be brief; we will focus on the two major differences in policies followed. Starting positions are roughly similar, although Holland had a proportionally larger manufacturing base but probably substantially smaller mineral reserves (consisting predominantly

of natural gas rather than oil). Holland also witnessed a steady appreciation of the guilder and increases in labour costs.

There are two major differences in policies followed, however. The Dutch relied much more on expansionary demand management and less on targeted subsidies to combat unemployment, and used gas revenues to build up an extensive social security system. This system has clear humanitarian plus points but has now turned into a severe economic liability since Holland's economic fortune has been in an accelerating downward slide since 79/80. Demand expansion was a conspicuous failure in terms of holding down unemployment, which increased from 1.2% in 1970 to 5.3% in 1980; since then the bottom has fallen out under the Dutch economy with unemployment reaching depression era levels (currently around 18%). Fiscal policy, which provided a stimulus when none was called for in the seventies, is now actively used to deepen the recession, with the government arguing that the large deficits inherited from the misguided expansion of the seventies do not leave it any choice but retrenchment in the middle of a collapsing economy.

The combined effect of increasing unemployment and absence of government subsidy policies on manufacturing has however been spectacular (cf. fig. 1). Labour productivity and output have increased substantially over the seventies. The structure of manufacturing has changed substantially, however.

Summing up, Norway subsidized its sunset industries with as a result a sheltered, inefficient manufacturing sector, but a sector that continued to provide employment on a pre-oil scale. Unemployment has therefore not been a problem in Norway.

Table 1: Index numbers of Industrial Production for the Netherlands

	1970	1975	1977	1978	1979	1980
Industry total	100	123	133	134	138	137
Mining & quarrying	100	238	245	226	238	221
Manufacturing	100	109	119	121	125	128
Food, beverages, etc.	100	119	127	132	135	136
Textiles	100	81	81	77	79	74
Leather goods	100	62	61	57	57	56
Printing & publishing	100	104	115	120	123	125
Chemicals	100	125	151	156	170	164
Basic metal industries	100	100	107	114	115	112
Electricity, gas, water	100	153	164	175	178	175

(Source: Hall and Atkinson (1983))