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Fiscal Adjustment and Economic Progress

An Optimal Fiscal and Legal Framework to Promote Economic Growth and Investment in the Faroe Islands

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Economic Policy Analysis for Micro-States

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Contents

LIST OF TABLES 3
LIST OF FIGURES 3
LIST OF RECOMMENDATIONS 4
ACKNOWLEDGEMENTS 5
TERMS OF REFERENCE 6
EXECUTIVE SUMMARY 7
1. Consequences of the Faroes' Great Economic Crisis of 1989-94 7
2. The Economic Implications of Losing the Danish Subsidies 8
3. The Six Major Impediments to Investment in the Faroes 9
4. Ensuring Control Over Government Expenditures 9
5. Diversifying the Economy 11
6. Developing a Formal Capital Market 14
7. Promoting an Adequate Supply of Good Quality Companies 16
8. Removing Restrictions on Foreign Investment 17
9. Lowering the Excessive Tax Burden 19
1. INTRODUCTION 21
2. WARNING SIGNS OF PROBLEMS 23
2.1 The Great Economic Crisis of 1989-1994 23
2.2 Previous Warning Signs 27
2.3 Current Warning Signs: The Elimination of Danish Subsidies 34
2.4 Options for Dealing With the Elimination of Danish Subsidies 37
3. IMPEDIMENTS TO INVESTMENT IN THE FAROE ISLANDS 47
3.1 Introduction 47
3.2 Investment Impediment #1: Little Formal Control Over Government Expenditures 48
3.3 Investment Impediment #2: Minimal Diversification of the Economy 53
3.4 Investment Impediment #3: Absence of a Formal Capital Market 81
3.5 Investment Impediment #4: A supply of good quality companies 91
3.6 Investment Impediment #5: Restrictions on Foreign Investment and the Current Lack of Interest by Foreign Investors 112
3.7 Investment Impediment #6: Taxation 121
4. RECOMMENDATIONS TO MEET THE OBJECTIVES OF THE NEW FAROE ISLANDS INDUSTRIAL POLICY 132
1. Improved international market cooperation 133
2. Improved Communication with the Outside World 134
3. Enhancement of Science and Technical Qualifications 134
4. Reliable Infrastructure 135
5. Convenient Equity Financing 135
6. Improved Tax Policy 136
7. Cautious Law-Making 137
8. A High Level of Public Service 137
9. Industry Development 138
APPENDIX A: APPLIED GENERAL EQUILIBRIUM 142
APPENDIX B: THE OPTIMAL SIZE FISCAL STATE 158
APPENDIX C: DATA QUALITY 176
ABOUT THE AUTHORS: MISSION TEAM 177

List of Tables

Table 1: Compensation as a % of GDP 24
Table 2: Faroe Islands Foreign and Domestic Debt and Government Expenditures, 1980-1992 25
Table 3: National Government Expenditures, % of GDP, (Dkr, millions): 1962-98 26
Table 4: Breakdown of Government Expenditure: 1970, 1980, 1990, 1997 30
Table 5: Gross Public Sector Debt in the Faroe Islands, 1985-2001 31
Table 6: Danish Subsidies as a Percentage of Faroese GDP, 1962-1997; Millions Dkr. 35
Table 7: Macroeconomic Results for 2007 from the General Equilibrium Model 44
Table 8: Industry Gross Output for 2007 from the General Equilibrium Model 45
Table 9: Exports for 2007 From the General Equilibrium Model 46
Table 10: Electricity Prices for European Households and Industry, by country, 1996 63
Table 11: Macroeconomic Effects of Oil Discovery 74
Table 12: Industry Effects of Oil Discovery 75
Table 13: Components of the Icelandic Capital Market (% of GDP, unless otherwise specified) 84
Table 14: Country Breakdown of Global Amount Raised From Privatisation (US$ million) . 94
Table 15: Privatisations by Country & Sector: 1980s & 1990s 95
Table 16: Preliminary Valuation Analysis of Faroese State Owned Commercial Activities. 106
Table 17: Tax/GDP Ratios for OECD Countries: 1970-1996 122
Table 18: Economies in Transition: Government Share of GDP, 1998 123
Table 19: Countries Currently Reducing Or Planning To Reduce Tax 126

List of Figures

Figure 1: General government welfare expenditures in selected OECD countries 51
Figure 2: Welfare expenditures by category 1996: Iceland vs. Nordic countries % of GDP .. 51

List of Recommendations

Recommendation No. 1: 52
Recommendation No. 2: 53
Recommendation No. 3: 53
Recommendation No. 4: 53
Recommendation No. 5: 54
Recommendation No. 6: 61
Recommendation No. 7: 61
Recommendation No. 8: 61
Recommendation No. 9: 61
Recommendation No. 10: 61
Recommendation No. 11: 61
Recommendation No. 12: 62
Recommendation No. 13: 64
Recommendation No. 14: 64
Recommendation No. 15: 65
Recommendation No. 16: 75
Recommendation No. 17: 75
Recommendation No. 18: 76
Recommendation No. 19: 76
Recommendation No. 20: 76
Recommendation No. 21: 78
Recommendation No. 22: 79
Recommendation No. 23: 80
Recommendation No. 24: 80
Recommendation No. 25: 80
Recommendation No. 26: 85
Recommendation No. 27: 85
Recommendation No. 28: 85
Recommendation No. 29: 85
Recommendation No. 30: 86
Recommendation No. 31: 89
Recommendation No. 32: 90
Recommendation No. 33: 90
Recommendation No. 34: 90
Recommendation No. 35: 107
Recommendation No. 36: 108
Recommendation No. 37: 108
Recommendation No. 38: 108
Recommendation No. 39: 120
Recommendation No. 40: 120
Recommendation No. 41: 120
Recommendation No. 42: 120
Recommendation No. 43: 120
Recommendation No. 44: 121
Recommendation No. 46: 131
Recommendation No. 47: 131
Recommendation No. 48: 131

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We, the authors of this report, are solely responsible for its content and no attempt was made to dictate to us the methods or the content we have used or the conclusions we have reached.

Terms of Reference

The purpose of this assignment is to provide advice to the Faroe Islands' Ministry of Trade and Industry with respect to the following objective:

To lay the policy foundations, according to the stated business policy of the Ministry of Trade and Industry, for creating an optimal fiscal and legislative framework that promotes an economic and commercial environment amenable to raising local investment funds and attracting foreign investment, and capable of generating income, wealth and tax revenue for the Faroe Islands sufficient to fill the fiscal gap likely to be caused by any reduction of Danish financial assistance.

This Report to the Minister of Trade and Industry will have due and appropriate consideration of the Business Policy Objectives of the Ministry, namely:

- The creation of a legal and fiscal framework to enable Faroe industries and businesses to develop, to follow international trends, to make them more innovative and acquire up-to-date skills through diverse communications, with appropriate concern for Faroe national interests.
- Needed adjustments to promote an active legal framework for Faroe participation in international markets.
- The importance of smooth communications and traffic with the outside world.
- The development of an environment conducive to promoting Faroe R&D.
- A fully developed infrastructure that promotes competition throughout the Faroes
- A sound fiscal regime (taxation, excises and resource levies).
- A sound legal framework and the optimal level of public services.
- Simple policy development to promote non-subsidised industries

The intent of these objectives is to promote an attractive environment, comparable to best overseas practice, which enables business, capital and the workforce to prosper.
Our approach in this report has four dimensions. First, we put a mirror up to the Faroes to summarise the obstacles facing the country in its effort to prepare for the inevitable reduction and elimination of the Danish subsidies. *The obstacles are the key impediments to investment.* The rationale is that the right climate for investment is the key to unlocking the long-term sustainable economic growth potential of the Faroe Islands. This approach also examines the mistakes made in the past and the lessons learned, or not yet learned.
Second, we provide a window on the world so that the people of the Faroes can examine what other countries are doing to make their governments more efficient and their economies more efficient and wealthier. Third, we develop models to simulate the optimal size of government and the optimal level of tax for the Faroes.
Fourth, we develop an input-output table integrating all industries and then we develop a general equilibrium model to simulate the shocks and potential responses for the economy as the subsidy is withdrawn. Simultaneously, we examine the potential implications of the development of offshore oil for the Faroese economy. It is now up to the Faroese people to choose from among a range of alternatives that we have provided, or others that we have not considered, and to choose the timing of those policy options for meeting the serious challenges that are waiting in the next decade, including the loss of the Danish subsidy, the next inevitable decline in the fortunes of the fishing industry, and the potential development of oil.

Executive Summary

1. Consequences of the Faroes' Great Economic Crisis of 1989-94

- This **Report on *Fiscal Adjustment and Economic Progress has four objectives***: (1) to develop a policy foundation for the continued restructuring of the Faroe Islands economy; (2) to promote a positive climate for investment and sustainable economic growth in the aftermath of the Great Economic Crisis of 1989-94 when the economy shrank by 38%; (3) to prepare for its greatest modern challenge, the elimination of the Danish subsidies over the next decade or so; and (4) to examine the potential economic implications if sea-bed oil is discovered and developed.

- In reviewing the economy during the Great Economic Crisis, the ***IMF identified three key goals in 1993:*** (1) "restore economic growth;" (2) "restore regional balance; and (3) "reduce public sector external debt to a sustainable level. While growth has been restored and we understand that regional economic balance is beginning to resume,[2] the problem of the national (and in particular the gross external public sector debt) is only partly resolved.

- To achieve these goals, the ***IMF recommended seven strategies*** that the Faroes used to restore the fiscal deficit to a surplus by 1995 (an objective achieved): place strict controls on the wage bill (also generally achieved),[3] reduce subsidies further (largely finished), initiate more user pays (unclear how much has been accomplished), freeze new borrowing (achieved), restructure the fish and fish processing sectors (partly complete), and restore health to the financial sector (largely finished).

- ***What was the overall cost of the Great Economic Crisis?*** Roughly, 13.6 billion kroner: (1) 2.4 billion kroner in interest payments during 1989-97 (above the long term trend); (2) huge bailouts in 1992-93, totaling 2.6 billion kroner; (3) 3.1 billion in fishing subsidies between 1986 and 1997; (4) an increase in the gross public debt (beyond the bailouts and beyond the long term trend), of 3 billion kroner; and (5) 2.5 billion kroner of lost national GDP due to negative economic growth during the great economic crisis.

- ***When the Danish subsidy is eliminated, it will have an effect similar to about 50% to 60% of the full impact of the Great Economic Crisis.*** Unless the government is running a tight fiscal ship and has substantially reduced the gross public debt, and unless the private sector is substantially stronger than it is at present, the economy will not have the resilience to cope effectively with the shock of the removal of the Danish financing.

- ***The Great Economic Crisis drove the gross national debt up to 154% of GDP by 1995, more than three times greater than the upper threshold (50% of GDP)*** for purposes of achieving an acceptable international credit rating for the Faroes. Even in 1999, the gross public debt remains at 79% of GDP. Most of the cuts in the public sector debt will have to come from the Home Government because its share of the gross public sector debt is so much higher than before the crisis.

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[2] This issue is outside our mandate.
[3] Incomes are rising again because of the success of the economy

- Our analysis of net and gross public sector concluded that ***the gross public sector debt needs to be cut by between 3.0 and 4.0 billion Danish kroner*** to bring the government's financial position with respect to debt back to pre-crisis levels and prepare for effective management of the economy when Danish subsidies are removed.

- ***What are the main differences in government spending now versus before the Great Economic Crisis?*** In 1970, interest payments on the national debt represented 6.1% of total government spending and 1.2% of GDP. By 1997, interest expense had risen to 15% of total home government spending (a 146% increase) and to 5.6% of GDP (a 458% increase). No other major category of spending rose so dramatically. The next most significant increases were: (a) social security: a 303% increase relative to GDP, and an 80% increase in its share of home government spending (from 18.3% to 33%); (b) health care: a 293% increase relative to GDP and a 70% increase in its share of home government spending (from 7.8% to 13.3%); and (c) education: a 225% increase relative to GDP and 38% increase in its share of home government spending (from 10.4% to 14.4%). Spending in other key areas either declined (transport, fisheries), or increased less quickly (management and administration). Thus, in terms of government expenditures, reducing the interest burden is the top priority.

- ***What are the principal lessons to be learned from the Great Economic Crisis?*** (1) The need for the Home Government to develop an early warning system to provide advance notice, and minimise the impact, of future crises; (2) the need to develop good quality data and information in order to improve the quality of government decisions; (3) the need to promote the increased diversification of the economy; (4) the need for a sustainable fishing policy; (5) the need to reduce the national debt and ensure better control of spending; and (6) the need to provide a better climate for attracting investment to the Faroes.

2. The Economic Implications of Losing the Danish Subsidies

- We have developed a general equilibrium model of the Faroese economy to produce some alternative scenarios of 2007 (10 years out from the base year of the model), focusing on the removal of the Danish grant and other Danish expenditure in the Faroe Islands.

- It is clear that removal of Danish assistance will cause profound economic dislocation unless early initiatives are taken to restructure the economy. Without such changes, personal income tax rates would need to double, private consumption would be 10% below the level of 1997, and the rate of unemployment could approach 20%, obviously an unviable option.

- Economic restructuring was modeled to include the following:

  - The corporatisation and privatisation of market-based government activities such as those in finance, fish processing, transport, and communications. (We have not considered health and education, which are outside our mandate). This is the primary means of paying off public sector debt and thereby raising government saving.

- Associated development of a Faroese capital market and more openness to foreign investment.
- Government subsidies to the fishing industry removed.
- Zero growth in real government consumption.
- Social welfare benefit rates reduced by 10-15%.
- Introduction of tradable fishing quota.
- Corporate tax rate lowered to 20%.

- These measures will yield improvements in industry efficiency and entrepreneurial skills, leading to improved economic performance and a higher standard of living than would exist under the continuation of Danish financial assistance, without restructuring.

- In addition, the increased diversification of the economy will place it in a better position to withstand future external shocks, such as sharp reductions in fish catch volumes or fish prices.

- Thus, the case for economic restructuring does not depend on the removal of Danish assistance. Therefore, if the Faroes are fortunate enough to be able to trade off foreign debt owed to Denmark against continuation of the Danish grant, restructuring should still be pursued. In fact restructuring would be easier in such a situation – and a similar opportunity may not arise for many years.

3. The Six Major Impediments to Investment in the Faroes

#1: little formal control over government expenditures
#2: minimal diversification of the economy
#3: absence of a formal capital market
#4: inadequate supply of good quality companies
#5: restrictions on foreign investment and the current lack of interest by foreign investors
#6: an excessive tax burden

4. Ensuring Control Over Government Expenditures

The Icelandic Welfare State Model

- ***Iceland is a good model for the Faroese welfare state*** because of (1) the success of the Icelandic model, (2) the similarity of the two economies, (3) Iceland's very long commitment to the welfare state; (4) the much higher per capita income in Iceland, and (5) Iceland's good economic management (very low inflation: 2-3% per annum; the lowest unemployment rate in 1999 in the OECD (at about 2%), and a sharply declining national debt to GDP ratio (51% in 1995, the highest point in history, versus just under 35% in 1999).

- In Iceland, about 87% of total medical bills are paid for with taxpayers' funds, while 13% is paid for by the individual. As of 1998, health and social security expenditures accounted for 47% of all government spending. Iceland runs a very efficient welfare state. For example, in 1996, Iceland spent about 7.5% of GDP on general welfare expenditures, compared to 10% for Australia, 13% for Portugal, 15% for Spain, 16% for the UK, 17% for Italy, 23% for Germany and 26% for Denmark.

- The results indicate that ***Iceland is more frugal than its Nordic neighbours*** with respect to old age pensions, disability payments and survivors' benefits as well as unemployment benefits and housing. On the other hand, it is roughly as generous as the other Nordic countries with respect to illness benefits, family and children's benefits and other social benefits. Remember that ***Iceland has a higher per capita income than Sweden and Finland and is on a level similar to Denmark.***

A TAP Program[4] for Delivering an Efficient and Effective Level of Government Spending

- There are ***inadequate controls on government spending*** across all agencies, departments and SOEs. There is an auditor general's office, but there is no controller-general's office,[5] and no single department has an appropriate level of formal review authority over the expenditures of individual departments, agencies and enterprises run by government. Finally, the requirement that all government agencies and departments keep a formal record of all of their assets and liabilities is only coming into effect in early 2000. The results will require close monitoring.

- ***A TAP program incorporates Transparency, Accountability and Performance*** measurement for all government departments, agencies, or SOEs. The process of ***transparency*** can best be insured by an effective Official Information Act that permits any member of the public to receive information about the government programs and their effects and by a Fiscal Responsibility Act, first developed in New Zealand (1994).[6] A review needs to be undertaken to determine why the 1994 Official Information Act is not being effectively used by the Faroese public.

- The process of ***accountability*** can be enhanced by ensuring the passage of a Fiscal Responsibility Act, that job descriptions are written which specify the duties and realistic objectives of all public servants (including those in the SOEs) and by permitting the government to terminate the employees that are incompetent.

- ***Performance measurement*** involves objective review of the ability of all public servants and their organisations to meet agreed targets. Performance also involves developing effectiveness and efficiency criteria for setting priorities across projects.

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[4] This concept was first developed in Caragata, P.J., 1998, *Why Are Your Taxes So High?* Auckland, New Zealand: Seascape Press.

[5] The Controller General has an ex ante function. The position reviews the entitlements of government department s and agencies to funds and authorizes release of funds, whereas the Auditor General has an ex post function, reviewing spending after it has taken place.

[6] New Zealand passed a Fiscal Responsibility Act in 1994. The five objectives of the Act are: (1) "increase the transparency of policy intentions and the economic and fiscal consequences of policy;" (2) "bring a long-term (as well as an annual) focus to budgeting"; (3) "disclose the aggregate impact of a Budget in advance of the detailed annual Budget allocations; (4) "ensure independent assessment and reporting of fiscal policy"; and (5) "facilitate parliamentary and public scrutiny of economic and fiscal information and plans."

Taxpayers want value for money in government spending. Taxpayers are the shareholders of government, not the servants of government. The opportunity cost of all government decisions needs to be examined.

5. Diversifying the Economy

- Inadequate diversification of the economy raises the cost of capital in a country, that is, the cost of borrowing on national or international markets.

Fishing Industry and Related Industries

The cost per kilogram of fish delivered to the processing factories is higher in the Faroes (80 Danish Kroner per hour on average), compared to costs in Iceland (53 Danish Kroner per hour) and UK (44 Danish Kroner per hour). This helps explain why Faroese fishing companies often operate on thin margins. Key causes of high costs include high wages; out-dated technology; a higher cost of capital, higher electricity prices and the lack of economies of scale.

- Faroese commercial banks indicate that they would be prepared to extend more loans to the fishing industry if ***tradable quotas*** were established. Tradable quotas would do much to promote consolidation and improved profitability in the industry. The long-term objective should be to have a fishing management system similar to that in Iceland. How that is achieved is up to the governments of the Faroes and Iceland. A mutually compatible tradable rights regime would also encourage ***joint ventures*** between Icelandic and Faroese fishing and fish processing companies. Joint ventures would offer Faroese companies privileged access to the rich Icelandic fishing waters and vice versa, help reduce a major problem facing the industry (the lack of a steady supply of stock), and provide a more realistic long-term basis for developing value added processing either in the Faroes or in Icelandic-Faroese joint venture companies operating abroad. Icelandic companies have some significant world class strengths in marketing networks, technology, software and access to capital, which could improve the profitability of Faroese fishing companies. Icelandic fishing companies which compete against subsidised fishing companies all over the world (notably in Scandinavia and Canada), are said to be 3 to 4 times more efficient, but receive no subsidies.

- It is premature to impose a ***resource royalty on fishing*** until changes to government policy help to make the industry more efficient. The industry could benefit significantly from ***lower taxes***, ***vertical integration***, ***consolidation in the demersal fishing industry*** (by takeovers and/or cooperatives), ***encouraging tradable fishing days across fishing vessels categories***, ***privatisation, joint ventures with Icelandic companies, better quality information*** about company performance, the introduction of ***Economic Value Added (EVA) measurement***, creating a ***stockmarket***, and ***fixing the number of licenses (relative to the volume of the catch).***

- ***The best possibilities for developing the salmon farming industry are***: (1) hatcheries; (2) fish food for salmon farming; (3) value added processed products and related technology (bone stripping, slicing, cutting, smoking); but, it is highly likely that while some additional salmon processing will take place in the Faroes, more will occur in Europe. (4) technology (including software based technology) for salmon farming to compete with imported Norwegian products; and (5) technology

(including software based technology) for the new market of fast food salmon products as well as salmon farming and processing technology.

General Issues

Electricity costs in the Faroes are the highest in Europe. This discourages investment in, among other things, the drying of fish in the Faroes. In a comparison with 15 other countries, the Faroe Islands had the highest price per kilowatt-hour for households in 1996, 137% higher than Finland, the lowest cost supplier. At the same time, the Faroe Islands price per kilowatt-hour (kWh) for industry in 1996 was also the highest among the 16 countries and 237% higher than Sweden, the lowest cost supplier. With respect to Denmark, in the case of household electricity prices, the Faroe Islands price per kWh was 33% higher, while in the case of prices per kwh for industry, it was 134% higher. A complete review of the efficiency performance in the industry is required.

Other Industries

- If ***petroleum*** is discovered, in order to control the tidal wave of effects that can hit an economy after oil is produced and revenue to government begins to mount, the government should set up a ***Petroleum Heritage Fund*** through which the oil revenue to the state could be managed. This Fund would invest most of the money offshore in order to prevent excessive inflation and to avoid undermining the international competitiveness of the other sectors of the economy. This approach is also in keeping with the Faroese traditional cultural emphasis on inter-generational equity. There are a the range of options for structuring a Faroe Islands Trust Fund or Heritage Fund based on the experiences of oil producing jurisdiction. Those options include::

- The Alaska Permanent Fund, Alaska, USA (1976)
- The Alberta Heritage Fund, Alberta, Canada (1976)
- The Norwegian Petroleum Fund, Oslo, Norway (1970s)
- The Kuwait Future Generations Fund (1976)

It is premature to decide which of these four options (or which other option) is to be preferred. There are pros and cons for each. One of the best features of the Alaska Permanent Fund is that there is no political control. A systematic examination should be undertaken by an objective outside party to advise the government of the Faroes on the best option. The Faroes Heritage Trust Fund should be set up several years before oil is produced in commercial quantities, if it can be produced. The Trust Fund could be used to:

1. fund technical training for students wishing to prepare themselves to enter industry
2. fund training for qualified Faroese in the best universities in the world
3. make a contribution to private pension funds
4. help develop or deepen a venture capital market.

- A ***petroleum royalty regime*** (similar to the New Zealand hybrid oil royalty regime with an ad valorem royalty providing the floor and a profits-based royalty providing the ceiling) should be developed before drilling starts.

- There is a need to develop a more detailed assessment of the ***onshore petroleum related-business*** prospects for Faroese to provide goods and services to any offshore

oil developments. This would include supply ships, stevedoring services, outfitting, rig repairs, and helicopter services, and any related tourist spin offs.

A Simulation of the Potential Impact of Oil Development

- If oil is discovered in commercial quantities, and there is no certainty that oil will be discovered, the development of oil in the Faroes could be a bigger economic shock than the Great Economic Crisis (1989-94) – but in the opposite direction. Using a simulation approach with our general equilibrium model, we estimate that GDP would rise by 73% relative to Scenario E (the structural adjustment scenario). Per capita GDP would increase by 59%, significantly raising the standard and the cost of living. Private consumption would increase by a smaller amount as there would need to be a considerable increase in household saving to minimise the risk of an inflationary blowout; the savings is possible because of the expected higher real gross wages and lower personal income taxes. The mean net effective tax rate paid on household income would be only 9.2% compared to 19.1% in our restructuring scenario.

- On the negative side, there would be less of a current account surplus than one might expect because of an increase in imported capital equipment and consumables and a potential appreciation in the real exchange rate (ie relative purchasing power parity) and, therefore, a loss of competitiveness by other Faroese industries. In particular, fishing output would fall because the fishing industry could not attract sufficient labour and capital when faced with competition for resources from the oil and ancillary industries, which supply the oil industry such as ship building/repairs and other manufacturing. Aquaculture, however, is strong enough to retain its previous output growth, but only just.

- **Key implications of the oil development are as follows:**

1. restructuring of the economy is needed in order to prepare the country for oil development; with its new domestic capital market and more private ownership of industry the Faroes are more likely to accommodate the effects of discovering oil with rather than without the restructuring;
2. there is a need for the effects of the potential bonanza associated with oil to be carefully managed if they are not to undermine the enhanced robustness and diversity of the economy;
3. a resource heritage fund is needed to sterilise the funds by investing offshore (as Norway has done) in order to prevent massive inflation;
4. the Faroese kroner should remain at parity to the Danish kroner (or perhaps to the Euro);
5. tax incentives to encourage private investment in equities or the conversion of part of the oil royalty distribution into equities may also be desirable.

- ***Tourism*** is a small industry in the Faroes, but the second most important source of export revenue. It also has the best potential for quick expansion, given the level of investment required. The Faroe Islands needs to pay closer attention to the successful development of the *tourist industry* in Iceland, in terms of strategy and quality. The Faroese banks need to brief themselves better on the potential for developing the tourist industry. A higher level of political commitment to tourism is needed which ensures that more resources are available for developing tourism. Other requirements are a new legal framework to promote tourism, a new tourism development strategy, a new destination development plan, joint marketing between the industry and the national tourist board, improved service quality (notably in

restaurants), improved tourist facilities, a new method for financing the local tourist offices, and better quality products for tourists to buy.

- ***High Tech Industries:*** The high tech industries in the Faroes with the highest potential for growth are exportable IT services. The best prospects are in the following sectors: (1) new hardware solutions for fishing, fish farming, or fish processing; (2) the development of standard software packages; (3) managing software for companies abroad over the internet and/or with partners on location; (4) software subcontracting abroad; (5) facility management (managing equipment for customers) via the internet, (examples are network administration, web hosting, application hosting or storage of large data quantities); (6) help-desk services (Ireland has established itself as the call-centre in English for Europe. The Faroes can achieve the same position with respect to Scandinavia).

- The biggest obstacle impeding growth in the Faroese IT industry is the lack of skilled people and the lack of research. Overcoming this requires a strong commitment by government to high tech education – along the lines developed in Ireland. Other related improvements required are the development of a venture capital market, more emphasis in the education system on English, the language of the IT industry, and the development of a national IT strategy.

- ***Other Potential New Industries*:** (1) pure spring bottled water; (2) the development of wind-power electricity farms.

6. Developing a Formal Capital Market

- As the Danish subsidies are eliminated, which now appears inevitable, only ***the development of an entrepreneurial culture*** will provide the wealth generation to generate the level of growth needed to offset the loss of the subsidies. The track record of government over the last several decades is one of wasteful expenditure that generates unsustainable growth.

- Some positive signs are the significantly improved profitability of many Faroese companies as a result of the write-off of their debts and their purchase by talented young entrepreneurs for a fraction of the value of outstanding debts. The large number of bankruptcies in the early 1990s created the beginning of major change in the economy. Many companies were purchased by young entrepreneurs for a fraction of the value of outstanding debts.

- ***Iceland has taken an eight-step approach to developing its own capital market.*** This included:

(1) development of a viable stock exchange, including making the ISE a limited liability company, and the removal of its monopoly power to co-ordinate the share trading (1991);
(2) tax concessions for share-purchases (1992)
(3) general privatisation program (1991).
(4) incorporation of the state-owned banks (1998)
(5) merging of the four state-owned investment credit funds (1998)
(6) privatisation program for the banking sector, the specific aims of which are to: (a) maximise the value of State assets; (b) promote increased competition; (c) promote

wider share-ownership by the public; (d) improve the quality of financial services in all sectors and regions; (e) increase foreign ownership (1998-99).
(7) listing of the commercial banks on the stock-exchange (1998).
(8) introduction of competition in the electricity industry; eventually, this will eventually lead to the development of wholesale market in electricity (with a related futures market).[7] (2000)

- ***The general privatisation program of the Icelandic government has five main objectives:***

(1) The most important objective is "to increase savings".
(2) "to increase economic efficiency by eliminating the distortions inherent in state-ownership."
(3) "to widen share ownership and continue to encourage development of the Icelandic stock market."
(4) "to raise capital in order to decrease Treasury debt."
(5) "to finance specific transportation projects and to support the growth of information technology."

- ***The development of a capital market in Iceland*** included (1) the nurturing of an equities market, as well as (2) markets for housing bonds, treasury bonds, mutual funds, bank bonds, the encouragement of foreign investment, (3) the creation of market ownership of the stock exchange, and (4) links with international agencies information service agencies such as Reuters, Bloomberg, and the Financial Times Information Service; (5) the development of procedural rules for trading and information systems, listing of securities, the production of prospectuses and preparations for public offer of securities, membership of the Icelandic Stock Exchange, and on-going disclosure requirements for issuers, and (6) the legal creation and/or securing the active participation in the market of stock brokers (including the banks and the Central Bank) the pension funds, closed and open end mutual funds, insurance companies. The Faroes Islands will need to follow a similar course.

- Once the Faroes have established their own bond, bill and equity market, a key strategy for ***improving the trading depth of the market*** is to have the Faroese companies listed on the Icelandic and Danish stock exchanges and then later on the Swedish, Finnish and Norwegian stock markets.

- The government should develop legislation supporting the efficient and sustainable development of employee stock ownership plans, stock option schemes, or pension fund holdings, as well as profit-sharing. The countries in which these two approaches have found the most fertile ground are: Australia, Denmark, France, Japan, New Zealand, Norway, Portugal, Spain, the UK and the US.

- The government should pass legislation that would permit the public to engage in reverse mortgages.

- The government should develop a venture capital fund that can be used to promote coaching, training and some seed capital for potential entrepreneurs.

[7] Ministry of Industry and Commerce, 1999, *Proposed Changes in the Electricity Sector*, Meeting with the OECD, 31 May.

7. Promoting an Adequate Supply of Good Quality Companies

- A decade ago privatisation was a controversial policy and only affected round US$20 billion in assets for the OECD countries. Since that time this figure has grown rapidly, increasing to US$153.8 billion in 1997. From 1996 to 1997 asset sales grew by 58%, but this dropped off in 1998 to US$114.5 billion due to financial market volatility.

- There are three basic reasons why so many countries have embarked on the privatisation road: (1) the high costs of control (including the constraints on maximising the rate of return such as conflicting objectives and political interference, and the backlash from voters that don't like monopoly prices e.g. in telecommunications) and the disillusionment with its effectiveness; (2) technology is changing so fast, especially in the network industries (telecommunications, banking, electricity) or the industry has perpetually low rates of return (airlines) that governments can neither afford to risk taxpayers money by failing to keep pace, nor can they afford to keep pace; and (3) there is an optimal level of taxation and government expenditure between 15-30% of GDP (after which there are diminishing returns) that can be identified through long-time series econometric modelling based on data for dozens of countries.

- The companies which are ready, or almost ready to be marketised (corporatised and then privatised) and then listed on a stock market, or which could be ready within a few years include: Atlantic Airways, Telecom, Føroya Bank, United Seafood, Faroe Seafood, JFK Trol (fishing), Vágar Airport, The Government Development Bank, and business services to the health system and other government departments such as laundry, catering and cleaning.

- A very preliminary assessment was undertaken to determine the extent to which local assets are available to bring down the gross public debt to a level commensurate with greater fiscal responsibility and with a greater potential to deal with the next economic crisis. The valuations are termed *preliminary* here because none of the companies has been subjected to a due diligence process, including a thorough assessment of their management, physical assets and the financial statements. Neither has any effort been made (because of the lack of time) to assess the net present value of future cash flows and to take into consideration sector or company-specific risk.

- The estimated range of the total value of the asset sales, based on our eight different scenarios (including the average of all scenarios), is from 2.5 billion Dkr kroner to 4.9 billion Dkr. Recall that the analysis of the gross public sector debt revealed that roughly 3.5 billion kroner in the national government debt needs to be paid off in order to bring the government back to a level it faced prior to the Great Economic Crisis.

- The sale of Føroya bank, the seafood companies, Telecom and Atlantic Airways will generate enough revenue (assuming about 40% of total investment comes from foreign investors, largely Icelandic and other Scandinavian investors) to bring the public sector debt to levels experienced just prior to the Great Economic Crisis.

- Companies which could be corporatised immediately but which will take longer to privatise are: the Electricity Company; the Ports, the Post Office and the State Alcohol monopoly. Other potential candidates for listing on a stock exchange would be the Savings Bank (Føroya Sparikassi). It needs to become a full service bank so that it can compete with Føroya Bank across all sectors of lending activity in the Faroes.[8] Føroya Sparikassi is a cooperative bank owned by its depositors. Thus, it would have to go through a demutualisation process similar to the private insurance companies in New Zealand and Australia in recent years. The same is true for the Insurance Company.

- The principal goal to be achieved in initiating a marketization program is to reduce the gross public sector debt, which is far too high by international standards and much too high in the context of the elimination of the Danish subsidies. The government needs to decide what its secondary objectives are in pursuing marketization. These could include (a) increasing savings to promote economic stability; (b) increasing economic efficiency by eliminating the distortions inherent in state-ownership; and (c) widening share ownership and encourage development of a stock market. Criteria for the sale of these state assets must be developed, and there is a need top determine a decision-making process that will be seen to be honest and fair.

- On the basis of the experience of the last 20 years, it takes about 10-15 years to restructure an economy. This suggests that the minimum phase-out period for the Danish subsidy should be 5-7 years. The quicker the phase-out of the subsidy, the more pressure there will be to restructure, but too rapid a pace will depress privatisation prices.

8. Removing Restrictions on Foreign Investment

- Currently, there is ***very little foreign investment in the Faroe Islands*** and no statistics are kept by the Faroese government on foreign direct investment inflows or foreign direct investment abroad by Faroese. Examples of current foreign investments in the Faroes are: Norwegian company in salmon farming, Icelandic companies are operating in the Faroes in shipping, retail, fish farming technology, software, British company in a Suderoi cold storage facility (100%), and an Icelandic company in shipping.

- The ***principal short term objective in promoting foreign investment*** in the Faroes is to maximise the value of the State-Owned Enterprises that are offered into the market over the coming decade. But there are important longer-term gains such as better access to markets, financing, technology, expertise and information that also need to be considered.

- There are a ***range of policy options for promoting foreign investment.*** We have examined four, each of which may offer some value to the Faroes: (1) The Cyprus Option; (2) the Icelandic Option; (3) the Irish Option; and (4) the Swedish Option.

[8] One of the strong areas of emphasis in the Icelandic privatisation program was ensuring that all banks offered a full range of banking services. The only unfortunate exception is home mortgages which are dealt with by a state agency. This helps to explain why mortgage bonds are a prominent feature on the Icelandic financial market. Mortgages are a standard source of income for most banks and should be integrated in the banking sector's normal commercial activity.

- **The Cyprus Option** has a number of key advantages: (1)a large number of tax treaties with countries around the world (an option not currently open to the Faroes because it only has tax treaties with the Nordic countries; (2) a good credit rating (A1+ rated by Standard & Poor's credit rating service); (3) a 20% corporate tax rate for companies operating in Cyprus and a 10% corporate tax rate for companies that use Cyprus as their regional headquarters and channel their profits through Cyprus; (4) the regional headquarters regime is supported by no withholding tax on dividends, or interest or royalties for investment from some countries. (5) personal income tax on foreigners in the Industrial Free Zone) ranges from 0 to 12.5%.; (6) there is a ten year tax holiday for investment in some sectors (largely tourism); (7) Except for small retail operations, 100% foreign investment is permitted; (8) excellent telecommunications; (9) strategic location close to Europe; (10) well-trained people who can speak two or more languages fluently.(11) low crime rates; (12) lots of sunshine.

- **The Icelandic Option:** Iceland's advantages in attracting foreign investment are: (1) special relationship with EEA countries that helps by-pass some restrictions on foreign investment; (2) the cheapest electricity in Europe, with huge potential for expansion; (3) a high level of technical skills, including software development skills; (4) a privatisation program; (5) the high profitability of many local companies; and (6) corporate tax rates are not particularly attractive at 30%, but Iceland has just introduced the offshore trading centre (OTC) for International Trading Companies. For companies that are registered in Iceland, but which engage in trade by matching offshore buyers with offshore sellers (thus the transactions do not affect Icelandic buyers and sellers), the corporate tax rate is 5% not 30%, while dividends remitted abroad are taxed at 10% (as compared to 0-5% for companies in tax treaty partners). This makes Iceland a conduit country for tax purposes. A disadvantage for foreign investors wishing to relocate their headquarters to Iceland, or Icelandic investors wishing to remain in Iceland is that they are taxed on their world-wide income, rather than on the income they earn in Iceland. This latter system is a territorial based income tax system, and is one of the reasons why Hong Kong has been so successful in attracting the regional headquarters of multinational corporations.

- **The Irish Option:** The principal advantages offered by Ireland to foreign investors are: (1) high skill levels, and in particular, the growing high level of computer literacy among Irish graduates; this is underpinned by heavy investment in IT training at all levels of education (2) good quality infrastructure (ports, airports, electricity, telecommunications and the International Financial Centre in Dublin); (3) the low 10% corporate tax rate; (4) job subsidies; (5) the growth in the international services sector in tandem with the computer revolution, and a strong emphasis in Ireland on software, financial services, telemarketing and information technology. By all accounts the Irish Option has been remarkably successful. Over the period 1992-1999, the average growth rate in real GNP has been 8.5%. Per capita income rose from US$9,000 in 1987 to about US$18,000 in 1997, an increase of 100%. The government's debt has fallen from 95% of GDP in 1987 to about 65% in 1997. Prices are stable, with inflation averaging about 2% in the 1990s. Finally, the current account in the balance of payments has been in surplus since 1991, indicating that after years as a capital importer, Ireland is now a capital exporting country.

- **The Swedish Option:** The principal advantages offered to foreign investors are: (1) economic stability, with low interest rates, low inflation, and a budget surplus, after having had Europe's largest budget deficit and a severe exchange crisis in 1993; (2) a centre for the development of intellectual capital and technology because of its past success in developing technological innovations, and its current success as an IT leader (cellular phone systems, circuit board production, on-line financial services, etc), science parks, strong investment in education, and higher R&D spending than any other country; (3)strategic location in the heart of Northern Europe and a base for regional headquarters; (4) deregulation (exchange controls, financial services, telecommunications, transportation, and electricity) and low tax regime; (5) relatively low corporate tax rates are 28% (unfortunately, Sweden's high personal tax rates are a serious factor discouraging expiates from working in Sweden,

- In summary, the key advantages in each country are as follows: **Cyprus** offers low taxes (for headquarters regimes (10%), ex-pats, tourism investments; a tax treaty network that can be exploited and high technical and language skills. **Iceland** offers very cheap electricity; high technical and language skills; a privatisation program; highly profitable local companies; and low taxes for the offshore trading centre (OTC) for International Trading Companies. **Ireland** offers high technical skill levels, good quality infrastructure; a low 10% corporate tax rate; job subsidies; and strong presence in the IT industry. **Sweden** offers economic stability and responsible government (a budget surplus and deregulation); high skill levels and a world class innovation track record. For a small country on the periphery of Europe, low corporate taxes are a necessity, as are a high level of technical and language skills, and emphasis on IT industries, and or financial services, privatisation, profitable companies and a strong emphasis on innovation.

9. Lowering the Excessive Tax Burden

Summary of the Optimal Size Fiscal State in the Faroe Islands (see Appendix B)

- Public services were 9% of GDP in 1962 and 28% in 1997. This trend is due to the rapid growth of taxation and Danish expenditures on the Faroese public sector. In 1962, total taxes were 18.8% of GDP. Adding Danish transfers brings the size of the fiscal sector to 29.4% of GDP. In 1997, total taxes were 45.8% of GDP. ***With Danish expenditures and grants, the government sector constituted 68% of GDP. Thus, the relative size of the fiscal state in the Faroe Islands in 1997 is 2.3 times its size in 1962.***

- The ***policy implication*** of this study is that the current level of taxation 45.8% of GDP in 1997 imposes an excessive burden on the economy in terms of lost income and output. Estimates suggest that every additional kroner of tax revenue costs the economy significantly more than one kroner. Substantial deadweight losses are evident.

- Over the period 1963-1997, annual average real economic growth of GDP averaged 3.6% per annum, with 4.0 % during 1963-69, 5.2% in 1970-79, 4% in the 1980s, very little in 1990-97, due to the Great Economic Crisis.

- An ***econometric model*** was designed to examine the link in the Faroes between real economic growth and the growth rate in the average level of taxation. The empirical result, which is statistically significant reveals that each one percentage point increase in the growth rate of the tax/GDP ratio lowers the economic growth rate by about a third of a percentage point

- One the one hand, some goods and services provided by government raise the productivity of inputs in the private sector. On the other, by acting as a negative externality on the private sector, taxes reduce economic growth. Increased taxation, by increasing the distortion in the allocation of resources, discourages economic growth. Thus, up to some fiscal size of government, the positive externalities of expenditures exceed the negative externalities of taxation, and national output and economic growth will be higher as the size of government expands. Beyond some fiscal size of government, the negative externalities of taxation are greater than the positive externalities of expenditures, and there are ***diminishing returns to taxing and spending by government***; thus, economic growth will be lower as government size increases.

- Based on econometric modelling for the period 1963-97, the ***optimal tax rate is in the range of 20 to 30 percent of GDP, generating a growth between 5% and 6% per annum***. The lower rate is consistent with the optimal tax rate for Iceland and with the modelling results for Faroese data confined to the earlier period of its economic history. The latter rate should be treated as the upper bound on the growth-maximizing tax rate.

- Tax reduction would reduce some of these excessive costs. If the Faroe Islands is to move from a modest long-term growth path of 3.4 percent per annum to a high growth path of about 6 percent per annum, the level of taxation will have to be halved to about 23% of GDP.

- With domestic taxation and Danish spending in the Faroe Islands at about 70 percent of GDP, the Faroe Islands, like their Nordic neighbors, is a universal welfare state, where benefits are distributed largely without regard to the economic circumstances of the individual recipient. The negative long-term consequences of high taxes need to be taken into consideration in responding to the removal of Danish subsidies.

1. Introduction

The symbols of a nation can reveal much about its history and how it can handle a crisis. Looking over the roof of the Hafnia hotel in Torshavn, the capital of the Faroe Islands, one's eye is caught by the two bronze statues on a nearby hilltop. It is a man drawing peat fuel on his back and a woman drawing milk on hers.

This symbolises the hard work of the pioneers that has been needed in such a remote location (62 degrees north latitude) to survive against the odds of making a living in the middle of the North Atlantic ocean, while struggling to deal with a harsh environment. The *pioneering spirit* in this North Atlantic nation is very important. It has both a high per capita income and a very strong attachment to traditions that is probably unique in Europe.

The people of the Faroes are very flexible and at the same time somewhat constrained in their approach to hardship. A new approach is needed to meet the serious problems looming in the future because this geographical isolation and economic insularity led the country to turn a blind eye to the early warning signs that were evident in the lead-up to the great economic crisis of 1989-1994.[9]

The national flag bears a cross that symbolises the faith that the people have in their religion (the Faroes are very devout by European standards) and in themselves and the confidence that they can struggle **successfully** against those odds. During the national festival in July 1999 many of the songs sung were religious. Music is a very important part of the culture. Another traditional song was about the need for each generation to leave the next generation better off. So, the concept of intergenerational equity and progress is part of the culture. This openness to the future has been somewhat circumscribed by the isolationist mentality that has arisen on this remote group of islands.

A more modern symbol is radar. All modern fish processing ships and fishing boats and trawlers in the harbours and inlets of the 18 islands that make up the Faroes have modern radar systems that help them survive at sea in weather conditions that are unstable at best and remain harsh. Without an early warning system no nation or company can survive and prosper. An early warning system provides crucial information about impending trouble. Without good quality information, it is impossible to make good decisions.

These four symbols (hard work, faith, inter-generational equity and progress, and early warning systems) are the basis of survival and prosperity in the Faroes. But the Danish subsidy and financial bail-outs in the early 1990s have added a dimension of dependence to the Faroes' culture that does not fit well with the pioneers' self-reliance and determination for independence.

This Report on *Fiscal Adjustment and Economic Progress* is designed to lay a policy foundation for continuing the restructuring[10] of the Faroe Islands economy and to promote a positive climate for investment and sustainable economic growth in the aftermath of the great economic crisis of 1989-94. During that crisis the economy

[9] These early warning signs will be discussed soon.

[10] Current estimations suggest that in the aftermath of the great economic crisis of 1988-93 about 50% of the needed restructuring of the economy has been completed. In effect, the country is only half way to its goal of sustainable economic development.

shrank by 38% in real terms.[11] The report will also help the economy to prepare for its greatest modern challenge, the elimination of the Danish subsidies over the next decade or so.

But this is not the only serious challenge. The prospect of oil production, if not handled properly, could seriously undermine the international competitiveness of the fishing industry, the country's principal export earner, and destroy any new developments in the IT and hi-tech sectors. Thus, the Report also takes into consideration the opportunities and threats posed by the potential development of oil in Faroese waters.

The Faroes is a small enterprise society, with a very narrow investment base and no capital market. There is also little experience with cost benefit analysis and profit sharing. A fortunate occurrence, arising from the great economic crisis of 1989-94, when many companies went bankrupt and many companies were sold cheaply, is the current low debt/asset ratios. Given this lower debt burden, Faroese companies are now better positioned to make efficiency gains and to exploit new business opportunities.

There is inefficient use of national savings. Much of the savings of the Faroese is locked up in housing or is kept in the banks as deposits. Only the insurance companies, banks, a few fishing unions, and government employees have pension plans. A national pension plan will be introduced later in 1999.[12] Two of the principal impediments to investment in the Faroes are the relative immobility of savings and the lack of private sector opportunities because of the dominance of government in the economy. A third major impediment, the absence of a capital market (notably the absence of a stock exchange), helps to reinforce this inefficient relationship between the supply of savings and the availability of investment prospects.

[11] This is based on the 1980 GDP data at market prices prepared by Magni Laksáfoss of Faroe Islands Statistics from the database called MAGDA (a series of data from 1962 to 1997).

[12] Under the scheme each individual will be permitted to decide the nature of his or her plan. This will complement rather than replace existing plans. In the beginning the government will contribute a sum equal to about 1-2 percent of total wages from the whole economy will be contributed by government to set up a pension for those that have no pensions. The scheme will be compulsory. Forty percent of individual contributions will be subject to a tax deduction.

2. Warning Signs of Problems

2.1 The Great Economic Crisis of 1989-1994

The principal immediate causes of the Great Economic Crisis of 1989-94 were: (1) the collapse in fish prices;[13] (2) the disappearance of the fish species such as saithe and cod (a decline in the cod catch[14] from 30,000 tons to 5,000 tons); and (3) wasteful spending (including subsidies) by previous governments, leading to inefficient industry and high debt. The crisis endured for almost six years and led to a decline in real GDP of 38%[15] between 1988 and 1994.

The most important issue related to the Great Economic Crisis is that because the government's liabilities (including loan guarantees) and its spending program (including subsidies) were out of control going into the crisis, the government was largely unprepared to cope with an economic emergency such as a collapse in fish prices and fishing stocks. If the government had been more fiscally responsible, it would have had the reserves and resourcefulness to have managed the crisis. This is the issue then: government must be responsible in normal times in order to have the ability to be financially excessive during crises; otherwise, some other country or the IMF will be required to come to the rescue. This is the fundamental foundation for operating an effective early warning system for economic policy.

During the Great Economic Crisis, bankruptcies were widespread, affecting the fishing industry, the banking sector etc. The banks wrote off 60% of their loans. The total amount of loans written off was about 7 billion kroner, equal to about one year's GDP. All the municipalities had to enter into an agreement to reschedule their debts in 1995.

Denmark's Advisory Committee to the Faroe Islands noted that "the Faroese business community has undergone a number of structural changes in recent years, including debt rescheduling, mergers within the fishing industry and economic separation of processing from the actual fishing operation. The abolition of a number of industry subsidy schemes coupled with the concurrent market fall in landings of fish and selling prices for fish led to a fall in profitability in the processing industry. It has therefore proved impossible, in the current economic climate, to service the debt burden associated with the production plant on shore. This was also the reason for the new debt rescheduling that took place in Føroya Fiskavirking [United Seafood] (the parent company of most of the Faroese processing plants) in June 1995."[16]

The principal reason for the reduced budget deficit from 1991 (Dkr570 million) to 1994 (Dkr 133 million) was the "necessary" cuts in subsidies and government capital investments.[17] Denmark's Advisory Committee to the Faroe Islands recommended that "the fishing fleet should be brought down to a profitable level that is compatible with

[13] This was in part triggered by a scare on German television in 1988 about a small parasite in the fish.
[14] An important long run cause of the crisis was the 1977 extension of the 200-mile limit by Iceland leading to the Cod Wars (with Britain). The effect on the Faroes was to force Faroe ships out of Icelandic and other foreign waters and back to their own waters. The result was over-fishing in Faroese water.
[15] This figure keeps changing every time the GDP time series is re-estimated. This latest estimate is made using July 1999 figures from Landsbanki Føroya.
[16] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 9.
[17] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 5.

the limitation imposed, and possibilities offered, by biologically sustainable catch quotas for fishing within and outside the Faroese fishery limits."[18]

Another much less significant factor was the cut in public sector wages, "the levels of government consumption and government [were] maintained. With the reduction in the private sector, this means that government consumption has absorbed an increasing proportion of aggregate income. The necessary budget improvement has therefore had to be achieved by increasing the tax burden, which is now level with that of Denmark." [19]

Because the Faroes does not manage its own exchange rate (its currency is fixed at par to the Danish Kroner), it used a sharp reduction in wages to depress demand in order to begin the process of restructuring. A currency devaluation has a similar effect on real wages and purchasing power. In nominal terms, wages fell from 4431 million kroner in 1989 to 3125 million kroner in 1994, a decline of 29.5% (**Table 1**). As a share of GDP, wages declined from 1991 through to 1996, representing a drop of 6.4 percentage point of GDP.

Table 1: Compensation as a % of GDP

	Comp	GDP	%		Comp	GDP	%
1989	4431	6973	63.5	1994	3125	5046	61.9
1990	4248	6533	65.0	1995	3229	5250	61.5
1991	4141	6217	66.6	1996	3491	5801	60.2
1992	3839	5844	65.7	1997	3766	6229	60.5
1993	3232	5122	63.1	1998	4138	6823	60.6

Source: Landsbanki Føroya, July 1999, Information Memorandum

Unemployment rose significantly, from just over 2000 persons in 1992 to a peak of 4,500 persons in 1993 (on a seasonally adjusted basis).[20] The unemployment rate reached 19.5% in 1993, and subsequently fell to 15% in 1994, 12% in 1995 and 10% in 1997.[21] These levels of unemployment were only prevented from rising higher by large-scale net emigration. During the 8 years to the end of September 1996, 7,280 people[22] out of a 1989 total population of 47,658, or roughly 15% of the 1989 population left the Faroes in search of better economic prospects. This was a substantial vote of no confidence in the existing system.

House prices in Tórshavn fell from 1989 through 1994 and did not start to rise again until the first half of 1995, due to lower interest rates and extended terms. Prices in the other towns and villages followed a somewhat similar pattern.

One of the important issues debated at the time was whether or not the tax burden should be further increased (beyond the IMF recommendations). The Advisory Committee recorded its views:

[18] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 7.
[19] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 6.
[20] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1995/96*. November p. A2.
[21] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1995/96*. November p. 2.
[22] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1995/96*. November p. 2.

- "The actual choice facing the politicians is therefore whether to achieve the rest of the budget improvement through cuts in government spending or a still higher tax burden. The Committee wishes to state in this connection that the possibilities of avoiding further tax increases through rationalisation in the public sector do not seem to have been fully explored, and that in the areas in which such possibilities have been to exist, steps have not been taken to make use of them."[23]
- "The steeply rising tax burden on the Faroe Islands has given rise to extensive discussion about the background for the heavy emigration and the effect of the tax burden on this...[But] most of those who emigrate move to Denmark, where ... the tax rates do not differ substantially from the Faroes rates. Far more important is the lack of job and income opportunities on the Faroe Islands"[24]

IMF Review of the Great Economic Crisis

An IMF Report[25] in 1993 on the great economic crisis concluded that "the medium to long term prospects for the Faroese economy depend not only on macroeconomic adjustment on the fiscal front but to an equally great extent on structural changes and improvements in the efficiency in the fisheries sector. In its 1993 review of the economy, the IMF set three basic medium targets for the government: (1) "restore economic growth;" (2) "restore regional balance; and (3) "reduce public sector external debt to a sustainable level.

Table 2: Faroe Islands Foreign and Domestic Debt and Government Expenditures, 1980-1992

Year	Govt Over-Seas Debt (Dkr, mn)	% chg	Private Over-seas Debt (Dkr, mn)	% chg	Home Gov't Debt (Dkr, mn)	% chg	Local Gov't Debt (Dkr, mn)	% chg	Gov't Spend Ing	% chg
1980	858		225		316		369		712	
1981	1149	34.0	209	-7.1	512	62.0	394	6.8	838	17.7
1982	1426	24.1	179	-14.5	577	12.7	450	14.2	1000	19.3
1983	1665	16.8	585	226.8	612	6.1	499	10.9	1175	17.5
1984	1746	4.9	1314	124.6	635	3.8	578	15.8	1430	21.7
1985	2169	24.2	1637	24.6	609	-4.1	779	34.8	1579	10.4
1986	2171	0.1	2891	76.6	618	1.5	981	25.9	1407	-10.9
1987	1891	-12.9	4073	40.9	566	-8.4	989	0.8	1656	17.7
1988	2626	38.9	5121	25.7	633	11.8	1223	23.7	2919	76.3
1989	3136	19.4	5128	0.14	1174	85.5	1435	17.3	3189	9.3
1990	3818	21.7	4715	-15.1	1743	48.5	1546	7.7	3071	-3.7
1991	4244	11.2	4003	-15.0	2299	31.9	1609	4.1	3141	2.3
1992	5297	24.8	2599	-35.0	3467	50.8	1699	5.6	3276	4.3
1993	7444	40.5	-785	*	6209	79.1	1758	3.4	5033	53.6
1994	6936	-6.8	-1546	*	6416	3.3	1434	-18	2740	-50.9
1995	6996	0.9	-2594	*	6694	3.4	1462	2.0	2746	0.2

Source: MAGDA/Dept. of Statistics, Faroe Islands; * numerous bankruptcies/defaults
Landsbanki Føroya (1989-95 government and private overseas debt data)

[23] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 6.
[24] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 8.
[25] Memorandum of Economic Policies, March 1999

While economic growth has been restored, it will be threatened again by the reduction and elimination of the Danish subsidies. The question of regional balance is outside the terms of reference of this report and therefore no data has been collected to examine this issue, but we understand that, with the improved fortunes of the fishing industry, balance is being restored. Nonetheless, it is an important issue that deserves more attention. Implicitly, as the tourism sector grows and as the remaining tunnel projects are completed, there will be greater opportunities for those in remote villages to enjoy easier access to government services and jobs.

Table 3: National Government Expenditures, % of GDP, (Dkr, millions): 1962-98

	Expend Dkr Mn	GDP at Market prices	% GDP		Expend Dkr Mn	GDP at Market prices	% GDP
1962	37	256	14.5	1980	712	2573	27.7
1963	42	304	13.8	1981	838	2946	28.4
1964	50	345	14.5	1982	1000	3452	29.0
1965	58	388	14.9	1983	1175	4196	28.0
1966	71	429	16.6	1984	1430	4551	31.4
1967	81	444	18.2	1985	1579	5099	31.0
1968	86	467	18.4	1986	1407	5837	24.1
1969	100	501	20.0	1987	1656	6372	26.0
1970	115	600	19.2	1988	2919	6882	42.4
1971	145	691	21.0	1989	3583	6973	51.4
1972	173	772	22.4	1990	3237	6533	49.5
1973	201	914	22.0	1991	3267	6217	52.5
1974	249	1111	22.4	1992	3486	5844	59.7
1975	304	1219	24.9	1993	5046	5122	98.5
1976	354	1528	23.2	1994	2774	5046	55.0
1977	416	1938	21.5	1995	2759	5250	52.6
1978	496	2006	24.7	1996	2712	5801	46.8
1979	601	2145	28.0	1997	2873	6229	46.1
				1998	2934	6823	43.0

Source: MAGDA/Dept. of Statistics, Faroe Islands; Landsbanki Føroya (1989-98)

With respect to the public sector external debt, it is still much too high, even in 1999, five years after the Great Economic Crisis. The methods for resolving these problems prescribed by the IMF included the need to

1. reduce the fiscal deficit in order to cut the debt and meeting annual amortisation payments; the deficit has been eliminated and the government has run a budget surplus for four years from 1995 through to 1998; The budget was balanced in 1995, as specified in the IMF agreement.
2. place strict controls on the wage bill, reduce subsidies further, and initiate more user pays;
3. freeze new borrowing; this has happened (although some debt has been refinanced) and the total level of debt is falling;
4. promote the restructuring of the fish and fish processing sectors; this is happening; although more work is needed; and
5. restore health to the financial sector; this has also happened.

2.2 Previous Warning Signs

The warning signs that the Faroes economy experienced in the 1980s leading up to the great economic crisis were evident for those that understood their importance:

- a steady increase in ***government spending*** accompanied by a growing increase in the provision of loan guarantees and subsidies to industry (a responsibility of government).
- the ***steady accumulation of government debt*** (a responsibility of government).
- the ***absence of good quality information and analysis***, that is, good statistics and cost benefit analysis (a responsibility of government)
- the ***lack of diversification of the economy*** - the over-reliance of the economy on the fishing industry, and the previous failed efforts at diversification in the period 1983-1985, namely the chemical fleet and the merchant marine; both went bankrupt during the great economic crisis - (a responsibility of government).
- ***excessive fishing*** in Faroese waters due to over-capacity (brought on by excessive subsidies) and to the fishing licensing policy (a responsibility of government); and
- the dramatic ***change in the weather*** in the 1980s that involved both serious storms and changes in water temperatures.[26]

Expenditure Trends Warning Signals

Our principal concern in this analysis is to examine the behaviour of the Home Government, since that is where the principal decisions and mistakes were made that helped to foster the Great Economic Crisis.

A brief look at the change in the level of government spending can provide us with some early warning signals about trouble looming in the future. As indicated in **Table 2**, there were signs that the national government's expenditure in nominal terms was a problem in the early 1980s (1981: 17.7% increase; 1982: 19.3%; 1983:17.5%, and 1984:21.7%) when the rates of increase continued to remain as high as they had for the previous two decades. The issue is one of the lack of sustainability of spending increases. In the 1960s (1962-1970), the average annual rate of increase was 15.6%. In the 1970s, the rate of increase jumped to 20% per annum.

In the first four years of the 1980s, this average annual increase was 19.1%, a clearly unsustainable course. The first fiscal deficits started to show up during this time: 1978 (-2 million kroner, or 0.1% of GDP); 1979 (-24 million kroner, 1% of GDP); 1980 (-6 million kroner, 0.2% of GDP); 1981 (-6 million kroner, or 0.2% of GDP); and 1984 (-44 million kroner, 1.3% of GDP). Even though these deficits were small relative to GDP, they were completely out of line with the consistent pattern of fiscal balances since 1962, and they presaged a careless approach to future spending.

Again, in 1988 there was a huge increase in government spending in nominal terms, but by then the economy was heading into recession, and that must be considered a late rather than an early **warning** sign. Thus, the change in the rate of nominal spending by government was first evident in the early 1980s. The moment that spending becomes a

[26] There is considerable debate in the Faroes about the causes of the decline of the fishing stocks. One view has it that the cause was due to inadequate licensing policy and subsidisation of fishing capacity. While this is undoubtedly a problem in the longer term, it seems more likely that the rapid decline in stocks was generated by climatic and oceanographic factors, with changes in currents and temperature causing a severe lack of food in traditional breeding areas. This may well have been exacerbated by the tendency of some species to consume their own young when confronted with scarce food. Models of the dynamics of fish population were (and probably still are) too naïve to predict these types of events..

problem is the time to ensure that additional attention is paid to the quality of the spending and the rate of return or gains expected from that spending. In other words, the government should have started to apply systematic auditing and more rigorous cost benefit analysis in the early 1980s, but obviously did not do so.

A more fundamental view is obtained by examining the change in government expenditure levels relative to GDP. But, because GDP estimates are not fully settled until at least a year or so after any current year, these estimates may be somewhat less timely than is the method of examining the annual changes in key categories such as debt and expenditure.

In **Table 3**, in the 1960s, the ratio of home government expenditures to GDP averaged 16% per year, a very modest figure. In the 1970s (1970-78), the annual average was 22%, an increase of 37% over the previous decade. This large leap is of most interest, but the decade average was still modest. The turning point year was 1979 when the ratio jumped to 28% from 24.7% in 1978. This is the best early warning sign that the government was changing its appetite for spending. At that time, the appropriate controls (auditing and cost benefit analysis) should have been put in place to minimise the risks of fiscal failure.

In the 1980s (1979-87), the average expenditure to GDP ratio was 28%. But, in 1988, the spending level changed dramatically, rising to 42.4% of GDP, an increase of 63% over the previous year. But this leap was occurring just as the economy was starting to slide into a six-year depression, and thus cannot be considered an early warning sign.

If we add the Danish subsidy to the Home Government spending, the figures are as follows. In the 1960s, the annual average level of spending was 29% of GDP. In the 1970s (1970-78), this rose to 37%, an increase of 28%. In the period 1979-87, the ratio of total national government spending to GDP jumped to 45%, an increase of 22% over the period 1970-78. For the period 1988-1997, the ratio rose to 63%, an increase of 40%. In general, as we shall see shortly, the rate of increase in the Danish subsidies was smaller than for Home Government expenditures.

As we can see from a more detailed analysis of **Table 3**, for the period 1988-1995, the government expenditure to GDP ratio averaged 58%, an increase of 106% over the 1979-87 period. But in the last three years (1996-98), government spending has fallen relative to GDP, averaging 45.3% of GDP, a decline of 22% over the 1988-95 period. Nonetheless, government spending now is still 17 percentage points of GDP higher than it was in the period 1979-87 leading up to the Great Economic Crisis. One of the major problems in the economy is that while the private sector is generating a lot of savings, the public sector is not.

This brief analysis suggests that there are potentially 1.0-1.2 billion kroner in savings if government spending can be reduced to pre-crisis levels.[27] One of the most important methods for achieving this goal is to reduce the national debt in order to minimise the requirement to pay interest. About one-third of the potential savings can be made by returning the national government's debt level to the pre-crisis levels in order to reduce interest payments. We will assess the national debt issue after examining how spending categories have changed across time.

Where Did All the Money Go?[28]

It is always sobering to review how the quantity and quality of government spending has changed across several decades. Here our concern is with quantitative changes. While Danish subsidies have risen as a percentage of GDP (from 15.3% in the 1970s to

[27] Take 15% to 17% of 1998 GDP at 6786 million Danish kroner. The result is a range of 1.0 to 1.15 billion kroner.

[28] Data quality questions related to this information will be discussed shortly.

23% in the 1990s, for a rise of 48%), they have fallen as a percentage of total home government spending because the latter has risen so rapidly. Home government has increased its spending from 24% of GDP in the 1970s to over 56% in 1997, a jump of 135%. In the 1960s and the 1970s, the Danish subsidy averaged 42% of the total Faroe Islands home government spending. By the 1980s, this had fallen to 30% and in the 1990s to 26.5%.

Total spending (including Home Government and Danish subsidies but excluding municipal government spending) rose from 29% of GDP in the 1960s, to 38% of GDP in the 1970s, 45% in the 1980s, and 85% in the 1990s. By 1997, total government spending had dropped off to 66% of GDP, still 47% above the level in the first half of the 1980s, prior to the Great Economic Crisis.

The next logical step would be to analyse how Home Government spending and the Danish subsidies, together, were allocated over time. Unfortunately, beginning in 1988, over 50% of the Danish fund (486 million Dkr) was provided in a block grant, and its allocation is not accounted for in current government statistics. In 1997, over 70% of the Danish subsidy (886 million Dkr), was accounted for by the Block grant.
Making the allocation of the Danish block grant transparent should be a relatively simple process. The absence of this feature in current public accounting is yet another example of the information and data deficiencies with which analysts need to cope. Making assumptions about the block grant money could lead to completely misleading conclusions about public policy. As a result, and given the declining share in total Home government spending by the Danish subsidy, we have chosen to examine the changes in Home government spending without the Danish subsidy. We believe that this picture of changing government spending patterns provides useful insights into the current strengths and weaknesses of Home government finances.
In 1970, interest payments on the national debt represented 6.1% of total spending and 1.2% of GDP (**Table 4**). By 1997, interest expense had risen to 15% of total home government spending (an increase over 1970 of 146%) and to 5.6% of GDP (an increase over 1970 of 458%). No other major category of spending has risen so dramatically. The next most significant increases between 1970 and 1997 were:

- social security: a 303% increase in terms of contribution to GDP; its share of home government spending rose from 18.3% to 33%, an increase of 80%;
- health care: a 293% increase in terms of contribution to GDP; its share of home government spending rose from 7.8% to 13.3%, an increase of 70%; and
- education: a 225% increase in terms of contribution to GDP; its share of home government spending rose from 10.4% to 14.4%, a 38% increase.

The areas of spending with declining relative importance are transport and other spending. Spending on the fisheries have dropped dramatically from 27.5% of government spending and 7.6% of GDP in 1980 to 8% of spending and 3.6% of GDP in 1997. The government management and administration allocation has dropped in terms of its share of total spending, but risen by 133% in terms of its share of GDP.

This, of course, is not the whole story about government spending. We need next to concentrate on where the money was wasted. First, if we look at the current level (1997) of interest payments – 6.6% of GDP – and compare that with the long run average before the Great Economic Crisis – about 1% of GDP – we can see that about 5.6% of GDP can be saved annually by reducing the national debt to pre-crisis levels.

Table 4: Breakdown of Government Expenditure: 1970, 1980, 1990, 1997

	Interest	Health Care	Transport	Education	Fisheries	Social Security	Govt Mgmt & Admin	Other
				% of Total Home Government Expenditure				
1970	6.1	7.8	17.4	10.4	17.4	18.3	7.8	14.8
1980	3.1	7.6	18.4	8.7	27.5	15.3	5.9	13.5
1990	5.0	11.7	9.6	12.0	18.9	28.4	5.8	8.6
1997	15.0	13.3	5.7	14.4	8.0	33.0	6.2	4.4
				% of GDP				
1970	1.2	1.5	3.3	2.0	3.3	3.7	1.3	3.0
1980	0.9	2.1	5.1	2.4	7.6	4.2	1.6	3.7
1990	2.4	5.6	4.6	5.7	9.0	13.5	2.8	4.0
1997	6.6	5.9	2.6	6.5	3.6	14.9	2.8	1.9

Source: MAGDA/Statistics Department, Faroe Islands

In 1986, 60 million kroner were spent on interest payments on the national debt. If all the interest payments since then are added up and each year we subtract 60 million Danish kroner to hold the long run trend in interest payments initiated before the crisis, the excess level of cumulative interest payments above 60 million per annum amounts to 2,428 million kroner for the period 1989-97 (Of course, this total loss rises each subsequent year interest payments are above 60 million kroner.

This money should be considered wasted expenditure, and a cost of the mismanagement of government finances in previous years. The huge bailouts in 1992-93, totaling 2.6 billion kroner are another cost of the crisis. Together these two categories of spending have added 5 billion kroner to the national debt. Another wasted expenditure was the fishing subsidy. The annual amount in 1986 was 294 million kroner, and by 1997 it was still worth 243 million kroner.

What was the overall cost of the Great Economic Crisis? Roughly, 13.6 billion kroner, composed of

(1) 2.4 billion kroner in interest payments during 1989-97 (above the long term trend);

(2) huge bailouts in 1992-93, totaling 2.6 billion kroner;

(3) 3.1 billion in fishing subsidies between 1986 and 1996;

(4) an increase in the gross public debt (beyond the bailouts) and the long term trend of 3 billion kroner; and

(5) 2.5 billion kroner of lost national GDP due to negative economic growth during the great economic crisis. These estimates are in current dollars of the year in question. If the calculations were made using 1999 kroner, the estimated total cost would be even higher.

Debt Trends Warning Signals and Gross Public Sector Debt

As indicated **previously** in **Table 2**, the first signs that total net government (both national and local) overseas debt was starting to go out of control began in 1981 (34%) and 1982 (24%) and 1985 (24%), when the rates of increase were quite high in comparison to past behaviour.

Table 5: Gross[29] Public Sector Debt in the Faroe Islands, 1985-2001

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Public sector																	
Government	627	472	479	686	938	1,488	1,949	3,001	5,418	5,570	6,259	6,084	5,994	4,904	4,590	4,462	4,330
Denmark	143	145	147	149	151	13	13	511	3,159	3,787	5,060	5,618	5,974	4,884	4,501	4,380	4,254
External	484	327	332	537	787	1,475	1,936	2,490	2,259	1,783	1,199	466	20	20	89	82	76
Home Govt % GDP	12	8	8	10	13	23	31	51	106	110	119	105	96	72	64	59	55
Governmental institutions	772	874	914	982	1,049	1,117	1,063	1,131	1,063	871	836	690	493	305	298	292	287
Denmark	208	234	292	309	292	248	248	277	270	221	221	199	179	165	165	165	165
External	564	640	622	673	757	869	815	854	793	650	615	491	314	141	134	127	122
Govt Inst % GDP	15	15	14	14	15	17	17	19	21	17	16	12	8	4	4	4	4
Local Authorities and institutions	569	665	647	1,229	1,309	1,451	1,392	1,334	1,183	1,009	1,015	899	863	821	805	789	765
Denmark	185	302	285	741	809	785	780	760	726	678	746	741	713	682	673	666	644
External	384	363	362	488	500	666	612	574	457	331	269	158	150	139	132	124	121
Local A. % GDP	11	11	10	18	19	22	22	23	23	20	19	15	14	12	11	10	10
Total Public Sector	1,968	2,011	2,040	2,897	3,296	4,056	4,404	5,466	7,664	7,450	8,110	7,673	7,350	6,030	5,693	5,544	5,382
Denmark	536	681	724	1,199	1,252	1,046	1,041	1,548	4,155	4,686	6,027	6,558	6,866	5,730	5,339	5,210	5,063
External	1,432	1,330	1,316	1,698	2,044	3,010	3,363	3,918	3,509	2,764	2,083	1,115	484	300	354	334	319
Total PS % GDP	39	34	32	42	47	62	71	94	150	148	154	132	118	88	79	74	68
GDP**	5099	5837	6372	6882	6973	6533	6217	5844	5122	5046	5250	5801	6229	6823	7164	7522	7898

Source: Landsbanki Føroya

[29] The issue of data quality is a very important one in examining Faroese national statistics. There are still some important problems with data labeling, reconciling data from Faroe Statistics and the Landsbanki, and providing policy advice based on such data. For example, the term "total foreign debt" is used by Faroe Statistics when in reality what is meant is "total net foreign debt", that is, after overseas credits or assets owned by the private sector have been netted out. The difficulty in using the net figure (which is common) is that it is the public sector that is heavily exposed overseas, while the private sector is currently in a *net asset*, as opposed to a *net liability, position*. When the public and private debt accounts are consolidated, this can leave a misleading impression of the true level of public sector debt. Part of the analysis that follows is based on this "net debt" data, largely because that is what Faroe Statistics and the Landsbanki produce in time series form for the public's and government's usage. In that analysis, it should be understood that when a critical warning threshold is triggered by a net debt figure, a gross debt figure (for which there are no long time series readily available) would have triggered the warning sign even earlier. The government of the Faroes should make it a priority to develop and use gross debt figures for government liabilities in order to make the risks of current and past policy more transparent, and to provide clearer guidance for purposes of designing benchmarks. The Landsbank has kindly prepared a data set on gross public debt which will help progress the analysis in this report. Nonetheless, a review of this data should be undertaken after this report is finished.

The key questions that we wish to ask in this section are:

- What are the recent trends with respect to the gross public sector debt?
- From a country risk analysis and credit rating perspective, are the levels of the gross public sector debt appropriate for a country that wishes to attract more international investment? How close to the critical threshold range 50-60% of GDP is the gross public sector debt?
- Is it the home government, the state institutions or the local government that needs to make debt reductions?
- What are the implications for good governance and economic management?

Table 5 presents a summary of the gross debt position of the home government, governmental institutions and local authorities for the period 1985 and 1998, with projections provided for 1999-2001. Starting with the bottom of the table, in 1985, before the Great Economic Crisis, the ratio of gross public debt (for all parts of the public sector) to GDP was 39%, an acceptable level by international standards. The jump from 32% of GDP in 1987 to 42% of GDP in 1988 (a 31% increase) should have been considered alarming, even though 42% could still be considered an acceptable figure.

By 1989, however, the level of gross public debt had risen to 62%, (a 32% increase over the previous year) just beyond the traditional upper limit of the warning range (50-60% of GDP). By 1993, the gross debt figure had reached the astronomical level of 150% of GDP, a 257% increase since 1988, a period of 5 years. Despite falling steadily since 1995 (when the ratio peaked at 154%), the estimate for 1999, 79% of GDP, is still well above the acceptable limit of 60%.

If the target is to get back to pre-crisis levels which we think is advisable given the potential loss of the Danish subsidy, then the government should set a gross public debt to GDP ratio target of about 30% of GDP. This would imply a reduction of 49 percentage points of GDP. Using 1999 GDP, that translates into 3.5 billion million Danish kroner. There is another way of looking at the issue. In 1987 gross public sector debt was about 2 billion kroner. By 1999, the debt is estimated by the Landsbanki to be 5.7 billion kroner, or 3.7 billion kroner higher than in 1987 (Table 6).

What proportion of the cuts should come from the home government? Governmental institutions? And local authorities? If we look at the composition of public sector debt in the pre-crisis period (Table 6), with some additional analysis, we note that in 1985 the Home Government held 31% of the public sector debt (12 over 39). Governmental institutions held 38.5%, and local authorities had just over 28%.

At the peak of the debt blow-out in 1995, the Home government held 77.3% of the gross public sector debt, governmental institutions had 10.4%, and local authorities had 12.3. By 1999, it is estimated that the share of the home government had risen to 81% of total public sector debt, governmental institutions' share had dropped to 5%, and local authorities' share to 13.9%. On the basis of this analysis, it would be fair to conclude that most of the cuts in the public sector will have to come and should come from the Home Government.

In this analysis of net and gross public sector, we have estimated a range of public sector debt cuts between 3.5 and 4.0 billion Danish kroner that is required in order to bring the government's financial position with respect to debt back to pre-crisis levels.

The Positive Effects of the Great Economic Crisis

It is important to examine the positive effects of the economic crisis:

- The bankruptcy of many companies led to the sell-off of many assets, most notably cargo vessels and fishing boats at a deep discount, typically around 20% of face value. This permitted many new companies to start with little debt, notably in the trawler fleet. The private sector debt reduction has had a significant role in boosting profitability across most, if not all, sectors.

- A positive new attitude to restructuring the economy and developing the role of markets in the economy has emerged.

- The government is now better placed to handle a future crisis such as could emerge when the Danish subsidies are ended.

What are the major lessons to be learned from the failure to heed the early warning signs leading up to the Great Economic Crisis? The principal problem was that government and the public servants of the day were not exercising good governance and an appropriate level of responsibility. What is better appreciated now is that government should:

- keep spending under tight control;
- minimise or end the use of loan guarantees and subsidies to industry;
- restrain debt levels to the pre-crisis long run trend;
- improve the quality of statistics and information for monitoring the economy and cost benefit analysis for policy decisions;
- reduce the regulatory and investment barriers that undermine the potential for diversifying the economy;
- and, have a sustainable fishing policy.

2.3 Current Warning Signs: The Elimination of Danish Subsidies

a) Introduction: Data Quality Issues

The withdrawal of Danish subsidies poses the most significant future threat to the Faroese economy. Measuring the expected impact of that future economic shock, however, is undertaken with some difficulty because of the absence of an agreed data set among, and the different perspectives of, three parties: the Landsbanki Føroya,[30] Faroe Statistics, and the Danish government.

Our starting point is measuring the total level of subsidies relative to GDP. There are problems with both the numerator and the denominator, especially if one wishes to examine a long time series of data. For example, the data below in **Table 6** comes from the Statistics Department in the Faroes. The estimate of the Danish subsidies to GDP ratio for 1997 is 22.7% of GDP. The total level of Danish subsidies estimated by Faroe Statistics is 1249 million kroner, whereas Danish figures the total for 1997 are 1265 million kroner. This represents a difference of 1.3%, which we consider to be a counting error, but unfortunately do not have the time to track down.

Landsbanki Føroya figures for the total level of Danish subsidies are even lower: 1091 million kroner (adjusted subsidies), or 18% of GDP. Part of the difference is accounted for by a different estimate of the level of GDP in 1997 on the part of the Statistics Department (5507 million kroner) and the Landsbanki Føroya (6229). The difference in the GDP estimates amounts to about 12% on average over the period 1989-1997. Needless to say, this is quite a large discrepancy.[31]

The Landsbanki Føroya has explained the difference between its estimate of the level of adjusted Danish subsidies and that of the Danish government as being due to

(1) over-estimates of the amount of Danish subsidies with respect to defence (Coast Guard, planes, helicopters etc) because Danish Coast Guard crews live in Denmark and their related expenditures are largely in Denmark = 167 million over-estimate);

(2) the current subsidy estimate includes pension payments, but it can be argued that pensions are in fact long-term financial contracts between individuals and the Danish state, and should therefore not be included in the subsidy;

(3) on the other hand, young people from the Faroe Island, studying in Denmark, receive about 60 mn kr in student grants from the Danish state. This, and the cost of using Danish capacity in the educational system and "foreign affairs," should be added to the official "subsidy figures," raising the amount by 100 million kroner per year.

[30] The National Bank of the Faroes: similar to a central bank, but different because the currency is fixed at par with the Danish kroner.

[31] Despite these differences the Landsbanki estimate of the Danish subsidies to GDP ratio over the period 1983-89 was 14%, as compared to 14.1% using Faroe Statistics data. This difference is insignificant, and suggests that the real problem lies in the calculation of both the subsidies and GDP in the 1990s. This discrepancy has implications for the analysis of other areas such as the gross public debt to GDP ratio. The smaller Faroe Statistics GDP estimates may lead to over-estimates of the ratio by 12 or 13% points of GDP. The approach taken later in addressing this issue is to use the Landsbanki GDP figures which we think are more consistent over the 1990s. Considering that the future credit rating of the country will be based on these figures, there must be a resolution to this discrepancy, as soon as possible.

Differences between Faroe Statistics and the Landsbanki Føroya with respect to the estimations of GDP are much more complicated, and would require pages of analysis to explain. We leave that to another day.

Table 6: Danish Subsidies as a Percentage of Faroese GDP, 1962-1997; Millions Dkr.

	Subsidy	GDP	%GDP	Decade Average
1962	27	256	10.5	% of GDP
1963	36	304	11.8	
1964	39	345	11.3	
1965	49	388	12.6	
1966	57	429	13.3	
1967	65	444	14.6	
1968	70	467	15.0	
1969	77	501	15.4	13.2
1970	88	600	14.7	
1971	95	691	13.7	
1972	112	772	14.5	
1973	131	914	14.3	
1974	165	1111	14.9	
1975	215	1219	17.6	
1976	241	1528	15.8	
1977	269	1938	13.9	
1978	313	2006	15.6	
1979	394	2145	18.4	15.3
1980	450	2573	17.5	
1981	497	2946	16.9	
1982	581	3452	16.8	
1983	634	4196	15.1	
1984	688	4551	15.1	
1985	726	5099	14.2	
1986	773	5837	13.2	
1987	811	6372	12.7	
1988	890	6882	12.9	
1989	954	6023	15.8	15.0
1990	1007	5606	18.0	
1991	1045	5401	19.3	
1992	1056	5104	20.7	
1993	1124	4714	23.8	
1994	1212	4469	27.1	
1995	1206	4666	25.8	
1996	1233	5158	23.9	
1997	1249	5507	22.7	22.7

Source: MAGDA/Statistics Department, Faroe Islands

Of course, one could become hopelessly frustrated with this jungle of data differences. This situation clearly warrants *immediate attention* with some additional resources and cooperation in the Faroe government with respect to enhancing data quality and consistency. For our current purposes we have chosen to deal with the problem as follows.

(1) For purposes of taking a picture of the evolution of the size of the Danish subsidy relative to GDP we have chosen to use the 28-year time series of Danish subsidy and GDP data available from MAGDA/Faroe Statistics.

(2) For purposes of our general equilibrium modelling of the impact of the elimination of the Danish subsidy in the future we have chosen to use mostly the Landsbanki Føroya data, because it is more internally consistent for the last decade.

For the purpose of our reduced form modelling later in the report concerning the optimal level of tax relative to GDP, we have chosen to use the MAGDA/Faroe Statistics data because it is the only long time series available.

b) A Long Term Perspective of the Level of Danish Subsidies

The Danish Block Grants began in 1988 as a replacement for a collection of individual subsidies and expenditures in the Faroes. The block grant currently accounts for about 70% of total Danish spending on the Faroese economy. Total Danish subsidies, including the Block Grant amounted to 1.25 billion kroner in 1997, or 22.7% of GDP. We recognise that there are potential errors in both the numerator and the denominator which, in total, could be on the order of 10% to 20% in the 1990s.

Thus, if all of Danish subsidies and spending are eliminated, we estimate, roughly, that there will be an 18% to 23% decline in GDP, assuming that it happens in one year, which is unlikely, and assuming that nothing is done to counteract the reduction. Even over six years, this would represent a serious decline in economic fortunes for the country. This would not be the worst economic catastrophe that the Faroes have ever faced, but it would be quite serious.

For example, during the Great Economic Crisis of 1988-1994, the Faroes experienced a decline in real GDP of 38%. Thus, to put the problem in perspective, the elimination of all of the Danish subsidies would be like re-experiencing 50-60% of the Great Economic Crisis. This would be a cumulative loss over a period of 5-7 years, assuming that there were no restructuring of the economy between now and then.

The Faroes have not been heavily dependent on Danish subsidies except in the 1990s, when the total value of the subsidies were raised by 50% over the level prevailing for the previous two decades. Thus, in the 1960s, Danish subsidies represented 13.2% of GDP, 15.3% in the 1970s, 15.0% in the 1980s and 22.7% in the 1990s.[32]

[32] There is a view that the dependence on the Danish subsidies is offset by interest payments from Faroese investment abroad. For example, in the mid-1980s, interest payments abroad were approximately the same level as Danish assistance to the Faroes (15% of GDP). Thus, for balance of payments purposes, the net effect was zero because the subsidies were being used to pay off interest on foreign debt. Now because the debt is lower, the subsidies more than compensate for interest payments on foreign debt. Thus, it might be perceived that the Faroes are less dependent on Danish subsidies than before. This is a spurious argument because the excess of the Danish subsidy over and above the level of foreign interest payments now goes to consumption in the Faroes, thus making the Faroese standard of living more heavily dependent on the Danes than 10 years ago. This growing dependence for consumption on the Danish subsidy can threaten to increase inflation when the economy is running at close to full employment, as appears to be the case now.

2.4 Options for Dealing With the Elimination of Danish Subsidies

What are the options for government as the Danish subsidies are eliminated? Obviously, not all options can be pursued at the same time:

1. Raise taxes
2. Cut taxes
3. Prioritise government spending
4. Cut expenditures
5. Improve government efficiency
6. Remove subsidies
7. Privatise some government assets
8. Develop capital markets
9. Diversify the economic base
10. etc

General Equilibrium Model[33] Projections of the Faroe Islands' Economy in 2007

In this section, we present various views of the Faroe Islands' economy 10 years in the future from 1997 (the base year[34] for the model), focussing on how the economy might adjust to the removal of the Danish subsidy. The scenarios examine the effects of a range of assumptions about industry efficiency, fiscal policy, and the corporatisation/privatisation of government assets.

In brief, the scenarios are as follows:

Scenario A: Business as usual - a realistic picture of the economy without any many structural changes.

Scenario B: Removal of all Danish grants (worth Dkr 1.290 billion in 1997), with higher exports to prevent a deterioration of the external current account and restoration of the fiscal balance through higher personal income taxes.

Scenario C: As in (B) with more realistic consequences for the external balance.

Scenario D: As in (B) with a number of structural adjustments.

Scenario E: As in (D) with higher economic efficiency as a result of the structural adjustments.

[33] The equations of the model are described in Appendix A.
[34] 1997 is the latest year for which a reasonably comprehensive set of data is available for modelling purposes.

Scenario A: Business as Usual

As the model is a structural policy model, not a forecasting model, a number of assumptions are required in order for it to produce a baseline projection of the economy over a 10 year horizon from 1997 (the base year for the model). The intention is to produce a realistic picture of what the economy might look like in 2007 if there were no substantial policy changes or external shocks. ***It is not necessarily a best-guess forecast***. The most important exogenous modelling assumptions are as follows:

- Unemployment as a proportion of the labour force is assumed to fall to 5% by 2007. On the basis of projections by Statistics Faroe Islands (SFI), this implies a growth in employment (on a full time equivalent [FTE] basis) of 1.4% per annum to reach 21404 FTEs.

- The ratio of gross investment to gross domestic product rises from a low of 14.0% in 1997 to an historically more comparable 17.5% in 2007.

- Labour and capital productivity in most industries improves at 1-2% pa. Full details are set out in **Appendix A**.

- Government consumption and government social investment rise at the SFI projected rate of population growth of 0.9% pa.

- The fiscal surplus is increased from Dkr144m in 1997 to Dkr500m in 2007 to permit somewhat greater debt repayment.

- The balance of trade on goods and services is zero, but inflows of wages from Faroese citizens working abroad (Dkr200m), net interest receipts (Dkr250m), plus an assumed unchanged Danish grant (Dkr1290m) combine to produce an external current surplus of Dkr1740m in 2007.

- The foreign demand curves for Faroe exports shift outward at an average rate of 4.0-4.5% per annum, reflecting both higher foreign demand and greater effort by Faroese exporters. The rates of expansion differ by commodity, with the details given in **Appendix A**.

The macroeconomic results are shown in **Table 7**, industry specific gross output in **Table 8** and commodity exports in **Table 9**.

Growth over the decade is not spectacular, in this scenario, with GDP rising by only 2.6% per annum although as a 10-year average this is a reasonably good result. Private consumption growth is rather less, at 1.8% per annum, due to the redirection of resources to investment which rises at 5.0% pa. Although exports expand at 4.3% per annum, imports can only rise at 3.3% per annum because of the decline in the terms of trade - about 1% per annum.

The net mean effective rate of tax on household income (including income from social welfare) falls from 29.2% in 1997 to 23.2% in 2007. This is largely attributable to the cautious growth rate assumed for government consumption.

With regard to industries, the two fastest growing are fish processing and ship building/repairs, which both expand at 5% per annum. The result for the latter is driven

largely by the assumption that the level of export earnings can be lifted to around Dkr100m. This is still well below the levels achieved 10 years ago. For fishing, the growth is attributable to increased labour productivity which improves export competitiveness.

Other leading industries are aquaculture and transport, which are largely export driven, and 'other' manufacturing and construction which owe their growth primarily to the revival in investment. In fact all industries except two show reasonably strong growth; the exceptions being government services because of the deliberate slow growth in government consumption, and the imputed rental of owner occupied dwellings[35], which is driven by the modest growth in private consumption.

Scenario B: Removal of Danish Grant with Export Response

In this scenario, we take the Business as Usual (BAU) projection and present it with a significant exogenous shock; the removal of the Danish subsidy from Dkr1290m in 1997 to zero by, or before 2007. The two immediate impacts of this, in a macroeconomic sense, are a deficit on the external current account (as the Danish grant is treated as a transfer) and a deterioration in the fiscal balance. Thus we ask:

> What would happen to the economy (1) if exports had to rise to prevent the decline in the external account (as debt servicing must continue) and (2) if the government sought to restore the fiscal surplus by raising personal income taxes, whilst still maintaining the BAU level of employment?

Whilst this is hopefully an unrealistic response, it acts as a useful baseline against which to compare a more sustainable set of policy options.

The results are presented in **Tables 7, 8 and 9** as before. The most notable effects are the marked rise in exports - 30% above the BAU scenario - and a staggering rise in the mean effective[36] personal income tax rate from 23.2% to 44.4%. Not surprisingly, this causes a substantial reduction in private consumption.

In fact, it falls to below the level of 1997, a year in which consumption in nominal terms was below the level of 1989. Obviously, raising taxes to compensate for the elimination of the Danish subsidy would be a serious mistake. There is a commensurate decline in the output of the dwellings industry which contributes to the decline in household spending due a negative wealth effect.

Switching resources from consumption into exporting generates a rise in GDP because of the different import propensities, but this is not sufficient to counter the fall in national income, a situation which is exacerbated by the further 5% decline in the terms of trade as export volumes are pushed along the demand curve.

Such a large increase in exports can only be met by the expansion of traditional exports - fish and fish products, with the former showing the largest relative change between scenarios A and B. Fish product exports rise by over 8% per annum, implying an

[35] This is a shadow industry to cover the imputed rental accruing to individuals who own their own house. If this is not done a change in the mix between rental housing and owner occupied housing would alter the measured level of GDP.

[36] This is an average of an expected higher schedule of statutory tax rates, which would have to be much higher than at present in order to generate this effective tax rate.

increase of 130% over 10 years. This degree of volume increase has not been observed for over two decades when the industry was much smaller.

Indeed, the higher growth in export volumes, at over 7% per annum over a 10 year period, is well in excess of what has been recorded over previous decades (excluding a few unusual trough to peak periods). Another worrying aspect of this scenario is that this type of export growth ironically pulls resources away from newer industries such as aquaculture, which are generally considered to have greater long - run growth potential.

Thus, one would have to question whether such an export response is possible or even desirable, without a major diversification in the economic base. When combined with the considerable increase in the tax burden, that would probably cause all sorts of other consequences which we have not considered in the model (such as emigration, tax evasion, and capital flight), it is clear that this picture of the economy is totally unsustainable.

We, therefore, examine in Scenario C how much the picture changes if export growth is constrained such that an even greater fall in imports is required to ensure no deterioration in the external current account.

Scenario C: Removal of Danish Grant with Economic Contraction

In this scenario, export growth is limited to around 70-75% over the decade ending in 2007, a figure more consistent with previous periods of sustained export growth. This forces a contraction in activity relative to the BAU Scenario (A), highlighted by the falls in private consumption, now 16% below the 1997 level, and the 15% decline in FTE employment. This is spread across all industries, reflecting the pervasive declines in output relative to Scenario B.

With the increase in social welfare costs, notably unemployment benefits, the average effective household tax rate rises further. Of course this exacerbates the decline in spending, leading to still higher social welfare costs and so on in a vicious circle. The effective tax rate ultimately reaches an untenable 55%.[37]

Again, then, the situation is not sustainable. Economic contraction combined with fiscal neutrality is not an appropriate response to the withdrawal of the Danish grant. At this stage we could relax the fiscal neutrality assumption by allowing a fiscal deficit, but it should be apparent, however, that this is merely economic sophistry.

For a given external balance and limited opportunity to reduce gross investment (which is needed to underpin the increase in exports) lower government saving just means that more saving is required on the part of the business and households sectors. This causes lower private consumption in much the same way lower taxes does.

In the event of a significant reduction in national income, which is what the abolition of the Danish grant would represent, simply juggling resources between government, business and households is not a viable long-term response. During the Great Economic Crisis, the situation was ameliorated by additional Danish assistance, but this is unlikely to be an option in the future and therefore is not considered here. A withdrawal of the grant and its replacement by more loans is hardly plausible. Accordingly more significant structural change is required.

[37] Again, the statutory tax rates would be even higher.

Scenario D: Removal of Danish Grant with Structural Change (part 1)

In compiling a package of the types of policy changes which might enable the economy to cope with the withdrawal of the Danish grant there is an almost endless choice of possibilities. The challenge is to design a package which is realistic from a Faroe Islands' social perspective whilst still having the power to deliver the requisite results.

We have been guided both by current theoretical precepts about the role of government and financial markets in a modern economy and by empirical observations of real policies, particularly in countries such as Iceland and New Zealand, but in fact all over the world - as discussed elsewhere in this report.

The measures we have specified for this scenario are listed below. Whilst any given item certainly has scope for alteration, the package should be seen as an integrated whole.

- The sale of Dkr3000m of government assets over the decade, with half being sold to foreigners and half to Faroese citizens and companies. The proceeds are used to repay remaining debt so that by 2007 the government no longer pays interest offshore.

- However, there is an annual remittance of dividends (or interest) offshore of about Dkr170m, plus around Dkr140m in dividend payments to households.

- Government subsidy to the fishing industry removed. This was worth about Dkr240m in 1997.

- Government consumption reduced to the level of 1997.

- Benefit rates reduced by 11-17%, depending on the type.

- Government budget surplus set to a lower target of Dkr100m as there is less need to repay debt. (A zero surplus could be assumed, but a small surplus allows a modest accumulation to provide a cushion in the event of other adverse events or to seed a "Heritage Fund").

- Gross investment as a proportion of GDP raised back its Scenario A (BAU) ratio of 17.5% in response to greater private sector corporate control and an enhanced ability to raise funds in both foreign and domestic capital markets.

- The BAU 5% unemployment rate is re-imposed.

- Introduction of tradable fishing quota

With the removal of the need for exports to rise, because a large current account surplus is no longer required to repay debt, exports return to just above the level of the BAU scenario. The growth in GDP at 2.5% per annum is also close to the BAU rate. Private consumption growth is marginally higher at 1.8% per annum and the net effective income tax rate drops to 18.9% which is about 20% below the BAU rate.

Industry growth rates display some significant variations relative to Scenario C. Fishing output is much lower as a direct consequence of the removal of the subsidy. This primarily impacts on exports with supplies to the fish processing industry hardly being affected - relative to the BAU scenario. Another effect of the removal of the fishing subsidy is the resumption of growth in aquaculture, which is now able to attract resources at market prices.

Also performing more favourably than in the BAU scenario are other manufacturing and transport, which both show strong export growth. The latter outcome, combined with equally strong growth in exports from trade, restaurants and hotels, suggests that tourism earnings are likely to benefit from economic restructuring. As with aquaculture, this industry is now able to compete better for resources than in an economy distorted by subsidies and high government intervention.

Private and government consumption combined are still below their combined level in the BAU scenario, so one might argue that overall consumer welfare is still inferior to Scenario A. Whether Dkr1 of government consumption (on behalf of private citizens) is worth the same as Dkr1 of self-selected private consumption, especially at the margin, is a moot point. Is all the restructuring worth it?

Relative to the situations in Scenarios B and C, the answer is yes, although relative to a situation where the Danish subsidy remained, some people might be ambivalent. However, there is more to the reform package than just a response to a large future adverse external shock. Restructuring is worthwhile even without such circumstances propelling it into necessity because the Faroes must continue to reduce the huge gross public sector debt that arose during the Great Economic Crisis. Restructuring also prepares the Faroes for the next inevitable decline in fishing prices and fishing stocks.

Scenario D as specified so far, has excluded some major benefits of stronger capital markets, privatisation and corporatisation of state owned entities, fewer subsidies, lower taxes and generally less government influence in the economy.

Scenario E: Removal of Danish Grant with Structural Change (part 2)

Scenario E builds on the changes in Scenario D. With the surrender of government ownership and/or government control, notable increases in industry efficiency and marketing skills can be expected (see Section 3.5 of this Report). In the context of the Faroes, when the government exited the aquaculture industry, unit cost fell by 20% under new management. In this scenario, we assume small increases in labour and capital efficiency, of the order of 0.5-1.0% per annum in fishing, fish processing, energy, communications, transport and finance/business services; and increased ability to exploit export markets for fish processing, transport, communications and finance/business services. Full details are provided in **Appendix A**. The analysis has not assumed any increase in the efficiency of services (e.g. health and education) retained by government.

These small changes, which almost certainly understate the benefits of the reform package, are sufficient to increase GDP growth to 2.9% per annum compared to 2.6% per annum in the BAU scenario. The growth in private consumption rises to 2.3% per annum (which means that total consumption is now above the BAU level) in spite of the extra resources going into investment. The investment-GDP ratio is nearly 19%, although this is not unrealistic historically.

The gains achieved by industries such as aquaculture and other manufacturing in Scenario D are pulled back somewhat as the restructured industries (fishing, fish processing, other manufacturing, finance/business services) become more competitive. Nevertheless, their performance is still better than in the BAU scenario. In fact the only industries which do not do as well as in the BAU are fishing, ship building/repairs, and of course government services. Overall, then, the gains from economic restructuring are widespread, and because no industry actually declines relative to the base year (1997), the process of redirecting resources can take place in a dynamic and growing economy. Thus transition costs are minimised - provided reform action is not delayed.

Conclusion

These scenarios illustrate that the Faroese economy is capable of adjusting to the removal of the Danish grant, provided that a sensible reform package is pursued. If the grant were withdrawn and there was a simultaneous write-off of the external debt owed to Denmark, there would obviously be less need to undertake urgent structural reform - at least from the point of view of minimising the adverse effects of the grant's removal. However, the results demonstrate that the case for structural adjustment has merit in its own right. Because of the continuing high level of the gross public debt incurred during the Great Economic Crisis, the Faroe Islands have not yet completed restructuring the economy and changing the balance in the role between government and the market.

Table 7: Macroeconomic Results for 2007 from the General Equilibrium Model

	1997	2007									
		Scenario A		Scenario B		Scenario C		Scenario D		Scenario E	
	Dkr,m	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa
Private Consumption	3433	4100	1.8	3221	-0.6	2898	-1.7	4116	1.8	4304	2.3
Gross Investment	875	1431	5.0	1218	3.4	945	0.8	1388	4.7	1562	6.0
Government Consumption	1837	2009	0.9	2009	0.9	2009	0.9	1837	0.0	1837	0.0
Stock Change	96	132	3.2	92	-0.4	85	-1.3	121	2.4	137	3.6
Exports	3051	4660	4.3	6081	7.1	5257	5.6	4705	4.4	4960	5.0
Imports	3046	4224	3.3	3880	2.4	3341	0.9	4212	3.3	4493	4.0
Gross Domestic Product	6246	8108	2.6	8741	3.4	7852	2.3	7955	2.4	8307	2.9
Gross Investment/GDP	14.0%	17.6%		13.9%		12.0%		17.4%		18.8%	
Employment (FTE)	18707	21404	1.4	21403	1.4	18204	-0.3	21404	1.4	21404	1.4
Unemployment Rate*	9.2%	5.0%		5.0%		19.2%		5.0%		5.0%	
Net Effective Household Tax Rate	29.2%	23.2%		44.4%		55.0%		18.9%		19.1%	

* Exogenous, except in Scenario C.

Table 8: Industry Gross Output for 2007 from the General Equilibrium Model

	1997	2007									
		Scenario A		Scenario B		Scenario C		Scenario D		Scenario E	
	Dkr,m	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa
Agriculture and Mining	91	121	2.8	98	0.7	86	-0.6	124	3.1	129	3.5
Fishing	1748	2401	3.2	3409	6.9	2853	5.0	2107	1.9	2315	2.8
Aquaculture	673	1013	4.2	996	4.0	890	2.8	1066	4.7	1049	4.5
Fish Processing	1244	2017	5.0	2678	8.0	2267	6.2	2062	5.2	2349	6.6
Ship Building and Repair	255	414	5.0	502	7.0	411	4.9	398	4.6	395	4.5
Other Manufacturing	467	707	4.2	718	4.4	619	2.9	780	5.3	755	4.9
Energy	329	436	2.9	423	2.6	374	1.3	439	2.9	464	3.5
Construction	511	768	4.2	676	2.8	584	1.3	781	4.3	853	5.3
Trade, Restaurants And Accommodation	1585	2237	3.5	2365	4.1	2079	2.7	2212	3.4	2355	4.0
Transport	906	1411	4.5	1538	5.4	1343	4.0	1548	5.5	1601	5.9
Communications	205	298	3.8	303	4.0	268	2.7	295	3.7	321	4.6
Finance, Business Services	1532	2144	3.4	2209	3.7	1893	2.1	2138	3.4	2292	4.1
Government Services	1777	1946	0.9	1912	0.7	1884	0.6	1792	0.1	1791	0.1
Dwellings (Imputed) Rental	862	1031	1.8	872	0.1	811	-0.6	1041	1.9	1074	2.2
TOTAL	12184	16945	3.4	18699	4.4	16361	3.0	16783	3.3	17743	3.8

Table 9: Exports for 2007 From the General Equilibrium Model

	1997	2007									
		Scenario A		Scenario B		Scenario C		Scenario D		Scenario E	
	Dkr,m	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa	Dkr,m	%pa
Fishing	1015	1220	1.9	1776	5.8	1514	4.1	957	-0.6	991	-0.2
Aquaculture	401	615	4.4	696	5.7	630	4.6	670	5.3	631	4.6
Fish Processing	1009	1665	5.1	2315	8.7	1942	6.8	1685	5.3	1985	7.0
Ship Building and Repair	20	94	16.7	106	18.1	97	17.1	112	18.8	98	17.2
Other Manufacturing	133	227	5.5	255	6.7	228	5.6	277	7.6	241	6.1
Trade, Restaurants And Accommodation	122	208	5.5	230	6.6	209	5.6	246	7.3	218	6.0
Transport	326	563	5.6	626	6.8	567	5.7	673	7.5	682	7.7
Communications*	0	20		20		20		20		30	
Finance, Business Services	26	49	6.6	58	8.3	49	6.6	65	9.6	85	12.5
TOTAL	3051	4660	4.3	6081	7.1	5257	5.6	4705	4.4	4960	5.0

* exogenous as there were no (recorded) exports of communications in 1997

3. Impediments to Investment in the Faroe Islands

3.1 Introduction

In March 1999 the Minister of Industry and Trade produced an industrial policy paper that presented an overview and vision for the future of the country. The policy has received the support of all parties in the Parliament. A key factor in the Policy Paper is the development of human resources. One of the key issues in the Industrial Policy paper was the diversification of the economy in the context of the serious and near term threat of the loss of the Danish subsidy. The vision in the Industrial Policy Paper is described as follows:

"...to diversify Faroese industry by developing the already established branches and promote new branches that are viable and profitable. This is the pre-condition of a self-supporting and stable Faroese economy."[38]

The long-term goal is sustainable economic development, with rising per capita incomes, in a sustainable environment. The development of industrial diversification in a mono-culture economy[39] must be undertaken very carefully, by

- building on the entrepreneurial strengths, infrastructure and competitive advantages existing in the economy, and
- integrating the skills in industry and those being nurtured in the education system into the evolving needs of the economy

in order to add to, or complement, existing strengths. The development of good quality information is also a top priority, because without good quality information there cannot be good decisions.

This is a lot to ask for, especially when the reality is that about 20% of national income will be withdrawn by the Danes and no safety net will be provided, as was the case during the great economic recession of 1988-94. Thus, the *anticipated* starting point is not 100 (the current position), it is 80 (20% below the status quo). That is, the entire industrial policy must embrace the idea that it must not only design an incentive structure to move the economy back to the status quo in terms of per capita income; but, it must also provide for a continuation of sustainable economic development beyond the status quo.

How can that economic leap be achieved? The Government's Industrial Policy has identified nine key areas that need attention:

- Improved international market cooperation
- Improved communication with the outside world
- Enhancement of science and technical qualifications
- Reliable infrastructure
- Convenient equity financing

[38] Department of Trade and Industry, 1999 (Vinnumálastýrið), The Industrial Policy, Tórshavn, Faroe Islands (**www.vms.fo**)

[39] A mono-culture economy is one dominated by one industry. In the case of the Faroes, the dominant industry is fishing.

- Improved tax policy
- Cautious law-making
- A high level of public service; and
- Simple, non-subsidised industry development schemes

The key known constraints and risks facing the Faroese economy for the short to medium term, and that can exacerbate economic conditions when the Danish subsidy is eliminated are:

- the government's recent track record of **wasteful expenditures**.
- **over-dependence of the economy on fishing** which creates instability in wages from fishing; the experience over the last 15 years suggests that there will be a serious reduction in wages in the economy about every 10 years, reflecting the volatility in the stocks and prices for fish and fish products. The **quality of the capital stock in the fishing industry** is also mediocre on average, good in some areas and poor in others.
- the **traditional or cultural attitudes** with respect to competition,[40] profit sharing, and capital markets development.
- the **excessive tax burden, and**
- **the absence of a formal capital market;** the absence of a stock exchange and little public information about companies means that it is much harder for investors to identify viable opportunities.

All of these issues will be greatly complicated in the event of oil development. The removal of these impediments to investment will require a skillful assessment of the trade-offs between the need to maximise the future wealth of the Faroese people and various national interests require some element of protection.

3.2 Investment Impediment #1: Little Formal Control Over Government Expenditures

a) Introduction

As the size of government grows, it competes for funding, resources and skills with the private sector. It also distorts education preferences because more jobs are available in the public sector than in the private sector. Currently, about 50% of jobs are located in the public sector (including departments, agencies and state owned commercial activities).

When the size of government is large, as is the case with the Faroes government (roughly 50% of GDP), government can have a significant negative effect on the expansion of the private sector because of its inability to obtain good quality skills, resources and finance.

There are two key factors required to ensure that the costs of running government and servicing the needs of the people do not become excessive. First, the goal of maintaining an effective and efficient level of government spending must be realistic and realisable. This requires that there be a working model of the new frontier of government expenditures and fiscal transfers. A viable model can be found in Iceland, a Scandinavian country, which has a deep but prudent commitment to the welfare state.

[40] Most industries are dominated by one or two companies, and many of them are government-owned.

Second, the methods for reaching that goal must be clearly delineated and workable. A key priority in developing a new role for the state in the economy is the initiation of a TAP program.[41] A TAP program incorporates Transparency, Accountability and Performance measurement for all government departments, agencies, or state owned enterprises (SOEs). This process respects the taxpayer as both the funder and the beneficiary of government spending, but it also has the continuing objective of delivering value for money and eliminating waste and corruption.

b) The Icelandic Model for the Welfare State

Similarities Between the Faroes and Iceland

Using Iceland as a model for the Faroese welfare state is viable not only because of the success of the Icelandic model, but also because of the similarity of the two economies. For example, in Iceland, in 1998, fishing and fish processing represented 13% of GDP, versus 29% in the Faroes. In 1998, about 73% of Iceland's merchandise exports and about 50% of total exports were accounted by fishing and fish processing, versus 99% of total exports in the Faroes.

In Iceland, the public sector accounted for 20% of all employment in 1996, while the fishing and fish processing sector accounted for 13%. It is 38% for the public sector (non-market government services, excluding electricity, telecommunications and banking) in the Faroes, and 20% for fish and fish and fish processing.

In 1998, the Nordic countries were the largest source of imports for Iceland (25% of total) versus 56% for the Faroes, while exports to the Nordic countries accounted for 12% of merchandise exports versus 37% for the Faroes. Both Iceland and the Faroes are members of the European Economic Area.

Terms of trade in goods and services for Iceland have improved in the last two years, but have suffered a long-term decline over the last 30 years, dropping from a high in 1972 (with only periodic and temporary recoveries).[42] The Faroes have has a similar experience.

Similarly, both the Faroes and Iceland went through a serious economic crisis from 1989 through to 1994, when real GDP declined steadily or remained very low for the next six years. In Iceland, the government was not originally in favour of restructuring, while in the Faroes in the late 1980s there was a similar view.

In Iceland, change came from two sources; foreign creditors, the IMF and the OECD were very critical about the higher public sector deficits and external debt; while strong academic criticism was an important factor; this led to top down rather than bottom up change.

Since its recovery in 1996, Iceland's growth rate has generally been between 4 and 5 per cent. As well, the government has run a budget surplus in 1997, 1998 and 1999. Again, the experience in the Faroes is similar.

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[41] This concept was developed by Patrick Caragata in his 1998 book "Why Are Your Taxes So High?" (Seascape Press, Auckland, New Zealand).
[42] Central Bank of Iceland, *The Economy of Iceland*, May 1999, pp 23-24.

The key factors promoting growth in Iceland are the recovery of fish stocks and prices, the control of government spending and inflation, the expansion in gross fixed capital investment, including much needed foreign investment, and private consumption.[43] Other important factors include the introduction of fishing quotas and the development of effective capital markets, including the introduction of a stock exchange and the liberalisation of capital flows[44]

Prior to the 1990s, inflation had risen from just under 20% per annum in the early 1970s to a peak of about 85% in 1983. It was not until the early 1990s.that inflation was brought under control and held below 10% per annum. Currently, consumer prices are rising about 2-3% per annum. The
principal factors behind this remarkable turnaround in inflation are a "stable exchange rate, favourable import prices, tight monetary policy, increased competition in the retail business and moderate wage settlements."[45]

Iceland's unemployment rate in 1999, at about 2%, is the lowest in the OECD. The national government debt reached its highest point in history in 1995 at 51% of GDP and has since fallen to just under 35% in 1999. This growing emphasis on fiscal responsibility has been achieved because of the privatisation program and because of the government's recent budget surpluses.

The Icelandic Welfare State

Iceland has a very long commitment to the welfare state, as does the Faroe Islands. Iceland's parliament passed the first old-age pension legislation in 1890, and the first comprehensive social insurance legislation in 1936. In 1993, the Social Security Act was passed, providing public health insurance for all Icelanders. All hospital treatment is paid for by government, but patients must pay part of their expenses for doctors visits and pharmaceuticals. Overall, about 87% of total medical bills are paid for with taxpayers' funds, while 13% is paid for by the individual. As of 1998, health and social security expenditures accounted for 47% of all government spending.
For all its concern about social welfare, Iceland runs a very efficient welfare state. As indicated in **Figure 1 and Figure 2**, Iceland's general government welfare expenditures as a percentage of GDP is lower than that of most OECD countries. For example, in 1996, Iceland spent about 7.5% of GDP on general welfare expenditures, compared to 10% for Australia, 13% for Portugal, 15% for Spain, 16% for the UK, 17% for Italy, 23% for Germany and 26% for Denmark.
What is the principal reason for Iceland's success in restraining such expenditures? The answer can apparently be found in **Figure 2**, which compares Iceland's welfare expenditures by category with those of the other Nordic countries. The results indicate that Iceland is more frugal than its Nordic neighbours with respect to old age pensions, disability payments and survivors' benefits as well as unemployment benefits and housing. On the other hand, it is roughly as generous as the other Nordic countries with respect to illness benefits, family and children's benefits and other social benefits. But, is this because Iceland is so much poorer than these countries?

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[43] Central Bank of Iceland, *The Economy of Iceland*, Autumn, 1998, p. 9; Invest in Iceland Agency, *Doing Business in Iceland*, www.invest.is p. 23

[44] Devaluation was the traditional strategy used to protect the international competitiveness of the fisheries. Exchange rate devaluations are an implicit subsidy in that consumers in the country suffer a direct reduction in purchasing power as a result of the devaluation in order to protect the fishing industry. Since 1992, there have been no devaluations. The currency is floating and has depreciated against some currencies. This is in part because pension funds have been investing abroad. The free flow of capital was necessary to avoid inflation.

[45] Central Bank of Iceland, *The Economy of Iceland*, May 1999, p. 12.

In brief, Iceland tends to have much lower transfers than the other Scandinavians. Over the period 1990-1993, during the worst part of the economic recession transfers were about 10.6% of GDP. In 1999, transfers have dropped to 8.2% of GDP. Iceland has also successfully introduced co-payments for health care, and it has a shorter period for unemployment benefits.

Figure 1: General government welfare expenditures in selected OECD countries

*1996 or nearest
Source: Central Bank of Iceleand and Lansbanki Foroya

Figure 2: Welfare expenditures by category 1996: Iceland vs. Nordic countries % of GDP

Source: Central Bank of

According to the latest OECD on-line statistics, Iceland's per capita real GDP in 1997 in US dollars, based on purchasing power parities, was US$24,836, placing it sixth in the OECD after Luxembourg (US$33,119), the USA (US$29,326), Norway (US$26,771), Switzerland (US$25,902), Denmark (US$25,514). The other Scandinavian countries with a lower per capita income than Iceland were: Finland (US$20,488 and Sweden (US$20,439).

The OECD average was US$21,487. Thus, one of the richest countries in the OECD, Iceland, is able to sustain a high standard of living and does not get carried away with wasteful social welfare expenditures. Thus, Iceland does not have lower than average social welfare expenditures because of necessity; rather, it has lower than average social welfare expenditures by choice. Iceland's social welfare model has not yet received the attention it deserves as a model and example for other countries.

Recommendation No. 1:
The Icelandic welfare state model should be carefully studied by the Faroe Islands as the best potential source of new ideas for promoting efficient yet caring social welfare expenditures.

c) A TAP Program[46] for Delivering An Efficient and Effective Level of Government Spending

As the Danish subsidy is reduced in the future, the government will have to ensure that there are appropriate controls over government spending across all agencies, departments and commercial enterprises that receive government funding. But this will be a difficult task, given the current state of affairs.

There are *inadequate controls on government spending* across all agencies, departments and SOEs. There is an auditor general's office, but there is no controller-general's office,[47] and no single department has an appropriate level of formal review authority over the expenditures of individual departments, agencies and enterprises run by government. Finally, the requirement that all government agencies and departments keep a formal record of all of their assets and liabilities is only just coming into effect in early 2000.

As indicated above, a TAP program incorporates Transparency, Accountability and Performance measurement for all government departments, agencies, or SOEs. The process of transparency can best be insured by an effective Official Information Act that permits any member of the public to receive information about the government programs and their effects. A review needs to be undertaken to determine why the 1994 Official Information Act is not being effectively used by the Faroese public.

Another important piece of legislation that promotes transparency is a Fiscal Responsibility Act.[48] The first jurisdiction to pass a Fiscal Responsibility Act was New

[46] This concept was first developed in Caragata, P.J., 1998, *Why Are Your Taxes So High?* Auckland, New Zealand: Seascape Press.
[47] The Controller General has an ex ante function. The position reviews entitlements to funds and authorizes release of funds, whereas the Auditor General has an ex post function, reviewing spending after it has taken place.
[48] New Zealand passed a Fiscal Responsibility Act in 1994. The five objectives of the Act are: (1) "increase the transparency of policy intentions and the economic and fiscal consequences of policy; (2) "bring a long-term (as well as an annual) focus to budgeting"; (3) "disclose the aggregate impact of a Budget in advance of the detailed annual Budget allocations; (4) "ensure independent assessment and reporting of fiscal policy"; and (5) "facilitate parliamentary and public scrutiny of economic and fiscal information and plans."

Zealand (1994). Similar Acts are in place in the US and the UK. The Province of Alberta in Canada followed suit on 23 March 1999.

The process of accountability can be enhanced by ensuring that job descriptions are written which specify the duties and realistic objectives of all public servants (including those in the SOEs) and by permitting the government to terminate the employment that are incompetent.

Performance measurement involves objective review of the ability of all public servants and their organisations to meet agreed targets. Performance also involves developing effective and efficient criteria for setting priorities across projects. Taxpayers want value for money in government spending. Taxpayers are the shareholders of government, not the servants of government. The opportunity cost[49] of all government decisions needs to be examined.

Recommendation No. 2:
Provide the Ministry of Economics with the power to vet (at the beginning of the budget year) and review (at the end of the budget year) all revenues, expenditures, assets and liabilities for each government department, agency and commercial enterprise. An alternative is to set up an Auditor General's Office with a similar function.

Another alternative is to require the Ministry of Economics to vet the expenditure proposals of each government department, agency and commercial enterprise, while the Auditor General's Office would review the expenditure performance and asset and liability status of each government entity at the end of each year.

Recommendation No. 3:
Require all government entities to set up a TAP program. The TAP program will be the basis for external review of performance with respect to revenue, expenditures, assets and liabilities.

Recommendation No. 4:
Create a Fiscal Responsibility Act similar to New Zealand.[50]

3.3 Investment Impediment #2: Minimal Diversification of the Economy

a) Introduction

Does the lack of diversification affect the cost of capital in a country, that is, the cost of borrowing on national or international markets? The answer is yes. In July 1997, Moody's Investor Services increased Iceland's sovereign credit rating to Aa3 (which has a direct and perceptible effect on the cost at which Iceland's government and companies borrow on the international market). According to a report by the Central Bank of Iceland, Moody's made this adjustment because of "increased diversification in the Icelandic economy as a consequence of an influx of new foreign investment projects which take account of the country's clear comparative advantages such as

[49] Opportunity cost is an old concept in economics that measures the benefits and costs of the road taken against the roads not taken. Thus, efficient government policy development is always based on at least two choices and never one.
[50] See footnote 42 for New Zealand Fiscal Responsibility Act.

abundant renewable geothermal and hydro energy and environmentally friendly tourism. Further, the improved ratings reflect the widespread restructuring and stabilisation of the Icelandic economy in the past years coupled with strong economic growth, low inflation, declining debt service and falling debt ratios."[51]

b) Trade Relations

The Faroese kroner, which is fixed to the Danish kroner at par, is managed by a currency board. When the Danish kroner appreciates against the Norwegian and Icelandic currencies, Faroese exports become less competitive against their major competitors for the European Union's imports of North Atlantic and Barents Sea fish species. One of the consequences of its close relationship with Denmark is that Faroese businesses tend to favour sourcing imports from Denmark rather than other markets, regardless of the price.

Both the Norwegians and the Icelanders have remained outside of the EU because of their concerns that entry would permit southern European trawlers to enter their waters and fish out their existing stocks. A similar concern exists in the Faroes. Thus, EU membership is a potential threat to efficient management of the stock of fish in Faroese waters (within the 200-mile limit).

With the signing of the new free trade agreement between the Faroes and the EU on 22 June 1999 (effective from 1 August 1999), the Faroes no longer faces significant impediments to selling processed exports to the EU. Previously, 60% of the value of Faroese exports (largely fish and fish products) were affected by high tariffs and/or quotas and were thus constrained in entering the EU market.

With the new agreement that level has fallen to about 3%-5%, with the principal export affected being shrimp. Thus, Faroese processed pelagic and demersal fish can now enter the EU market without impediments as can the processed salmon from the aquaculture industry in the Faroes. One constraint in the new agreement is that in the event of a shortfall of its fish supply, the Faroes cannot buy fish from another country such as Norway and on-sell it in the EU market without attracting tariffs.

Cost benefit analysis needs to be undertaken on a regular basis with respect to:

- the potential effects of the elimination of the Danish subsidy
- the potential effects of an appreciating currency
- the potential of joining or remaining outside the EU.
- the potential consequences of retaining a fixed currency relationship with Denmark versus floating or versus adopting the Euro.

Recommendation No. 5:
It is important that government officials present information to Cabinet on an annual basis as part of the development of an early warning system for economic policy decision-making. There are many serious issues tied up with these decisions. For example, if the Faroes became an oil-producing nation, and the Faroese kroner was floating, there would be a large appreciation of the currency. This in turn would undermine the international competitiveness of the Faroese fishing industry.

[51] Central Bank of Iceland, *The Economy of Iceland*, Autumn, 1998, p. 40-41.

c) Faroe Fishing Advantages and Constraints

i) Introduction

The Faroes have among the cleanest ocean water in the world for developing fishing stocks and aquaculture (notably salmon and trout). Cod caught in Faroese waters tend to have thicker meat and are exported to Spain where it is particularly appreciated. Some of the new managers running the fish processing companies are generally of better quality than in the past and have the skills to take on responsibilities in other industries. In particular, these managers are very cost conscious and recognise the importance of increasing shareholder value. But they face a number of constraints, discussed below, that need to be overcome. A major one is that the density of the fish in Faroese waters is much lower than in Iceland and Greenland.

The Faroes are part of the North West Atlantic Fisheries Commission and the Northeastern Atlantic Fisheries Commission. The countries that, by reciprocal agreement, tend to fish in Faroese waters are Scotland, Ireland, Denmark and Norway. The Faroes also have a reciprocal agreement with Russia, permitting fishing in each other's waters. The existing models for estimating the size and location of the fish stocks both inside and outside Faroese waters in the North Atlantic, leave a considerable degree of uncertainty about those output variables. Various factors drive where the fish will migrate to, how much weight they will put on and how large the stocks will be, including water temperatures and the availability of food supplies for the fish.

The types of fishing vessels used by the Faroes are pair trawlers (32 vessels), deep sea ships (15 vessels), line boats (19) and home water boats (1500 vessels, of which about 100 are commercially active). Among the long liners, 54% of gross income is accounted for by fishermen's wages. In the trawlers, wages are about 40% of the total value of the catch, while on the pelagic trawlers, wages account for 27% of the value of the catch. About 220,000 tons of fish are caught annually outside the Faroes' EEZ (exclusive economic zone) by Faroese ships; much of this activity takes place in the Barents Sea and near Greenland and Iceland. During the Northern summer fish prices tend to be lower and the stock of some fish available to catch tends to be smaller.

The annual catch has been stable for a few years and prices and after rising for several years, world prices are currently falling. Twenty to thirty-three percent of salmon exports are value added. Except for cod and shrimp, fish outside the EEZ generally have lower prices than the fish caught inside the EEZ; but fishing outside the EEZ is more profitable. This suggests strongly that fishing operations inside the EEZ are less efficient. 100,000 tons of fish are caught annually inside the EEZ (herring, mackerel). The principal destinations of Faroese processed fish exports are Germany, France, the USA, and the UK.

ii) Recent Restructuring of the Faroese Fishing Industry

Introduction: In 1999 there are 30 trawlers compared to 56 in 1989, mainly because of bankruptcies and voluntary departures in the early 1990s. Prior to the great economic crisis there were 29 processing plants[52] in the Faroe Islands, 19 of which were owned by the predecessor to United Seafood. Currently, United Seafood has seven processing plants, of which six are operating. United Seafood manages 38% of the fish processing in the Faroes. United Seafood was the only Faroese processor to make a profit in 1998. On average United Seafood's six plants operate at about 50% of capacity and they

[52] At the beginning of the century, there were only three companies operating all the processing plants in the Faroes.

specialise in processing different types of fish. One processing plant cannot do the entire job of processing all of the different types of fish caught.

In the last few years, fishing has become more profitable, with some ships earning 40-60 million kroner per year. The most profitable have been the factory ships fishing the Barents Sea for cod and shrimp and processing their catch under the same roof. During the economic crisis, fishing income was low and many fishermen went on the dole, shifted to work on foreign vessels or moved abroad. This created short-term instability in the fishing work force.

Fish Policy: The objective is sustainable development of the fish catch; thus the ceiling or limit is to fish no more than one third of the existing stock at any one time from the fish species in the EEZ. The Parliament sets the total allowable catch each year in order to make sure that current information is used in managing the fish stocks.

Quotas are based on tonnes and days fishing in order to avoid the problem of wastage and in the system where quotas are attached to individual species. Legally companies can trade fishing days across most vessel classes.[53] For example, a trawler can trade fishing days with another trawler, but not with a long liner. This is inefficient because it does not permit the full value of the licenses to be realised. The issue of quotas was an issue previously explored by the Advisory Committee during the Great Economic Crisis:

- "The introduction of a system whereby catch quotas are issued for sale to the highest bidders, with the proceeds accruing to the Home Government, could also contribute to such relief, while at the same time helping to make more efficient use of the Faroese fishing resources." [54]

- "Catch quotas serve to limit catches and their transferability can help to minimise the cost of the fishing that is permitted. However, the Advisory Committee is still of the opinion that the transferability provided by the existing legislation is inefficient to ensure that fishing takes place without unnecessary costs. This reduces the profitability of the fishing fleet to the detriment of the Faroe Islands competitiveness. There is also the problem that a large proportion of fishing is based on a common quota, which, coupled with the lack of transferability, is preventing the necessary capacity adjustment of the fishing fleet." [55]

- "The quota system has also been criticised for putting a stop to fishing before the total quota has been used up. This happens when, in connection with the replenishment of cod and haddock stocks, increasing by-catches of these species occur in connection with fishing for other species (primarily saithe)....The best solution to this problem would be to also introduce transferability in the quota system. In addition, enforcing the fisheries laws with quotas per vessel, including illegal discarding of fish, could be made more effective by taking the catch quotas away from vessels that violate the law." [56]

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[53] For example, conversion of quota from long-liners to trawlers is not permitted, but trading in the reverse direction is permitted.

[54] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 6.

[55] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 7.

[56] The Advisory Committee Concerning the Faroe Islands, 1995, *Extracts From Report on the Economic Development of the Faroe Islands in 1994/95*. October, p. 8.

There is a licensing system for salmon hatcheries and salmon farming. It has been difficult for foreigners to get these licenses. Foreigners are permitted to own no more tan 30% of such activities. This has created an impediment to foreign investment in the salmon farming industry in the Faroes. This is probably inefficient, depending on the maximum number of sites available in the Faroes relative to the supply of risk capital in the Faroes potentially available to bid for those sites.

Iceland started to change its quota system in 1984 and developed a step-wise approach, moving to transferable quotas for fishing in 1989. Originally Icelanders were very apprehensive about the transferable quota regime. But, Newfoundland's Grand Banks were allegedly over-fished because of the absence of a quota system. Stringent quotas have not brought back the cod. As well, in Iceland after 15 years of quotas, the fish catch is at levels not seen since World War II. Of course, there are likely other factors that are driving the catch level down and it is by no means certain that quotas are in any way responsible for lower catch levels in Iceland. As a matter of fact, in the absence of quota, either the fish catch would have been even lower, or short term over-fishing would have occurred.

Iceland has 10 world class fishing companies and many small entrepreneurs. (There are 70-80 ports around Iceland). These successful Icelandic fishing/processing/marketing companies now have investments all over the world. This success has had positive spin-off effects on the software development industry and the electronic industry. Iceland, to a large extent, does not need foreign know-how or technology to run its fish processing plants. They have state of the art technology developed in Iceland. Icelandic law does make it difficult for foreigners to own fishing and fish processing companies in Iceland, but joint ventures are not discouraged.

Several thousand Icelanders have become quite rich because of their control of the fishing quotas. There is no resource rent royalty; this would help to extract some of the unearned rent. The counter-argument is that Icelandic fishing companies are competing against subsidised fishing companies all over the world (notably in Scandinavia and Canada) and they need all of the margin they can get. But, we are informed that, Icelandic companies are three to four times more efficient than ones in Canada and Scandinavia. The lack of subsidies is a principal factor in explaining the success of the Icelandic fishing companies because they became much more conscious of the need to manage costs and improve technology. The lack of a royalty is an aberration given the economic rent available in that industry. The key issue is to make the royalty sensitive to fluctuations in revenues and profits.

iii) Constraints on Investment in the Fishing Industry

Fisheries Management: Transition to a New Fishing Regime

There are five types of licenses, or quota, for the home fleet, depending on tonnage.[57] There is no free entry into the fishing industry, but there are too many fishing boats competing for the available catch. While licensing is acceptable for conservation reasons, the licenses are not easily traded and it is very difficult to determine the value of the licenses. When a boat is sold, the license is sold with the boat and there is no clear separation of the value of the license from the value of the boat. A rough estimation would be to work out the age of the boat and calculate the depreciation, but this process is not efficient, nor is it practiced, and thus no clear signals are sent to the market about the value of the license.

Whilst the management of commercial fisheries in the Faroe Islands is beyond the scope of our brief, we feel it necessary to make some observations on this subject, as any economic restructuring which excludes the fishing industry omits too large a part of the economy. Stronger domestic capital markets, diversified private wealth holdings and access to foreign capital will be that much more difficult if fishing and fish management are excluded from further restructuring.

There are two main methods of controlling the harvest of commercial fisheries - input controls and output controls. The system in current use in the Faroe Islands, where a quota system is specified in days, is a form of input control on fishing effort. Recent and historical experience world-wide in fisheries management has demonstrated that where input controls are used to limit catches, the number of input controls progressively increases over time. Fishers are very adept and innovative at increasing catching effort in the face of input controls. However, finding innovative ways around regulations will not necessarily coincide with overall maximisation of industry efficiency.

Output controls constrain fishing effort by directly limiting the overall total allowable catch of commercial fisheries. The difficulty with a total allowable catch quota by itself is that it generally results in a 'race for the fish' as each fisher attempts to maximise their individual harvest. The result will be over-investment in fishing capacity, economic inefficiency and reduced harvesting profitability.

However, the allocation of the total allowable harvest to individual fishers in the form of individual quotas specified in terms of mass (tonnage) can prevent a race for the fish. This form of direct individual quota or output control ensures biological sustainability of fisheries resources. Introducing transferability encourages greater economic efficiency because quota owners can invest in the security of a known catch quota. Experience in countries such as New Zealand is that individually transferable quotas provide the scope for the fishing industry to maximise economic returns through economically efficient investment and innovation at all levels; catching, processing and marketing.

Although Faroe Islands' fishing quota in days is non-tradable between vessels, the quota is attached to boats that can be purchased/sold so that, in effect, a system of 'quasi-tradability' does exist in the industry. The next step in the evolution of the quota system could be to permit the quota entitlement to be traded separately from the fishing vessel

[57] Below 15 tonnes, between 15-40 tonnes; 40-110 tonnes, above 110 tonnes (this is only 4)

to which it is attached. Quota should be treated like any other commercial asset and could be owned by individuals, companies and community organisations.

We would not recommend the introduction of full tradability (separation of the quota from the vessel) where the quota unit is an input control, such as the present Faroese quota unit specified in days. This is because transfer of quota from less efficient to more efficient operators would have the effect of accelerating the tendency for fishers to increase their catching effort (to obtain a better return on their investment). Again the result would be a need for even greater input controls to effectively limit total catch and provide biological protection of the stock. We recommend therefore that full tradability only be considered with a system of output controls or individual quotas specified in mass (tonnes).

If tradability is introduced, it will be important to properly specify the trading unit to ensure that quota trading can be conducted efficiently and that quota can transfer easily and smoothly from one operator to another. The advantages of a quota management system where the trading unit is specified in mass (tonnes) by species/stock is that the right is easily divisible which will promote greater flexibility and reduce barriers to transfers. In addition, a well-specified quota trading unit (or property right) could be used as a security for investment purposes, thereby encouraging new investment, including foreign participation.

The trading of quota away from small communities/small fishers may have some undesirable social impacts on local communities including higher unemployment. These effects can be ameliorated by allocating some of the total quota as community quotas which the community can lease or rent to local fishers, thus maintaining local community involvement in the fishery. A decision on such an employment-efficiency trade-off is for politicians not economists.

Where output controls are based on individual quota specified in tonnes, species by-catch can be effectively controlled using a range of different instruments which provide incentives to fishers to minimise by-catch. The most commonly used approaches to resolving by-catch problems under a quota management system include:

- legal sanctions (e.g a fisher must have quota for reasonably predictable by-catch species). This requires an effective catch/quota monitoring programme.

- practical solutions (e.g. allowing by-catch to be traded off in exchange for an equivalent value of quota for another species). This reduces any financial incentive by preventing financial gain from the by-catch.

- financial disincentives (e.g., financial sanctions, such as payment of penalties fixed in relation to the estimated value of the catch of the over-caught species on the open market). The financial penalties can be adjusted so that fishers actively seek to avoid by-catch.

These by-catch control mechanisms could operate under a quota management system where quota is specified in days, but less effectively than under a quota management system where quota is specified in mass. Ultimately, the emphasis should be on harmonizing the Faroes and the Icelandic fish management regimes in order to promote joint ventures among investors in the two countries.

Economies of Scale and Profitability: In the EEZ where the demersal fishing takes place, there is a considerable degree of inefficiency. There are many small companies with one boat; the biggest company has only 8 boats. The inshore fishing companies cannot make enough profit to replace their capital. The average life-span of an inshore boat is 30 years and the maturity profile of the boat stock is close to two decades? The poor profitability of the demersal fleet occurs in spite of the fact that demersal fishing prices (e.g. capeling and blue whiting etc) are generally higher than pelagic fish prices (e.g. herring).[58] An improvement in prices and a better quality of catch meant that 1998 was a good year for demersal fishing. But the operators' ability to replace their ships is still not very strong. There is a need to reduce the number of ships and increase their scale. Currently, the demersal industry is investing in old ships (refurbishing and purchases).

In contrast, the pelagic fishing companies make a significant profit and are investing in new ships, while the factory processing ships are moderately profitable. Shrimp fishing companies make a small profit but do not have enough retained earnings to replace their capital.[59]

Commercial banks in the Faroes have indicated that they would be prepared to extend more loans to the fishing industry if tradable quotas were established. Tradable quotas would do much to promote consolidation and improve profitability in the industry. Tradable quotas would also encourage joint ventures between Icelandic and Faroese fishing companies. Icelandic companies have some significant strengths in marketing networks, technology and access to capital. Faroese companies could benefit significantly from having cheaper and easier access to these strategic assets.

Processing more at sea will promote greater profitability, but there are some problems that need to be addressed: waste of by-catch fish, scale and the cost of such ships, and the large number of land-based processing facilities in the Faroe Islands. There is a considerable amount of wastage at sea in the deep sea processing ships. For ships fishing within the 200-mile limit it may be more cost effective for fish to be processed on shore (either in the Faroes or overseas). It takes 3 kilograms of fish to produce 1 kilogram of fillets, as compared to a 2:1 ratio for the land-based fish processing plants in the Faroes. Factory trawlers waste more resources in Faroese waters. A complicating factor is that the fish catches which are processed in Faroese plants are not uniform.

After the bankruptcies in the early 1990s and the severe reduction in the cod, the fish processing industry did not become profitable until 1998; but still not yet profitable enough to buy new boats. The principal factors were improved prices, better management and marketing, and the production of better value added products.

Future Directions for Processing? Fish processing plants on land have tended to have a poor rate of return. Forty percent of fish processing capacity in the Faroes is owned by the state. Some Icelandic fishing experts anticipate that in the future fish processing will most likely be distributed globally as follows: (1) fish which have a short shelf life (cooled fish – 14 days; smoked salmon – 21 days) will have a greater probability of being processed in the market or close to the market where they are consumed; likewise fish which have a longer shelf life (e.g. salted fish; 18 months) will have a higher probability of being processed where they are caught (at sea) or in the home country of

[58] Generally, the pelagic fleet is more profitable than ten years ago. And the demersal fleet is more profitable than it was 5 years ago, but is still less profitable than the pelagic fleet, at least in 1999.
[59] There is one shrimp processing factory in the Faroes.

the fishing vessels. Or another way of looking at it, the scale of processing plants for fish products with a short shelf life will tend to be larger in the market where consumed than in the country where it is fished.

Recommendation No. 6:
Resource Royalty: Once the fishing industry has become more profitable, a resource royalty should be introduced to capture the resource rent that will be more readily found in a more efficient industry characterised by economies of scale. Until the impediments to investment are substantially reduced by creative governmental policy change, it is premature to introduce a fisheries resource rent royalty.

Recommendation No. 7:
Lower the corporate tax and the tax on personal income so that the unions are encouraged to place less pressure on the profit margins of the fishing and fish processing companies.

Recommendation No. 8:
Encourage vertical integration between fish processing companies and fishing companies. This will ensure a more stable supply of fish stocks for the processors. The model here is Iceland.

Recommendation No. 9:
Consolidation in the demersal fishing industry should be encouraged, perhaps by encouraging takeovers and co-operatives. This option could get around the problem arising from political pressure in individual villages to retain village specific licenses.

Recommendation No. 10:
Make fishing days fully tradable across fishing vessels and individuals effective. Currently the legislation permits this but it does not happen in practice. If the Faroes and Icelandic fishing regimes are to become more efficient and better capable of generating wealth, then the fish management regimes in both countries will have to become more similar than different. This will promote joint ventures between the two countries and lead to the modernisation of capital in the Faroese fishing and fish processing industries and protect the territorial rights of the Faroes, while allowing renewed access to Icelandic waters. Whether or not the fishing management system is based on tradable days or tradable quotas[60] is a matter for discussion between the two countries. Our research suggests that tradable quotas are the right way to go. But the key objective must not be lost sight of. Provide the right incentive structure and the domestic and foreign investment needed will be forthcoming. Provide the wrong structure and the industry will go backwards.

There is a need to fix the number of licenses with respect to sustainable catch volumes and a need to impose minimum quota holdings. These measures will also facilitate the creation of joint ventures between Faroese and Icelandic companies because they prevent dissipation of economic rent and thus promote investment.

Recommendation No. 11:
The key priority for the immediate future is to rationalize and restructure the industry in order to make it more profitable so that more wealth can be created for the Faroese economy. This requires: (a) the reduction of costs; (b) treating all operations as profit centers; (c) ensuring better quality information on company financial and efficiency

[60] By weight.

performance is provided on a regular basis, including the introduction of Economic Value Added (EVA) measurement.[61] (d) strengthening quality control; (e) upgrading plant and equipment ; (f) and reduction of the number of employees in the industry. As the industry becomes more successful, it may offer more jobs to the market in the long term.

Recommendation No. 12:
Privatise the fishing company shares and list them on a Faroese Stock Exchange. Details of the proposal for creating a stock exchange in the Faroes are found in Recommendation 29.

Vintage of Technology:
Many of the fish processing plants have had a poor maintenance record over the last 15 years, until recently. As well, the plant and equipment are technologically out-dated. Improving maintenance standards and introducing new technology would play a major role in enhancing the productive efficiency of the fish processing plants. Now that some of these plants are starting to become profitable, it is time to begin this refurbishing process.

Another factor motivating this development is the change in attitudes among younger Faroese about the desirability of working in the fish processing industry. It has become increasingly more difficult, especially in the Torshavn, to attract younger employees into the plants. Many of them prefer to work at lower wages in more socially acceptable industries. They find the smell of the industry a turn-off. One company manager observed that if current trends hold, it may be necessary to import workers from Poland.[62]

On the other hand, housewives in the villages are often looking for some additional family income to supplement that of their fishermen husbands. Their husband's income may be volatile, depending on the fluctuations in prices and the catch. This suggests that fish processing should be done in the smaller towns and villages and a sea.

International Competitiveness
The cost per kilogram of fish delivered to the processing factories are higher in the Faroes (80 Danish Kroner per hour on average), as compared to the Iceland (53 Danish Kroner per hour) and the UK (44 Danish Kroner per hour). This is an important reason why Faroese fish processing companies often operate on thin margins. The various possible explanations for this high cost include: high wages; out-dated technology; higher cost of capital and higher electricity prices.

Electricity costs in the Faroes are higher than in other jurisdictions that compete with Faroese processed fish exports. These high electricity costs prevent the drying of fish in the Faroes. Wind power may be a viable alternative. By European standards (**Table 10**), Faroese electricity prices are very high. In a comparison with 15 other countries, the Faroe Islands had the highest price per kilowatt-hour for households in 1996, 137% higher than Finland, the lowest cost supplier. At the same time, the Faroe Islands price

[61] Economic value added analysis, developed by Stern Stewart in New York in the 1980s, promotes the idea of ensuring that each company, or every division of each company, has a higher rate of return (net operating profit divided by total capital employed) than the weighted average of the dividends to shareholders (adjusted for a sector-based risk premium) and the interest payments to banks and other lenders (this is referred to the weighted average cost of capital).
[62] This strategy is currently employed by Iceland. If oil is developed, attracting local workers to the fish processing industry will become even more difficult.

per kilowatt-hour (kwh) for industry in 1996 was also the highest among the 16 countries and 237% higher than Sweden, the lowest cost supplier. With respect to Denmark, in the case of household electricity prices, the Faroe Islands price per kwh was 33% higher, while in the case of prices per kwh for industry, it was 134% higher. Perhaps some of the problem is the small scale of the system, but that cannot be the sole factor, and perhaps it is not the most important factor.

Table 10: Electricity Prices for European Households and Industry, by country, 1996

	House Hold		Industry	
Country	p/kwh	Index Country	p/kwh	Index
Faroes	18.5	237 Faroes	10.5	337
Belgium	15.0	192 Germany	9.6	307
Denmark	14.0	179 Austria	7.2	231
Germany	14.0	179 Italy	6.6	211
France	14.0	171 Belgium	6.5	207
Spain	12.7	162 Portugal	6.4	205
Austria	12.4	160 Spain	6.8	195
Portugal	12.0	154 Luxem	5.4	174
Italy	12.0	154 Nthlds	5.3	169
Luxem	11.6	148 France	5.2	167
Nthlds	10.6	136 Ireland	5.1	162
UK	9.2	118 Greece	4.9	156
Ireland	8.6	110 UK	4.5	145
Sweden	8.5	109 Denmark	4.5	144
Greece	7.9	101 Finland	4.4	140
Finland	7.8	100 Sweden	3.1	100

p = pence kwh = kilowatt hour
Source: International Electricity Prices Survey, 1996 (www.electricity.org.uk)

Foreign Ownership: Foreign ownership is restricted in the fishing and fish processing industry and aquaculture. Foreign investors are not permitted to own more than one third of the equity in a company. We share the view of the Faroese banking sector that it has been difficult to attract foreign investment for several reasons: (1) the scale of the economy; (2) the restrictions on foreign investment in the fishing and fish processing industry; and (3) the licensing system.

Foreign Market Access and Processing in the Faroes: The free trade agreement with the EU has eliminated tariffs on Faroese processed fish exports to the EU (except for shrimp), but there is still concern by some Faroese fish processors that because the Faroes is outside the EU, some EU companies may still try to reduce Faroese competition by promoting non-tariff barriers. This is one of the arguments for Faroese membership in the EU, but a stronger counter-argument is that membership in the EU will considerably reduce the country's control over its fishing stocks. One factor weighing against processing in the Faroes is that a processing plant, e.g. in Denmark, can deliver processed fish to the large European market more quickly than can a processing factory in the Faroes.

There is little value added in cleaning and gutting fish. Even creating filets is not the top end of the value-added market. The increase in value-added processing is slow. On average these six plants operate for about half the year and they specialise in processing

different types of fish. One processing plant cannot do the entire job of processing all of the different types of fish caught.

Part of the problem is the lack of a steady supply of stock. There is no formal contract between fishing companies and processors. The processors purchase most of their catch at auction[63] in the Faroes, but they maintain regular communications with the ships at sea to determine which types of fish are becoming available. In processing plants, generally four weeks are allocated for maintenance and employee vacations simultaneously. The fish processing plants are still generally characterised by out-dated plant and equipment.

The number of fish processing plants could be smaller if the government were less sensitive to regional development issues. But some small villages on the main island and the outer-islands are often dependent for economic viability on jobs and income in the fishing and fish processing industry. The cost to the taxpayers of maintaining these jobs needs to be made transparent to the public. There is an implicit subsidy. As the economy diversifies and the two new tunnels are built, there will be less concern about the need to retain inefficient fish processing plants in remote villages. But, this view must be tempered with the fact that it is much more difficult to recruit people in Torshavn to work in the fish processing industry than in the outlying towns and villages.

Fish processing plants periodically face changes in customer orders which requires storing more inventory at higher costs, and then repackaging the fish for other customers. This problem can be partly overcome by improving efficiency in the packaging section of the processing plant. But it can also be addressed by tighter contract conditions and diversification of the customer base.

Recommendation No. 13:
Membership in the EU should not be dismissed out of hand publicly. An on-going effort should be made to ensure that membership in the EU is appraised on an annual basis.

Recommendation No. 14:
More effort should be made to sell processed fish directly to foreign restaurants in order to increase margins.

iv) Constraints on Investment in the Salmon Farming Industry

There were 65 fish farming sites in the 1980s, versus 18 sites in 1999. The remaining sites are operated by 12 companies, with one foreign investor from Norway operating three sites. It takes 1.1 kilos of fish food to produce one kilo of salmon on fish farms. The salmon food is largely produced in the Faroes, except for some imports from Norway. The life-span of the tanks is about 20 years. Nets last about 7 years. Over the past 5-6 years, costs have been reduced in this industry by about 25% because of learning and technical improvements. It is estimated that when the government exited this industry, total costs were reduced by about 20% to total costs.

Thirty thousand tonnes of salmon were produced by salmon producers in 1998 versus 20,000 tonnes in 1989. The dominant company produces about one-third of the total catch. The demand for salmon is increasing in Japan, Russia and Europe. The rate of return for salmon processing in Denmark is higher than in the Faroes. The Faroes export

[63] The auction house is owned jointly by the sellers, the buyers and the unions (20%).

price for salmon is about 25Dkr per kilo and the Danish supermarkets sell it for 65 Dkr. The cost of labour is about 33% of the total cost of processing in the Faroes.

Salmon farming started to take off in 1993-94 and economies of scale are now emerging along with good quality professional management. Constraints affecting the salmon industry include:

(1) foreign investment restrictions (30%);
(2) environmental constraints reduce the number of potential places where salmon tanks can be located; but the Faroes are not the only place where there are environmental controls; its principal competitors, such as Norway, also have such regulations;
(3) the 27% corporate tax rate;
(4) liquidity is affected negatively by the taxation schedule which is not aligned to the growing period;
(5) personal tax rates are too high; and
(6) there is a better supply of labour in Denmark for processing salmon.

The total capacity of salmon processing facilities is more likely to increase faster in Europe in the future than in the Faroes for a number of reasons:

(1) cost of transport;
(2) the need for *just-in-time* delivery for restaurants and grocery stores means that the time it takes to ship processed from the Faroes to Denmark (36-48 hours, including loading and unloading) is to too long; the alternative is airfreight (but that is more expensive);
(3) the labour shortage in the Faroes combined with the growing workers preference not to work in the fish processing industry.[64] In general, salmon fish farming would be easily doubled in the next ten years; some additional salmon processing will take place in the Faroes, but more will occur in Europe. And the Faroes have some prospects for exporting salmon farming processing technology.

Recommendation No. 15:
The best possibilities for developing the salmon farming industry are: (1) hatcheries; (2) fish food for salmon farming; (3) value added processed products and related technology (bone stripping, slicing, cutting, smoking); (4) technology (including software based technology) for salmon farming to compete with imported Norwegian products;[65] and (5) technology (including software based technology) for the new market of fast food salmon products.

[64] This is also a problem in Iceland, where 12% of the fish processing work force are migrant workers, largely from Poland.
[65] Currently, one Icelandic company is working with a Faroese company to provide salmon farming technology for the domestic and potentially the international market. Currently, most salmon farming equipment is imported from Norway.

d) Oil[66]

The development of oil in the Faroe Islands is by no means a certainty and the people of the Faroe Islands should be cautious about raising their expectations before there is proof that oil is commercial quantities can be produced. No wells have been drilled yet. All estimates about the potential for oil discoveries in Faroese waters are purely speculative.

The new agreement between Denmark, the Faroes and Britain sets the boundary halfway between the Faroes and British territory (The Shetland Islands are 375 km from the Faroes). The discoveries in the UK zone 10-15 nautical miles on the other side of this boundary are between 200-400 million barrels of oil. There are two consortia involved in the development of these fields. Some of the same companies involved in these consortia have expressed an interest in the 40 blocks that the Faroes will offer for exploration.

Currently, 20-25 companies are engaged in seismic surveys.[67] Ten seismic licenses were issued in 1997, five in 1998 and between five and ten will be issued in 1999. The first seismic surveys were conducted in 1994. There is no definitive overview of the existing seismic work but it is suggested that some prospects have been identified. If oil is discovered it might not be surprising to find that the oil/gas ratio was 2.5 to 1, again based on observations in the British fields.

The acreage on offer will officially go on the market in October or November 1999, after the Logting (The Faroese Parliament) passes the appropriate legislation. The oil blocks will be offered through the well-known process of work-program bidding which ensures that winners of the tracts drill an appropriate number of wells and that the quality of the drilling is appropriate for the tracts. The emphasis is on maximising the quantity and quality of information for a newly explored area. Cash bonus bidding is not being used. That method of allocating tracts is more appropriate for a mature field where there is a considerable degree of information about the scale and quality of the petroleum resources.

Negotiations with respect to work program bidding are expected to take place before July 2000. Drilling is not expected to take place prior to mid-2001.

The geophysical features of the seabed in Faroese waters are similar to those in the British zone. No attempt has yet been made to estimate the level of potential resources, reserves or recoverable reserves, but that is understandable considering the absence of concrete information. Informed speculation (and it is no more than speculation) suggests that the range of expected discoveries will be at least a few fields between 80 million

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[66] Sources for this section include: (1) *Preparation for Oil Exploration: Report of the Hydrocarbon Planning Commission to the Faroese Government*, Torshavn; (2) Faroe Islands, *Ready For Exploration*, 1999, Faroese Petroleum Administration, Torshavn, (3) *Improved Recovery Week*, 28 October 1996; and August 5, 1996 (4) *Offshore*, September 1997, vol. 57, No. 9, p. 18; February 1997, vol. 57, No. 2; and April 1998, vol. 58 No. 4; (4) Lee, M.K., et al. 1996, *Techniques for Basin Identification on the Northwest UK – Faroes Continental Margin From Marine and Satellite Gravity Data*, EAGE 58th Conference and Technical Exhibition, Amsterdam 3-7 July 1996; "Large-Aperture seismic: Imaging Beneath High-Velocity Strata," *World Oil* , January 1999, Vol. 220 Issue No. 1; (5) Hoy, T., et al. 1992, "A High Resolution Seismic Survey in the Faroe-Rockall Area," *Journal of Applied Geophysics*, February, p. 85; (6) Sweetman, S., 1997, "Potential Field Modelling in the Offshore Faroes," EAGE 59th Conference and Technical Exhibition, Geneva 26-30 May 1997.

[67] The following companies have been granted prospecting licenses between 1994 and 1999: Arco Faroes; Amerada Hess, Atlantic Margin Group (Enterprise Oil, Statoil, and Mobil), Bell Geospace, BP Exploration, Digicon Geophysical, Dopas (with 18 other companies), Fugro-Geoteam, Geco-Prakla, Nopec Geoventures, Oilsearch, PGS Nopec, PGS Reservoir, Saga petroleum, Shell UK, SGS, Texaco, TGS-NOPEC Geophysical, Veritas DGC, Western Geophysical, World Geoscience Corp.

and 400 million barrels. No tax revenue should be expected for perhaps 5 years after the commercial production begins because of the carry forward of loses by the producers arising from their dry holes. Based on our experience, even after that, little profits tax revenue should be expected for another five years. For this reason, the new, as yet undefined petroleum royalty takes on great significance. The Faroes have only one chance to design this royalty correctly.

One negative feature about development in Faroese waters is the huge expense of finding and bringing the oil to the surface. Geophysical conditions are very challenging. There is a volcanic superstructure which will not be cheap to drill through.

A positive feature is that technological change is proceeding rapidly with respect to the requirements in the British zone and it is possible that by the time the oil is discovered the cost per barrel could be as low as US$10 per barrel, but it could also be as high as $20 per barrel[68]. The cost of drilling each hole is estimated to be between $20-30 million. A rough guess suggests that about one in ten holes will find something, but not necessarily in commercially developable quantities. The discovery rate could well be better because of the learning curve experiences on the British side of the exploration area. Thus, some areas on the Faroese side might do better than one in ten. Another positive sign is that in the British zone the rate of discovery has been rising after 20 years of development. This reflects the geological learning curve.

The timing of development in Faroese waters may or may not be similar to those in British waters. There, the first wells were developed in the early 1970s. The first discovery occurred in 1990 and the first oil was developed in 1992. Much has been learned about the problems of dealing which the geophysical structures in this region of the world so it is not expected that, in the Faroe waters, it will take twenty years between the first drilled hole and commercial development, assuming that there is any oil worth while developing. A better estimate would be about five to ten years. Thus, **if** there is oil and **if** costs can be constrained and **if** prices remain over US$15-$20 per barrel, then there could be significant oil development in Faroese waters between 2007 and 2011. But, again, this is very speculative.

The corporate profits tax affecting the oil industry unless changed in the interim will be 27%, the standard statutory rate for the corporate sector in the Faroes. Losses can be carried forward for five years. The depreciation regime may have to be examined to determine if it is appropriate. Another piece of legislation is the petroleum royalty regime, which is expected to be passed in October 1999.

It is to be hoped that this legislation takes into consideration the interests of both the resource owner (the government of the Faroes) and the resource producers (the multinational oil companies). A royalty regime which these requirements is the New Zealand hybrid oil royalty regime with an ad valorem royalty providing the floor and a profits-based royalty providing the ceiling.[69]

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[68] The average lifetime cost per barrel of oil in the North Sea is US$12.

[69] See Caragata, P.J., 1989, *Resource Pricing: Rent Recovery Options for New Zealand's Energy and Mineral Industries*, Wellington, New Zealand: Ministry of Energy; and Caragata, P.J., 1989, *From Generation to Generation: A New Zealand Heritage Fund and a New Pricing Regime for Energy and Minerals*, Wellington: Ministry of Energy. As part of the research for this latter report, in 1990 Dr. Caragata visited the Alaska Permanent Fund in Juneau, the Alberta Heritage Fund in Edmonton, the Saskatchewan Heritage Fund in Saskatoon, as well as the Harvard Fund in Boston, and the three funds in New York: The Carnegie Endowment Fund, the Ford Foundation and the Rockefeller Foundation.

Risks and Responses in Developing an Oil Industry

In order to control the tidal wave of effects that can hit an economy after oil is discovered and revenue to government begins to mount, it would be strongly advisable to develop a trust fund through which the oil revenue to the state could be managed. This approach would have the effect of creating excessive inflation in the economy (this defensive approach is called sterilisation) as has been experienced in oil exporting economies in the past (e.g. 'Dutch disease). This is in keeping with the Faroese traditional cultural emphasis on inter-generational equity. Examples of Trust Funds in other oil producing jurisdictions help to determine the range of options for structuring a Faroe Islands Trust Fund or Heritage Fund:

- **Option #1:** The Alaska Permanent Fund, Alaska, USA (1976)
- **Option #2:** The Alberta Heritage Fund, Alberta, Canada (1976)
- **Option #3:** The Norwegian Petroleum Fund, Oslo, Norway (1970s)
- **Option #4:** The Kuwait Future Generations Fund (1976)

This is a preliminary overview of the type of options that are available for the Faroes to pursue if an it is decided to set up an inter-generational heritage fund based on oil revenues. This is not intended to be an exhaustive comparison of the strengths and weaknesses of these different options.

Option #1: The Alaska Permanent Fund [70]

The Alaska Permanent Fund was created in 1976 by Governor Jay Hammond. Oil revenues were first invested in the Fund in February 1977. By 1999, the Fund had reached a value of US$25.7 billion. The Fund has three basic purposes:

- "to transform a significant portion of the non-renewable oil wealth into a renewable source of wealth for current and future generations of Alaskans;
- "to create an investment base from which to generate future income to help pay the costs of basic government services as state revenues decline;" and
- "to 'keep the money safe' with low-risk investments and above-average returns."

As at 12 August 1999, 41% of the funds were invested in fixed income instruments, 34% in US equities, 16% in non-US equities, 8% in real estate, and 1% in certificates of deposit in Alaska. In effect, most of the investment is outside Alaska (a small market), but the bulk of the investments have remained in the US. The annualised rate of return since 1977 has been 12%. Fifty percent of the Fund's revenue is reinvested in the Fund and 50% is distributed as a dividend to each person who has been an Alaskan resident for at least one year. In 1998, US$893 million, or $1,540 per resident, was channeled into the Alaskan economy.

Given recent low oil prices, a situation which has reversed dramatically in the last six months, there had been growing pressure to use some of the Fund's current revenue to finance government services. That pressure has probably abated.

One of the most attractive features of the Alaska Permanent Fund is that it cannot easily be changed by politicians. The legislation creating the Fund was enacted as a constitutional amendment. It was called a "permanent" fund because it was intended to

[70] Alaska Permanent Fund: http://www.apfc.org

be "permanent." It can only be abolished by another constitutional amendment, a very serious and difficult process.

The Fund does not engage in 'political' or 'social' investing. The Fund is managed as a "bottom-line" operation. The day-to-day management of the Fund is outside the control of government and in the hands of a Board of six trustees. The trustees have "fashioned a regimen which includes well-crafted internal controls; an extensive accountability program; and open meetings with maximum opportunity for citizen participation."[71]

Option #2: The Alberta Heritage Fund [72]

The oil fund was established in 1976 and came into effect in January 1977. The total value of the Fund at the 31 March 1999 was Cdn$12.1 billion. The original objectives of the Fund were to:

1. "save for the future"
2. "strengthen and diversify Alberta's economy" and
3. "improve the quality of life for Albertans."

During the first 20 years, the second and third objectives were more dominant than the first. "From 1976 to 1983, 30% of the province's oil and gas revenue went into the Heritage Fund. Between 1984 and 1987, 15% of the revenue went into the Fund. From 1987 on the government stopped putting resource revenue into the Fund. Until 1982, the Fund kept all its investment income, which helped it grow. Since then, all income (including income from capital gains) has been transferred to the General Revenue Fund to help pay for government programs and services. The Fund reached its peak in 1987 at $12.7 billion. It began to decline in 1987 because of spending on Capital Projects such as irrigation works, hospitals, research and parks. Spending on capital projects stopped in 1995. The Heritage Fund enabled the government to meet the needs of a rapidly growing population and to diversify the economy through investments in forestry, petrochemicals, agribusiness, high technology and tourism. The capital projects have been paid for..."[73] What the government has not demonstrated is whether these capital projects are providing value for money, or making a profit.

In 1995, the Government asked the people what future directions the Fund should take. There was a strong consensus to change the objectives and the investment strategy. In 1999, the statutory mission of the Alberta Heritage Savings Trust Fund is: "to provide prudent stewardship of the savings from Alberta's non-renewable resources by providing the greatest financial returns on those savings for current and future generations of Albertans."

The Fund is currently going through restructuring. A major innovation has been to divide the Fund into two: the Endowment Fund emphasizes a long-term optimal rate of return; and the Transition Portfolio emphasizes satisfaction of the current revenue needs of the Province of Alberta.[74] At the end of March 1999, about 66% of the assets were in the Transition Portfolio. This provides a good indication of the extent to which political interference has dominated the Heritage Fund in the past. Only gradually will this

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[71] Christian Science Monitor, 15 April 1999, vol. 91, Issue 97. P. 3

[72] Alberta Heritage Savings Trust Fund: http://**www.treas.gov.ab.ca//comm/heritage/anrep99/report.html**

[73] *1998 Heritage Savings Trust Fund Review*, 22 October 1998.

[74] This is similar to the Tuvalu Trust Fund (A$58 million) which has an "A" account for its growth or aggressive portfolio, and a "B" account for a defensive portfolio. The latter is used as an annual source of revenue for the government's Budget, although some of that revenue is saved every year and injected back into the "A" fund.

change, so that in the future the Endowment Portfolio becomes the larger part of the fund, and by 31 December 2005, the Endowment Portfolio will contain all the assets.[75]

Policy for the Fund is set by a Committee that advises a government minister (the Provincial Treasurer). The rate of return target for the Transition Portfolio is to beat the market cost of Alberta's provincial debt (5.9%). Currently, that target is not being achieved (in the year to 31 March 1999, the rate of return was only 5.4%). Performance in the Endowment Portfolio is even worse (4.7%).[76] This poor performance can be explained largely by the poor investment strategy of the previous fund managers. Far too much money was put in "projects" inside Alberta that were designed to achieve one political goal or another.

As a result, the value of the Fund did not increase for about 10 years (10 years!), between 1986 and 1996. In 1997, the Government of Alberta announced that the Fund would no longer invest in projects; instead, it would stick with a traditional portfolio based largely on bonds, equities and property.[77] The obvious question is, why did it take so long to change a system that was destroying value? One answer is that the bureaucratic managers had little appreciation of opportunity cost or economic value added (i.e. out-performing the cost of capital) because there was no shareholder pressure to improve performance. Another change in 1997 was to add a business advisory panel to promote a more professional approach to investment.

The three new goals of the Fund are to:

(1) "Earn income to support the government's consolidated fiscal plan.
(2) "Make returns in the Endowment Portfolio to Maximise Long Term Financial Returns....The investment policy for the Endowment Fund calls for a long term policy allocation of 60% in equities. Further, the policy allocation to foreign equities is 30% of the Endowment Portfolio."
(3) "To improve Albertans' understanding and the transparency of the Alberta Heritage Savings Trust Fund."

As at 31 March 1999, 87.7% of the funds in the Transition Portfolio were invested in fixed income instruments, provincial bonds 9.6% and project loans, 1.3%. As at 31 March 1999, 46.7% of the funds in the Endowment Portfolio were invested in fixed income instruments, while equity investments accounted for 49.4%. By all accounts, this is a very conservative growth portfolio for an endowment fund, but the intent is to raise the equity side to 60%.

Option #3: The Norwegian Petroleum Fund[78]

The Norwegian Petroleum Fund (NPF) was developed in the 1970s to assist in financing future pension funds and medical care as the population ages, to promote intergenerational equity, and to prevent the economy from undermining the competitiveness of the other principal sectors on the economy. Operational management is handled by the Norges Bank, the Norwegian Central Bank. Policy is set by the

[75] It should be recalled that the Alaska Permanent Fund was created in the same year as the Alberta Heritage Fund. The former has always emphasized long term rate of return optimisation, whereas the Alberta Fund has not. In March 1989, the Alberta Heritage Fund had assets of Cdn$12.7 billion but had reached only Cdn$15.6 billion by 1999, whereas the Alaska Permanent Fund was US$10.2 billion in March 1989 and had reached US$25.7 billion by 1999.
[76] This actually met the target; this is an unbelievably low target for a growth fund, and a very poor out-turn.
[77] *Government of Alberta News Release*, 26 June 997, Edmonton, Alberta.
[78] central.bank@norges-bank.no

Ministry of Finance. The Governor of the Central Bank, Kjell Storvik, outlined the rationale for the NPF in a speech in March 1998:

"Future petroleum revenues are expected to be very large in relation to the Norwegian economy, but there is substantial risk attached to them.... Intergenerational justice and economic policy considerations suggest that these revenues should not be spent as they are earned. The risk of seeing very low petroleum revenues in the future makes it essential to retain competitiveness of a broad range of other industries, to reduce our dependence on petroleum."[79]

The Fund is currently estimated to be 172 billion Norwegian kroner in 1999, and is expected to grow to 425bn kroner by the beginning of 2002. During that year, it has been projected by the Central Bank of Norway that the value of the NPF could reach US$70 billion.

Investments were restricted to fixed income securities until 1 January 1998, reflecting the very conservative nature of the fund's policy framework; thereafter, up to 50% of the portfolio has been permitted to be in equities, reflecting the fact that the long-run return to equities is higher than to debt. In order to minimise the distorting effects of the Fund, all investments are outside of Norway. A modification was also made to the geographical distribution of the portfolio, with the maximum of 40-60% being allocated to Europe, versus 75% previously (based on weights in Norway's imports – an odd choice). North America will now be allocated 20-40% and Asia-Pacific 10-30% of the portfolio.

The NPF also operates under several other rules:

- the NPF may not own more than 1% of the equity of any company in order to promote the Fund's diversification and to eliminate the potential for interfering with management of companies;
- consideration is being given to ethical guidelines for curbing investments in certain companies.
- The NPF manager does not have a management position or any active position in the Central Bank.

Option #4: Kuwait's Future Generations Fund[80]

The value of the Fund reached US$40 billion in 1998. The Future Generations Fund of Kuwait (Law No. 106) was created in 1976. It was given 50% of the Government of Kuwait's General Reserve Fund (which had been created in 1960), 10% of the annual budgetary revenues and the profits of these assets. In 1982, the Kuwait Investment Fund took legal responsibility for managing the General Reserve and the Future Generations Fund.

The Iraqi invasion in 1991 had a devastating effect on Kuwait's oil wells (oil well fires were started by the Iraqis). As a result of the war, Kuwait had to dip into its Future Generations Fund, and has now changed its investment strategy, in order to compensate for spending on reconstruction.

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[79] Storvik, K., 1998, "Petroleum Fund: Strategy, Guidelines and Management," Norges Bank, central.bank@norges-bank.no, March 12.
[80] www.kia.gov.kw

The emphasis for the Future Generations Fund is on maintaining a "global, diversified, high return investments (portfolio), capable of achieving the required capital returns." The new strategy "emphasizes the importance of developing and training nationals in various investment fields."

The KIA has investment offices around the world, but also investments inside Kuwait in partnership- with the private sector (Gulf Cable, Electrical Industry Co, Mobile Telephone Systems, Kuwait Hotels, Refrigeration and Storage, Kuwait Fisheries).

Advantages of a Resource Heritage Fund
The general benefits of an Oil Resources Fund include:

(1) an improved credit rating for the jurisdiction that creates such a fund and makes a success of the Fund (e.g. Alaska);
(2) preventing politicians from squandering the money;
(3) preventing inflation; and
(4) avoiding undermining the international competitiveness of the other sectors of the economy.

A Faroe Islands Heritage Fund

A Faroe Islands Heritage Fund would concentrate building for future generations The functions that such a Trust Fund could perform in the Faroes are:

- Funding technical training in the Faroes for students wishing to prepare themselves to enter industry
- Funding training for qualified Faroese in the best universities in the world
- Making a contribution to private pension funds
- Developing or deepening a venture capital market.

Obviously, much more research needs to be undertaken to examine what is relevant for the Faroes. The following section examines the potential consequences of oil development in the Faroe Islands, utilising the applied general equilibrium model presented in Section 2.

Scenario O (Oil Production)

Scenario O (oil production) uses Scenario E (the restructuring scenario) presented in Section 2 as a base, but introduces a completely different issue - oil. As the number of unknown parameters pertaining to Faroese oil discovery is immense, the specifications for the scenario must be considered as very preliminary. The intention is to produce a reasonable picture of the economy (again in 2007) in a situation where oil is already being successfully extracted and exported. The lead-time implied is therefore quite short. However, to produce an alternative projection, say 12 or 15 years hence, would imply some loss of direct comparability with the other scenarios.

Nevertheless it may be desirable to explore such a scenario more fully, including explicit modelling of the exploration and development phase. The *main assumptions* for the scenario are as listed below. Further detail may be found in Appendix A:

- An extra industry for oil extraction is incorporated into the General Equilibrium model. The structure of the industry is based closely on the New Zealand offshore

oil and gas industry which relates to a field of about 2000 Petajoules (PJ), or 320m bbl. of oil equivalent energy. This is consistent with the hypothesized size of potential discoveries in Faroese waters.

- Annual production is assumed to be 300PJ or 48m bbl. All production is exported.

- The price of oil is assumed to be US$17.50/bbl, implying a total annul output value of US$840m, or about Dkr5800m.

- There is a royalty on oil production which *ex post* is equivalent to 5% of revenue, although this would probably be structured in a different manner. An additional assumption is that half of the oil royalty is distributed equally to all citizens and the other half is retained by government in a "resource heritage" fund, which invests entirely offshore. Earnings from the fund are re-invested.

- All oil industry personnel who work on the platforms or in Faroese waters are assumed to be subject to Faroese taxation rules.

- The Faroe Islands attract additional immigration of 400 people per annum over and above the SFI projections implicit in Scenario A (the business as usual case).

- By 2007 the Faroese labour force is 3000 FTE (full time equivalents) larger than in Scenario A. This comprises 1500 additional permanent migrants plus 1500 temporary residents.

- New housing building rises from Dkr120m in Scenario A to Dkr240m.

- Government social investment expands at 2.5% per annum from 1997, versus 1.5% per annum in Scenario A. There is no change to government consumption.

- Capital flows adjust to prevent the "real" exchange rate (ie relative purchasing power parity) from appreciating above the level prevailing in Scenario E. This is a potentially crucial assumption. Given that the Faroe Islands does not have an independent currency (and we would not advise its adoption) the pressure on the real exchange rate (especially between the Faroe Islands and Denmark) would be manifested in higher Faroese commodity and assets (especially housing) price inflation unless this is offset by capital outflows. Hence, this suggests the need to sterilise[81] the bulk of the oil revenues paid to government, given that wage inflation will already be creating significant difficulty.

The main results are summarised in **Tables 11** and **12**.

[81] That is, invest offshore as is the case with the Norwegian Petreolum Fund.

Table 11: Macroeconomic Effects of Oil Discovery

	Scenario E	Scenario O	% difference
Private Consumption	4304	4827	12.1
Gross Investment	1562	3158	102.1
Government Consumption	1837	1837	0.0
Stock Change	137	154	12.4
Exports	4960	10441	110.5
Imports	4493	6075	35.2
Gross Domestic Product	8307	14342	72.6
External Account Balance	480	1635	240.6
Population	47712	51712	8.4
Private Cons. Per capita	90218	93338	3.5
GDP per capita	174113	277339	59.3
Employment	21404	24405	14.0
Effective HH Tax Rate	19.1%	9.2%*	-51.8
Household Saving	881	2397	172.1

* includes half of oil royalty divided equally amongst all citizens

Oil exports to the value of Dkr5800m present the Faroe Islands with a bigger shock than the economic depression earlier this decade - in the opposite direction. Gross domestic product rises by 73% relative to Scenario E. On a per capita basis – with a 4000 increase in the population – the increase is 59%. Private consumption rises by a smaller amount as there is a considerable increase in household saving. This is needed to finance the much higher level of investment – up by more than 100% on Scenario E.

That such an increase in household saving is possible is attributable to two key factors; higher real gross wages and lower personal income taxes. Indeed the mean net effective tax rate paid on household income is only 9.2% compared to 19.1% in Scenario E. (This includes the payment by government of about Dkr2700 per person, being half of the value of the royalty on oil production).

Although most of the investment in the oil industry is assumed to be financed offshore, the converse of this is that there are annual remittances offshore of dividends and interest. This is one reason why the external current account surplus does not increase by the full value of the oil exports. Another is the high direct import content of oil industry investment.

Note, however, that this particular combination of the current account and domestic saving is driven strongly by the assumption that the real exchange rate *should* not appreciate. An alternative scenario is one where Faroese private saving does not attain this level, being allocated instead to higher consumption.

There would then need to be a greater inflow of foreign capital (for a given level of investment), leading to higher inflation, an appreciation of the real exchange rate and a deterioration in the competitiveness of other industries. Even in the scenario simulated here, two industries expand less rapidly than in Scenario E - see Table 13. Fishing output and fish processing output are 8.5% and 6.4%, respectively, below the levels achieved in Scenario E.

Table 12: Industry Effects of Oil Discovery

	Scenario E	Scenario O	% difference
AGMN	129	292	126.7
FISH	2315	2118	-8.5
AQUA	1049	1060	1.0
FSPR	2349	2200	-6.4
SHIP	395	527	33.5
OMFG	755	958	26.9
ENGY	464	512	10.5
CONS	853	1335	56.5
TRAC	2355	3023	28.4
TRNS	1601	1901	18.7
COMM	321	384	19.6
PRIS	2292	3317	44.7
GOVS	1791	1795	0.2
DWEL	1074	1284	19.6
OILP	0	6532	-
Total	17743	27238	53.5

Essentially, these industries, even with the reforms introduced in Scenario E (possibly with understated benefits) cannot attract sufficient labour and capital when faced with competition for resources from the oil industry and from those industries which supply the oil industry such as ship building/repairs and other manufacturing. Aquaculture is strong enough to retain its previous output growth, but only just. These results are as would be expected and demonstrate the robustness of the model.

These industry results also reinforce the need for the effects of the potential bonanza associated with oil to be carefully managed if they are not to undermine the enhanced robustness and diversity of the economy achieved in Scenario E (the restructuring scenario). Fortunately, the restructured economy as portrayed by Scenario E, with its new domestic capital market and more private ownership of industry is more likely to accommodate the effects of discovering oil than it would without the restructuring.

Other means of ameliorating the potentially adverse effects are the resource heritage fund and the maintenance of a currency with a fixed parity to the Danish kroner (or perhaps to the Euro). However, more interventionist policies such as tax incentives to encourage private investment in equities or the conversion of part of the oil royalty distribution into equities may also be desirable.

Recommendation No. 16:

Create a Faroe Islands Heritage Fund based on revenues from a hybrid oil royalty. Ensure that most of the funds will be invested offshore. This project requires much more analysis.

Recommendation No. 17:

Provide a detailed assessment of the onshore business prospects for Faroese to provide goods and services to any offshore oil developments. This would include supply ships, stevedoring services, outfitting, rig repairs, and helicopter services, and any related tourist spin offs.

e) Tourism

The Faroe Islands has quite a distance to go to catch up to Iceland with respect to developing tourism as a major part of the strategy of economic diversification. As part of its structural reforms in the early 1990s, the Faroe Islands promoted the tourism industry. Currently, Iceland gets about 300,000 tourists per year. Export earnings are increasing at a rate of over 5% per year. This is faster than the average growth in world tourism. Tourism facilities in Iceland are still relatively small scale by world standards

and have no foreign investment so far, but are generally superior to the Faroes in terms of quality.

Currently, the Faroes' tourist industry is operated by family-owned businesses. If the tourist numbers continue to grow beyond the 40,000 foreign visitors per year, there will need to be a considerable improvement in infrastructure for the tourist industry.

The banks need to understand the tourist industry better. In discussions with them about the prospects for diversifying the nation's economic base, they did not mention the tourist industry, which is currently the second largest export earner, albeit an order of magnitude lower. Through the *Tourism Fund*, tourist operators can obtain 50% of costs for certain projects. Apart from the banks, there is no possibility of getting help with the establishment of small one/two person tourism businesses. In developing new products in general and in the 'outskirt areas' (smallest islands and villages) in particular, some new assistance for funding and advice is necessary.

In October 1999, the Faroes Tourist Bureau is expected to receive the first comprehensive market data ever produced on the turnover in tourism and a breakdown by type and destination of tourists. This data should be made widely available in order to promote public discussion. The release of this new data also presents an opportunity for a complete review of the tourism development strategy.

Recommendation No. 18:
A higher level of political commitment to tourism is needed which ensures that more resources are available for developing tourism. Even though discussions about tourism may be enthusiastic, at the end of the day, the Tourist Board's budget is not big enough to seed the development of a more progressive tourist industry. Also, a commitment to e.g. a three-year budget would be a big step forward. Appropriate audit procedures will need to be put in place to ensure that the money is not wasted.

Recommendation No. 19:
A new legal framework is needed to promote tourism. At present the laws regarding the 'use' of nature apply only to Danish citizens (Faroese) for example with respect to rights to fishing in the sea and hunting on land. Laws related to mountain paths also need updating because at the present nobody is responsible for restoring them and keeping them in good condition.

Recommendation No. 20:
A new tourism development strategy with reachable goals and realistic tasks in relation to the budget for the Tourist Board's marketing outside the Faroe Islands and the developing of facilities and products in the Faroe Islands is needed. This would include several key features:

- **a new destination development plan** for the Faroe Islands in which the strengths of the individual tourism areas are developed and promoted.

- **joint marketing between the industry and the national tourist board**, in which everybody pays their share. At the moment, the tourist board and the transportation companies are the 'big' spenders;

- **a new method for financing the local tourist offices** needs to be developed because the current method is not providing adequate funding. At present, local

tourist offices are funded half and half by the local authorities (communities) and the Tourist Board. There is too little money (and thereby staff) and too many tasks which means that overall planning and development is often neglected. A lot of this work is done outside regular working hours and involuntarily. This current, unsatisfactory situation has prevailed for more than a decade.

- **improved tourist facilities;** Better facilities in hotels and guesthouses. According to tourists, the best hotels in the Faroe Islands can be compared to only two-star hotels in other countries. Also, the quality of the food in relation to the cost, needs upgrading.

- **improved service quality**; owners and staff in small private companies need education in relation to marketing, product development, languages and service management. Also, staff in shops, taxies, busses, ferries and the like need better skills in languages and how to give good service.

f) High Tech Industries and Other Opportunities

Which information technology sectors are likely to be the fastest growing in the Faroes over the next decade? And what are the impediments or obstacles that might prevent these sectors from being successful?

Potential for Growth

The principal constraint faced by information technology companies in the Faroes is the small size of the domestic market. Thus the majority of growth in this emerging sector must come from increased exports of IT. To find the sectors with growth potential, it is therefore essential to identify which IT goods and services in fact are exportable.

The first step is to identify which IT products and services require, or do not require, geographical presence. Goods and services that require geographical presence include a) production or distribution of hardware, b) tailor-making of software, c) consultancy services, d) face-to-face computer training courses, e) installation work that demands physical presence, and f) common telecommunication services.

On the other hand it is possible to increase exports in areas, where communication with customers, suppliers, and partners can be managed over telecommunication lines and where the needs and wants are easily identified.

Hardware

Over the last couple of years the production of hardware increasingly has become "just-in-time" production, which demands good incoming and outgoing logistics. In addition to that, either record-low wages or major investments in production facilities are demanded. Thus, this is not an obvious sector for the Faroes.

On the other hand development of new hardware solutions may be more promising. This is especially relevant for hardware used in industries, where the Faroese have special knowledge, such as fishing, fish farming, or fish processing. Development of new hardware solutions demands good relations with producers and possibly also customers and distributors of hardware.

Software

Tailor-making or adaptation of software is troublesome, when the provider is not on the spot and cannot talk directly to the customer. On the other hand, it is possible to develop standard software packages and to subcontract for software companies abroad. Standard software for foreign markets could, for instance, be developed and tested in the Faroese market. Distribution and support of standard software could be managed over the internet and/or with partners on location. Software subcontracting could be done on the basis of meeting the requirements specifications from companies abroad. The overseas companies could use the subcontracted parts both for standard and tailor-made software. In the latter case, Faroese subsidiary companies could operate in foreign markets to liaise with customers and home office in the Faroes.

Services

Most consultancy services, face-to-face computer training courses and physical installation and troubleshooting services require on-the-spot discussions with the customer, and therefore are impossible to export. Likewise, common telecommunication services are closely tied to physical nets. But, there are also services, which do not demand physical presence, such as facility management, call-centres and help-desk services. The option of developing an offshore financial centre deserves deeper consideration. One way to begin is to consider enacting legislation on international trading companies similar to Iceland's 1999 legislation.

Facility management is another word for managing equipment for customers. The equipment can be placed either at the supplier (in the Faroes), on customer premises, or at a third party. Facility management has become a much more viable export option given the growth of the internet. Examples are network administration, web hosting, application hosting or storage of large data quantities.

Help-desk services are provided to users primarily over phone or e-mail, and thus can be supplied from the Faroes, as well as from other places. Providers of such services have to be able to communicate with the users, as well as having the technological abilities. When it comes to language, the Faroese are in a good position to deliver help-desk services to all the other Nordic countries. Ireland has established itself as the call-centre in English for Europe. There is no reason why the Faroes cannot achieve the same position with respect to being the Scandinavian call centre for Scandinavia.

Impediments and Obstacles

Recommendation No. 21:
Five areas in the IT industry were identified above as exportable: hardware development; standard software; software subcontracting; facility management; and help-desk services. One common denominator for these areas is that they all part of what the Faroese IT industry delivers to the home market today, and thus the skills needed are – albeit in limited quantities – already available.

In fact, the biggest hindrance for major growth in the Faroese IT industry is the lack of skilled people. A rough estimate suggests that there are 250 people in the Faroes who have some software-designing skills. A comparatively large proportion of the workers in the (global) IT industry are well educated, but until now IT has not been a priority area for the Faroese educational system. The first steps have been taken with the "data-matiker" program, which is a 2 ¼ year-long practical oriented degree. A part of this plan

is to give the students the option to continue on in the University of the Faroe Islands and complete a Bachelor in computer science in 1 year.

These steps are good, but a lot more is needed to match the future growth in the Faroese IT industry. In addition to strengthening IT education in the Faroes, it would be best to give Faroese students better incentives to choose IT when they want to study abroad. This could be done with special grants to support Faroese to enroll in leading U.S. universities. There may also be benefit in following Ireland's lead in computer-related skills training at all levels of education.

The Faroese IT industry will benefit most from having both good quality students abroad and in the local community. This combination provide new impulses and cross-fertilisation from abroad and natural collaboration between students and the industry.

Recommendation No. 22:
Much of the rapid development happens in the research communities at the intersection between the IT industry and universities. At present there is literally no IT research community in the Faroes, but one could expect this to arise when the IT education in the Faroes is strengthened. This also implies that students must eventually be given the possibility to reach master and Ph.D degrees in the Faroes, at least in the IT area. It also is of great importance to have a high level of IT knowledge in the public. Here the recent implementation of the European Computer Driving License is a good step, even though only a small proportion of the Faroese have taken it yet.

In addition to the lack of education and research, one could mention the following impediments and obstacles:

- the financial markets are underdeveloped
- the public sector is not included in the VAT system, and thus has a motive to employ people rather than buy services from the IT sector
- the need to further improve abilities to speak and write English, which is the language of the IT industry, and
- the lack of a national IT strategy.

The development of the skills of the Faroese people is a crucial investment for the future and will become a major feature of the package of advantages attracting foreign investment to the country. This is one of the principal strategies used in Ireland and Iceland. `The Minister of Industry and Trade, Finnur Ingolfsson, in speaking about the importance of foreign investment to strengthen the economy and create new jobs said: "our marketing efforts have focused on well-defined target groups. Then greatest chances lies in investments that utilise the country's abundant natural resources and the well-educated work-force."[82]

Other Potential New Industries

The Faroes have an enormous amount of pure spring water. Currently, one foreign investor is examining the potential for developing and exporting pure spring bottled water looks promising. If the marketing and brand development is addressed properly, there is no reason why this venture should not succeed.

[82] Bjorgulfsdottir, M., 1999, "The Island of Opportunities", Iceland Business, *Invest Iceland*, Special Edition, p. 5.

The development of wind-power electricity farms should be thoroughly investigated given the dramatic change in technology in this area in the last decade. This additional source of generating electricity could have some positive benefits for developing local industry in the regions and could possibly have some high tech spin-offs.

g) Conclusions

Diversification can be a slow process that takes decades to develop properly. The approach to diversification needs to be seen as a process of selecting relevant priorities. Our approach has been to divide the options into

Recommendation No. 23:
Tier One Priorities: These priorities would be based on the industries in which the Faroese have a competitive advantage in terms of knowledge and skills. This would include developing food supplies and equipment for the aquaculture industry; biotechnology such as the development of faster growing fish for aquaculture, or fish that need less food input per kilogram of weight; and high technology such as software development and facilities management.

Recommendation No. 24:
Tier Two Priorities: These would be short to medium term prospects that may not have long term sustainability; This would include the development of telephone call centers for the Danish market, or for other Scandinavian markets depending on the linguistic abilities of the Faroese; and possibly shipbuilding and ship repairs.

Recommendation No. 25:
Tier Three Priorities: These would be longer term but presently uncertain opportunities such as ancillary services for the oil industry in the event that oil is discovered in commercial quantities.[83]

One of the factors which may be of assistance in the development of a more diversified economy is the pool of 12,000 Faroese living overseas. Given the close knit nature of the culture, it is not surprising to learn that the Faroe government has a telephone book listing most of these overseas citizens. They may be quite useful sources of information and expertise for determining what directions any development of high tech industries in the Faroes might take.

[83] One option that is sometimes discussed in the Faroes is the development of either an *offshore financial center or a tax haven* perhaps along the lines of those in the Isle of Man or Dublin. The assessment of such an opportunity must recognise certain serious constraints: (1) the growing hostility of the OECD and the European Union to such centers (e.g. the OECD is now putting increasing pressure on Switzerland to loosen its secrecy laws that may be protecting tax evaders from other countries); (2) the need to ensure that double tax treaties are in place that protect the interests of both countries to the treaty; and (3) Britain has launched a crack-down on its own offshore banking centres (Isle of Man, Guernsey and Jersey), pushing them to strengthen their regulatory regimes against abuse. If the Faroes were to become an independent country, it would have to go through the process of signing tax treaties with all the major European, Asian and North American countries, plus the other key official financial centers. This process could take decades, and many countries might refuse to sign agreements that would permit the Faroes to take advantage of their tax space; (4) another problem that is emerging is the growing pressure on some Tax Havens (e.g. Cayman Islands) to breach their secrecy regulations in order to help foreign governments, notably the United States, reduce or eliminate money laundering. Currently, the Faroes only have tax treaties with Scandinavian countries that would unlikely take a positive view of the Faroes exploiting their relationship or their tax space for unilateral advantage. This option of developing a tax haven for the Faroe Islands should at best be considered a long shot or irrelevant for the current industrial strategy.

3.4 Investment Impediment #3: Absence of a Formal Capital Market

Some of the constraints facing the development of a stockmarket include: the small number of companies, the thin nature of any market, the lack of experience of Faroese in participating in stock and bond markets.

a) Inadequate Entrepreneurial Culture

One of the key problems in the country is the need to create an entrepreneurial culture. The current culture is one of dependence on the state, in the form of subsidies and government delivery of many goods and services. In addition, there is no organised capital market in the Faroes. No companies are listed on a stock exchange because there is no stock exchange.

The Faroes is probably one of the last European nations where this is true. No bonds are listed, and much of commercial enterprise is in government hands, directly or indirectly (banks, electricity, post office, telecom, liquor sales, transportation, communications, and even catering and laundry service to the health sector).

Except for profit sharing in the primary fishing industry, there is no profit-sharing in the country. There are no private pension funds. Only the financial institutions, the government[84] and some fishing unions have pension funds. The existing funds invest in Denmark. There are also no mutual funds.

As the Danish subsidies are eliminated, which now appears inevitable, only the development of an entrepreneurial culture will provide the wealth generation to generate the level of growth needed to offset the loss of the subsidies. Track record of government over the last several decades is one of wasteful expenditure that generates unsustainable growth.

The large number of bankruptcies in the early 1990s created the beginning of major change in the economy. Many companies were purchased by young entrepreneurs for a fraction of the value of outstanding debts.

As a result, many companies in the Faroes, both in the government and the private sector, have low debt to equity ratios. As well, the government has appointed a younger generation of managers to run companies that are controlled directly or indirectly by the state. Some of these managers are preparing their companies for corporatisation and eventual privatisation.

The development of a capital market is such a new process for the Faroes, it is important to search for a model of a similar economy that has just been through the same process. The most appropriate capital markets model for the Faroes to examine, given the similar nature of their economies, and adapt to its own needs and circumstances is Iceland.

[84] The government pension fund provides 4000 kroner per month.

Icelandic Experience with Capital Markets

A major part of the development of the capital markets in Iceland involved the restructuring of the banking sector in 1998.[85] The objectives of that restructuring were to:

- Reduce government involvement and abolishing state-guarantees on new obligations;
- Increase efficiency through operational synergies and cost savings
- Reduce compartmentalisation of the financial sector
- Separate soft lending and development financing from commercial lending in order to clarify roles and responsibilities; and
- Increase international attractiveness.

The key mechanisms used to achieve these objectives are:

(a) the incorporation of the state-owned banks (1 January 1998)
(b) merging of the four state-owned investment credit funds (Fisheries Investment Fund, Industrial Loan Fund, Industrial Development Fund and the Export Credit Fund into two new commercial operations: the Icelandic Investment Bank – IIB -- (US$110 million)[86] and the New Business Venture Fund – NBVF - (US$80 million)[87] (1 January 1998);
(c) a privatisation program for the banking sector, the specific aims of which are to: (1) maximise the value of State assets; (2) promote increased competition; (3) promote wider share-ownership by the public; (4) improve the quality of financial services in all sectors and regions;[88] and (5) increase foreign ownership. In 1998, 49% of the IIB was privatised and the remainder is expected to be sold soon. The commercial banks will be privatised in 1999. The NBVF will remain state-owned.

Additional mechanisms to promote capital markets in Iceland include:

(d) The development of a viable stock exchange, including making the ISE a limited liability company, and the removal of its monopoly power to co-ordinate the share trading;
(e) Tax concessions for share-purchases;
(f) The listing of the commercial banks on the stock-exchange.
(g) The introduction of competition in the electricity industry; eventually, this will eventually lead to the development of wholesale market in electricity (with a related futures market),[89] and
(h) A general privatisation program.[90]

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[85] One major source for this section was the note on "Changes in Financial Markets" prepared by the Ministry of Industry and Commerce for its 31 May 1999 meeting with the OECD.
[86] The Icelandic Investment Bank Ltd is designed to provide all sectors with long-term credit and to provide a broader range of advanced banking services such as non-recourse project finance, securitisation and securities underwriting, without any state guarantees.
[87] The New Business Venture Fund provides venture capital finance in all sectors of the economy, focusing on the early stage of such ventures and the initial growth period. A state guarantee is provided only on new obligations of the Export Loan Insurance Department.
[88] An important test of this occurred when funding (US$70 million) was needed for the Hvalfjordur tunnel during the summer of 1998; funding was obtained from Skandinavinska Enskilda Banken of Stockholm, the Fossvirki Group of Sweden, John Hancock of the US and 15 Icelandic pension funds.
[89] Ministry of Industry and Commerce, 1999, *Proposed Changes in the Electricity Sector*, Meeting with the OECD, 31 May.

In 1991, a privatisation committee was set up. In the early 1990s, public attitudes in Iceland towards privatisation were quite negative, but that has changed now that that the privatisation program has been running for 8 years. Concerns were expressed that politicians might sell the companies to their friends. These concerns were unfounded, but there is an important lesson for the Faroes: the process of privatisation must be scrupulously honest and be seen to be honest.

Phase One of the privatisation program involved the sale of 24 publicly owned companies that were in competition with the private sector. **Phase Two** will involve major restructuring and privatisation of large government-owned companies in the following industries: telecommunications, cement, construction, postal service, and the national power company (which controls 93% of the market for electricity). The privatisation of the electricity industry will probably take longer than other industries. Phase Two also involves the complete privatisation of two commercial banks. There is a growing belief that the banks should not be used for regional development. In 1998, there were still concerns in Iceland about selling the government banks to a Scandinavian bank. As a result, only 15% of the equity was floated on the domestic market.

The general privatisation program of the Icelandic government has five main objectives:[91]

- The most important objective is "to increase savings". As the government reduces its scope and scale, it needs to make fiscal savings in order to promote economic stability.[92]
- Another major objective is "to increase economic efficiency by eliminating the distortions inherent in state-ownership."
- A third key objective is "to widen share ownership and continue to encourage development of the Icelandic stock market."
- The fourth major objective is "to raise capital in order to decrease Treasury debt."[93]
- The fifth major objective is "to finance specific transportation projects and to support the growth of information technology."

For a small country, Iceland has a reasonably broad capital market, with activity in Treasury bonds, banks bills, Treasury bonds, Treasury notes, Bank bonds, housing bonds, state housing fund bonds, bonds issued by other investment credit funds, bonds issued by leasing companies, mutual funds (open-end) and shares on the Icelandic stock exchange. The growing scale of these markets is worth a brief examination.

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[90] One of the principal reasons for the success of the privatisation program has been the continuation of political support by the Independence Party and the Progressive Party.

[91] Ministry of Industry and Commerce

[92] Iceland's national savings have been low by OECD standards for the last 15 years. In the 25 years from 1957 to 1981, the savings to GDP ratio averaged 26.4%. From 1982 to 1998, the ratio dropped to an average of 16.2% of GDP, representing a decrease of 39% below the previous 25-year average. This was a significant change in the fortunes of the country. The principal problem was that public consumption has more than doubled since the late 1950s (rising from 10.6% of GDP in 1957 to 21% in 1998), while private consumption has remained at just about the same level as 40 years ago (61% of GDP). Interestingly, investment as a percent of GDP has fallen from about 29% in the late 1950s to an average of 18% in the 1990s, a decline of 11 percentage points. This amount almost matches the increase in government consumption over the same period. This analysis clearly suggests that future savings must come from the government. Thus, there is demonstrable evidence that the promotion of national savings should be the number one objective of the privatisation program.

[93] In 1999, interest on the national debt is still 2.6% of GDP. This means that if the national debt were eliminated, public consumption could rise by 12% above current levels; or a tax cut of a similar level could be afforded.

The stock market is an important element in Iceland's current economic success. Until 1986, Iceland had no formal, active stock exchange, although there was some private buying and selling of company shares. For the first five years or so, the capital market was made by the banks and other financial institutions that traded treasury bonds. Initially, in 1990, only two companies were listed on the Icelandic Stock Exchange (ISE) and there were no trades until 1991. In 1990-91 a concerted effort was undertaken by financial institutions and industry groups to develop a viable stock market. As a result, more companies started listing beginning in 1992. Since its inception in 1986, all debt instrument trades, and subsequently, all equity trades have been electronic.

On 1 January 1999, the stock market became a limited liability company with the ownership divided up as follows: listed companies (29%); member firms (29%); the Central Bank (16%); pension funds (13%); and the Investor Association (13%). The stock exchange will also have the right to trade commodities and electricity.

Market capitalisation on the ISE (**Table 13**) has evidenced a spectacular rate of growth, rising from 0.4% of GDP in 1991, to 3.7% in 1992, 7.6% in 1994, 10.8% in 1996 and 39.5% in 1998. Meanwhile, the number companies listed on the ISE rose from 2 in 1991, to 11 in 1992, 24 in 1994, 32 in 1996 and to 67 in 1998. In August 1999 there were over 75 companies trading on a daily basis. Prices have also skyrocketed, rising 7% in 1991, falling by 10% in 1992, rising by 24% in 1994, 60% in 1996, 14% in 1997, and 10% in 1998. Iceland also has a small Over-the-Counter (OTC) Market. The requirements for listing on the Icelandic Stock Exchange are a market value of US$8.6 million and 300 shareholders for inclusion on the full ISE list, while requirements for listing on the OTC market are share capital of US$863,000 and 25 ordinary shareholders.[94]

Table 13: Components of the Icelandic Capital Market (% of GDP, unless otherwise specified)

Capital Market Component	1991	1992	1994	1995	1996	1997	1998
Stockmarket Capitalisation	0.4	3.7	7.6	10.3	18.8	28.5	39.5
No of companies listed	2	11	24	27	32	51	67
Price changes on Stockmarkt	7	-10	24	35	60	14	10
Housing Bonds (% gdp)			14.9		19.0		19.9
Treasury Bonds (% gdp)			16.7		15.9		14.5
Mutual Funds (% gdp)			3.7		19.5		12.4
Bank Bonds (% gdp)			4.8		5.0		6.2

Source: Ministry of Industry and Commerce, 1999, Changes in the Financial Market (adapted)

After the stockmarket, the largest feature of the capital market in Iceland is the housing bonds market (about 20% of GDP in 1998), followed by the treasury bonds market (14.5% of GDP), the mutual funds market (12.4% of GDP), and the bank bonds market (6.2% of GDP). Money-market instruments were not introduced until 1993, with a very dramatic effect in terms of boosting trading value. Corporate bills were introduced in 1996. Bills and bonds (debt instruments) dominate the market, accounting for over 90% of the trades. Foreign investment in the equity market accounts for less than one percent of market capitalisation, but this is expected to change significantly in the coming years.[95] The developments in the Icelandic financial market are transmitted by

[94] Invest in Iceland Agency, 1999, Doing Business in Iceland, www.invest.is p.28.
[95] Bjorgulfsdottir, M., 1999, "The Icelandic Stock Exchange: Rapid Growth and Changes", Iceland Business, *Invest Iceland*, Special Edition, p. 9

international agencies such as Reuters, Bloomberg, and the Financial Times Information Service.

Active capital market participants in Iceland include the 20 brokers (including the banks),[96] the pension funds (largely union dominated pension funds), 15 closed end mutual funds, eight open-end mutual funds, 17 insurance companies. An enormous amount has been by the Icelandic Stock Exchange in a short period of 8 years.

Capital Market Issues for Consideration in the Faroes

The thin nature of the capital market should not be seen as an impediment. The Icelandic experience in developing a stock market that is thinly capitalised is proof that it can be done. Liquidity in that market has risen from 1% of GDP in 1991 to 15% GDP in 1999. Currently, the listed companies, the majority of which are in the fishing and the shipping industries, account for 40% of GDP. The ten largest Icelandic companies are fishing companies.

Recommendation No. 26:
Once the Faroes have established their own bond, bill and equity market a key strategy for improving the trading depth of the market is to have the Faroese companies listed on the Icelandic and Danish stock exchanges and then later on the Swedish, Finnish and Norwegian stock markets.

Recommendation No. 27:
All companies that either want to list on the stock market should be put through a thorough program of inspection. The successful launch of such a thin market could be jeopardised if the quality of the corporate assets to be listed are deficient in any significant way. This program of inspection would include:

- a financial health diagnosis and corporate credit rating, and
- an efficiency and productivity analysis

Recommendation No. 28:
The objective should be for the stock market operating company to make a profit within 3 years. Thus, it will be necessary to ensure that appropriate listing and trading fees are in place.

Any stock exchange developed in the Faroes will initially have very thin trading, as was the case in Iceland. This should not be a deterrent. Technology has promoted rapid change in stock exchanges across the world. Open-cry bidding is being replaced by electronic trading, thus reducing the cost of operations. Internet share trading is replacing telephone share trading,[97] and also driving down the cost of brokerage fees among traditional sharebrokers..

Recommendation No. 29:
An important hurdle in the development of a new stock exchange is the preparation of legislation and the development of rules of procedure. The following are the pieces of enabling legislation developed for the Icelandic Stock Exchange:

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[96] Licensed stockmarket brokers include: the Central Bank, all commercial banks and securities firms, and some savings banks.
[97] In the US, already about 35% of share trades by individuals are internet trades. By 2001, this figure is expected to rise to 50%. The Honolulu Advertiser 8 August 1999, p. G2

- Act on the Central Bank of Iceland, no. 36, 1986
- Act on Icelandic Securities Exchange no. 11, 1993
- Act on U.C.I.T.S. (Open-ended Mutual Funds), no. 10, 1993
- Act on Commercial Banks and Savings Banks, no. 123, 1993
- Act on Securities Transactions no. 13, 1996
- Act on Electronic Registration of Title to securities, no. 131, 1997
- Act on Securities Exchanges and Regulated Securities Markets, no. 34, 1998

The Faroe Islands should study this legislation and determine what they need, what they don't need and what they need to alter or add to this legal framework.

Given that there was no Securities Exchange Commission in Iceland, as in the United States, the regulatory responsibilities for managing the system was divided up as follows:

Icelandic Stock Exchange (ISE):	Approves each prospectus
Central Bank:	Approves the starting date of initial public offerings
Financial Supervisory Authority (FSA):	Provides oversight of secondary trading Investigation of violations of law (criminal investigation is handled by the police and state attorneys Seeks and exchanges financial information with overseas regulatory authorities
Ministry of Commerce	Licenses securities professionals Regulation of investment funds (also supervised by FSA) Regulation of takeovers (ISE supervises in case of listed companies) Oversight of self-regulatory organisations Rule making (but the ISE makes the rules for itself)

There are also other procedural rules affecting the operations of the stock exchange:

- Rules on the trading and information system of the Icelandic Stock Exchange
- Rules on the listing of securities on the Icelandic Stock Exchange
- Rules on the production of prospectuses and preparations for public offer of securities
- Rules on membership of the Icelandic Stock Exchange; and
- Rules concerning on-going disclosure requirements for issuers with the securities listed on the Icelandic Stock Exchange.

Recommendation No. 30:
The Icelandic model for the development of a stock market is directly relevant to the Faroe Islands because of the scale of the operation, its newness, the electronic nature of trading, the compact set of rules, procedures and accountable institutions and the similarity in the economies of the two countries. Obviously, the Faroes Government will need to modify or add to these legal and regulatory tools in order to achieve its own particular aims.

b) Inadequate Incentive Structure

One increasingly common tool for motivating employees is employee ownership through an employee stock ownership plan, a stock option scheme, or pension fund holdings. Another is profit-sharing. The former has become widely popular, while the latter is less common, although they are somewhat similar in nature. The countries in which these two approaches have found the most fertile ground are: Australia, Denmark, France Japan, New Zealand, Norway, Portugal, Spain, the UK and the US.[98]

Employee Ownership

Stock options are now a mainstay of senior management compensation in many companies and for employee compensation in California's Silicon Valley, and for many start-up high tech companies elsewhere. Stock options are also starting to be used for Board members. Blasi et. al compared the performance[99] of 621 public companies, which had at least 5% of equity owned[100] by employees, with all publicly listed companies in Standard and Poor's Compustat Database for 1990 and for the period 1980 to 1990. Their key findings were as follows:

- "the employee ownership companies had significantly higher performance averages in 1990 for all five measures of performance. These differences reflect, at least in part, differences in average company size." Companies with employee ownership and with total employees below 1015 tended to be better performers;
- "the employee ownership companies also had significantly higher growth in average performance between 1980 and 1990 for all five measures of performance." Again, the companies with the smallest number of employees in 1980 (fewer than 140 employees) tended to be the better performers; and
- "the link between individual effort and reward is highest in small groups, where rewards are shared within a small group."

Profit Sharing

Profit-sharing, as an active tool for motivating improved performance by employees and management, is said to have originated in Albert Gallatin's glass works in New Geneva, Pennsylvania in 1797.[101] The longest term user of profit-sharing in the US is Proctor & Gamble which initiated its first plan in 1887. American interest in profit sharing began to take hold in the decade between 1910 and 1920 when profit-sharing plans were developed by Eastman Kodak, Sears and Roebuck, Harris Trust & Savings Bank (now part of the Bank of Montreal) and Johnson Wax (1917).

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[98] Poole, M., 1989 The Origins of Economic Democracy: Profit-Sharing and Employee_Shareholding Schemes, London: Routledge, Routledge, p. 15.

[99] Return on equity, return on total earning assets, price/earnings ratio, profit margin before depreciation and taxes, profit margin after depreciation and taxes, and stock price change. Blasi, J., et. Al., 1994, "Public Company Employee Ownership and Economic Performance," Foundation for Enterprise Development, March 1994, (http://www.fed.org/library/articles) (pp. 8-10)

[100] Most of the equity owned by employees in this study of 621 companies was owned through pension funds, which may not necessarily be the best way to get the most immediate effect on employee performance.

[101] Gallatin served as US Secretary of the Treasury under both Presidents Jefferson and Madison.

Finally, after a Senate Finance Committee study[102] in 1939, there was a strong growth in interest in both cash-based[103] and tax-deferred (pension based) profit sharing. By 1987, there were 500,000 profit-sharing schemes in the US covering 20 million employees: "The deferred plans alone cover about one-fifth of private, non-farm employment. They exist in approximately one out of every four manufacturing companies; one out of three retailers and wholesalers; and in about 40% of the banks."[104]

Bell & Hanson (1987:57-59) compared the performance[105] of a group of 113 profit sharing companies with a group of 301 non-profit sharing publicly listed companies in the United Kingdom for an eight-year period covering 1977-78 through 1984-85. The profit-sharing companies were in ten sectors.[106] The study's findings were as follows:

- "the profit-sharers return on equity was 5.2 [percentage points] higher than that of the non-profit sharers."
- "for most of the ratios, the profit-sharers maintained or increased their relative lead over the eight years,"
- "although both groups of companies were severely affected by the recession in the early 1980s, its effect on the non-profit sharing companies was significantly greater than on the profit sharers."

Profit sharing first arose in Britain in the mid-19th century (1865-1873). Some of the companies with the longest recorded profit-sharing experience in the UK are comparatively large: Rowntree (1923), Cadbury (1924), Vauxhall (1935), Morris (1936), The Rugby Portland Cement Co (1939), Nu-Swift Industries (1952), ICI (Imperial Chemical Industries - 1954), the Boots Company (1955), Glaxo (1955), and Beecham Group (1955).[107] In the UK, however, it has been mainly small and medium-sized companies that have pursued profit-sharing.

What are the key factors that have promoted both profit-sharing and employee stock option plans. Poole[108] uncovered 5 factors in a survey of over 300 firms in the UK in the late 1980s:

- "Of all the structural characteristics of companies, capital assets and annual turnover were found to be the best predictors of whether or not schemes had been adopted. Trends in business volume were also linked with the propensity to introduce profit

[102] "The committee finds that profit sharing in one form or another has been and can be eminently successful, when properly established, in creating employer-employee relations that make for peace, equity, efficiency, and contentment. We believe it to be essential to the ultimate maintenance of the capitalistic system."

[103] Typically, the cash bonus is paid twice a year and may have an annual value of 6-20 weeks salary – based on 1982 US data; Bell, D.W., and Hanson, C.G., 1987, Profit Sharing and Profitability, Published in Association with the Institute of Personnel Management, London: Kogan Page , p. 90.

[104] Bell, D.W., and Hanson, C.G., 1987, Profit Sharing and Profitability, Published in Association with the Institute of Personnel Management, London: Kogan Page. pp 89-90

[105] The performance variables were: return on equity; return on capital employed; earnings per share; return on sales; annual growth in sales; annual growth in equity' annual growth in profit; dividends per share; total annual investor returns.

[106] (1) beer wine and spirits; (2) building, timber and roads; (3) chemicals and plastics; (4) drapery and retail stores; (5) electricals; (6) engineering (manufacturing); (7) food, groceries; (8) industrials (miscellaneous); (9) paper, printing , advertising; (10) textiles.

[107] Some of the other well-known British companies and their initiation dates for profit sharing schemes are: Rentokil (1960); Wedgewood (1975); Marks & Spencer (1978); W.H. Smith & Son (1981); Rowntree Mackintosh (1981); and J. Sainsbury (1980).

[108] Poole, M., 1989 *The Origins of Economic Democracy: Profit-Sharing and Employee-Shareholding Schemes*, London: Routledge.

sharing, and firms in the finance sector rather than in the manufacturing or services were particularly likely to have introduced schemes." (Poole, 1989: 109).

- Also important in securing the development of these programmes was managerial commitment to enhance staff moral commitment, staff retention, employee involvement, improved industrial relations and protection from take-overs (Poole, 1989: 110).
- Profit sharing and stock option schemes do not have a negative impact on trade unionism and collective bargaining (Poole, 1989: 112).
- Staff associations tend to play an active role in promoting such schemes (Poole, 1989: 112)
- Favourable legislation (tax concessions for share options and incentive schemes in the UK Finance Sector of 1978, 1980, 1982, 1983, 1984, and in the US – ESOPs: Employee Stock-Ownership Plans). These tax concessions involve tax exemption for government approved schemes. Such schemes typically permit direct (single employee) or indirect (trust funds) access by employees to equity ownership specifying rules for such matters as price, method of acquisition and duration (eg. After 5 to 7 years employees either buy the shares or take their bonus in cash). (Poole, 1989: 15-21).
- The industrial relations climate in the company (Poole, 1989: 112).

Another current emphasis in employee and management compensation among some companies is to focus on an economic value added approach (EVA)™ that rewards staff when the profit earned from their activity out-performs the weighted average cost of capital. But, there is little thought given by companies to compensating employees for minimising risk and reducing costs.

There is an enormous amount of critical activity (up-stream of profit or loss) that often goes unrecognised when it comes to employee compensation. The best example is risk management, which increasingly is being delegated back to the coal-face. When employees are fighting fires, thwarting emerging risks and reducing losses, they are preparing the way for improved profitability. The dilemma is that good risk management may require a small sacrifice in short-term profitability for a profit-centre in order to promote long-term profitability.

Recommendation No. 31:
The Faroe Islands government should make every effort to develop legislation to promote the profit sharing plans for employees and ultimately, stock option plans, when the timing is right.

c) Pillars for the Development of a Faroese Capital Market

A broad strategic program for developing a capital market in the Faroes has already been initiated in the Faroes. Those discussions are being formally led by the Landsbanki Føroya, the central bank of the Faroes. A comprehensive list of features of such a program is presented below, and includes ideas developed in our discussions with various business leaders and government officials in the Faroes:

- The development of an equity market based on internet trading, using a European Union legislation model.

Recommendation No. 32:
In preparation for this launch it is recognised that there is a need to strengthen both the supply side of the market (the companies which might list on the market) and the demand side (the various means by which savings can be channeled into the equity market, including mutual funds and pension funds).

1. Electronic model for trading (based on a Danish commercial software package)
2. A supply of good quality companies
3. The development of mutual funds (Currently, there is no legislation to create mutual funds).
4. The development of pension funds (There is only one private sector pension fund and a few union pension funds).
5. The development of a bond market (in national and municipal bonds).
6. An adjustment of the tax system
7. The promotion of foreign investment
8. Education of the public about the key issues related to the development of a capital market.
9. The development of a Faroe Islands Heritage Fund that will take future oil royalty and tax revenue from oil and invest it offshore and on-shore. Since the development of oil revenue is about a decade away, the initial development of the Heritage Fund could be based on some of the revenue from the privatisation of State Owned Enterprises.

Sweden's experience with the Innovation Market should be examined. The Innovation Market which was set up in 1993, is an electronic venture capital market.

d) Skewed Savings Pattern

Most Faroese have placed their savings in the local financial institutions or in their homes. Roughly. 85% of all Faroese own their own homes. The current government is planning to introduce a new pension system later in 1999. It will be compulsory, but the funds for each individual will be managed in the private sector.

Recommendation No. 33:
One option for unlocking the savings of Faroese in their houses is to encourage the banks to offer "reverse mortgages". Reverse mortgages generally are taken up by people approaching retirement who wish to have a guaranteed income stream in their retirement. Effectively, banks offer them an annuity or annual income over the remainder of their life in return for a mortgage. The bank assumes control of all or part of the house (depending on the arrangement) on the death of the homeowners.

The arrangement is based on a statistical analysis of the life-expectancy of the occupants using actuarial tables. The government should pass legislation that would permit the public to engage in reverse mortgages. However, the privatisation of State3-owned enterprises will broaden the range of investment options which can be expected to lead to a greater diversity in householder asset holdings.

Recommendation No. 34:
Develop a venture capital fund that can be used to promote coaching, training and some seed capital for potential entrepreneurs.

3.5 Investment Impediment #4: A supply of good quality companies

a) Introduction

The development of government interest in corporatisation and privatisation and the increased by governments in promoting foreign investment have occurred simultaneously in the last two decades. We have developed the term "marketization" to encompass both the corporatisation and privatisation of state-owned enterprises (SOEs), since both of these activities are needed in the Faroes. Corporatisation refers to the process of ensuring that commercial operations owned by the state are run by independent managers on a commercial, profit-making basis with an independent Board of Directors.

Once a company has been corporatised has been achieved, privatisation is made easier because investors are always prepared to invest in a company that is run on a sound commercial footing. Privatisation refers to the process of selling SOEs to domestic and/or foreign private sector investors. The corporatisation stage can vary from several months to several years. Much depends on the quality of management available in the company and the level of inefficiency or losses being incurred by the government company.

The options for privatisation include: (1) direct sale to one party; (2) an auction and sale to the highest bidder; (3) share giveaways to the public; (4) share sales to the public (public share float); (5) auction of a minority of shares to a company combined with sale of the majority of shares to the public (at market value or at a discount); the corporate investor may have the right to purchase additional shares on the open market (6) auction of a majority of shares to a company combined with sale of the minority of shares to the public (at market value or at a discount).

Privatisation should not be seen as an article of religious faith. It can be a very effective tool for achieving key objectives. Each privatisation should have very specific objectives such as promoting more efficient use of capital, improving productivity, introducing competition to reduce prices and prevent predatory behaviour, and creating opportunities for the infusion of new ideas and technology that can modernise the company and the industry.

One of the biggest risks in letting government control SOEs is that the SOEs will not maximise returns to the shareholder because they have too many conflicting objectives, chronic under-investment and deteriorating competitiveness because of out-dated technology and weak management. A good example is provided by the banks in Poland. They are under-funded and lack appropriate expertise for modernisation, according to Poland's deputy Treasury Minister.[109]

A second risk is the potential for consumer backlash because of over-pricing. The telecommunications industry is a principal example where privatisation is needed (and has been demonstrated, e.g. in New Zealand, Britain and Australia) to promote competition in order to lower prices.

Another problem is *sectoral risk* leading to long term losses or poor performance. Perhaps the best example of this is the airline industry. According to the International

[109] "Outsiders Move in as Polish Banking Opens Up," *Financial Times*, 25 June 1999.

Air Transport Association (IATA), over the last ten years, the net profit margin of all IATA member airlines has only averaged 3 per cent. In the US in 1989, the value of airline company shares (the airline index) was at 160 of the Standard & Poor index. By 1999, after steadily falling steadily in the intervening years, the airline index in the US stood at 42. The North Atlantic airline routes are characterised by excess capacity driven by several factors:

(1) deregulation;
(2) the Asian Crisis encouraged many airlines to switch aircraft from service in Asia to North America and Europe;
(3) According to the International Air Transport Association (IATA), over the last ten years, the net profit margin of all IATA member airlines has only averaged 3 per cent. All of these factors help to explain why airlines are putting strong pressure to reduce the margins of travel agents and to encourage customers to use the internet. [110]

In general, the airline industry should be considered a high-risk sector, and not a place where taxpayers funds should be invested. Another high-risk sector is petroleum and electricity generation. New and progressively cheaper technology in areas such as solar energy, photovoltaics, wind power, wave power and fuel cells are starting to undermine the dominance of existing sources of electricity and oil/gas. This suggests that governments will become more reluctant to continue investing in the electricity industry.

b) Global Trends in Privatisation

The United Kingdom began the process of corporatisation and privatisation in 1981, well ahead of other countries, with Margaret Thatcher being influenced by Keith Joseph, a member of Cabinet. New Zealand started corporatisation in 1984 and initiated its first privatisation in 1988. Both countries pushed their privatisation further than most other countries.

Privatisation has sometimes become politically neutral. For example, in the case of the UK, privatisation commenced in the early 1980s under a Conservative government and is continuing in 1999 under a Labour government. The original motivation in the UK was based on the liberal market philosophy of the Conservative Thatcher government, and its frustrations with the heavy hand of government, and is being continued by the Blair Labour government. In New Zealand, privatisation was motivated by a serious fiscal, financial reserves and exchange rate crisis. A new Labour government beginning in 1984 was forced to take action. This program of downsizing government was continued under a Conservative National Party government beginning in 1990 through 1999.

The 1990s has been the decade of privatisation for many other countries, while others such as Kuwait and Turkey are just beginning to explore the value of corporatisation and privatisation at the end of the decade. In 1999, privatisation is now a global phenomenon, as evidenced by the World Bank's (Multilateral Investment Guarantee Agency) website: **www. privatizationlink. com**.[111]

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[110] *Financial Times*, 19 August 1999.

[111] "It is the greatest sale in the history of the world. Governments are getting out of businesses by disposing of what amounts to trillions of dollars of assets. Every business is going – from steel plants and phone companies and electric utilities to airlines and railroads to hotels, restaurants, and nightclubs. It is happening not only in the former Soviet Union, Eastern Europe and China but also in Western Europe, Asia, Latin America, and Africa – and in the United

A decade ago privatisation was a controversial policy and only affected round US$20 billion in assets for the OECD countries. Since that time this figure has grown rapidly, increasing to US$153.8 billion in 1997. From 1996 to 1997 asset sales grew by 58%, but this dropped off in 1998 to US$114.5 billion due to financial market volatility.[112] Despite this, many OECD countries have declared their intent to continue with the privatisation process. **Table 14** summarising the global amount raised from privatisation since 1992 is presented below. This table clearly demonstrates the strong rise in privatisation and the diverse range of countries, which have participated to date.

What is the basic reason why countries are embarking on the privatisation road? One view is that "in response to the high costs of control and the disillusionment with its effectiveness, governments are privatising". [113] Another view is that technology is changing so fast, especially in the network industries (telecommunications, banking, electricity) that governments can neither afford to risk taxpayers money by failing to keep pace, nor can they afford to keep pace. For example, modern electricity systems that were built in the earlier part of the century are witnessing many of their assets (oil, gas and co-generation plants e.g. in California are now 30-40 years old) coming to the end of their life-span. If the taxpayer had to fund all of these, the costs would be quite significant.

States, where federal, state, and city governments are turning many of their traditional activities over to the marketplace. Yergin, D., and Stanislaw, J., 1998, *The Commanding Heights: The Battle Between Government and the Marketplace That Is Remaking the Modern World*, New York: Simon & Schuster.

[112] See Financial Market Trends (FMT), 1999, OECD, Number 72 February p. 129.

[113] Yergin, D., and Stanislaw, J., 1998, *The Commanding Heights: The Battle Between Government and the Marketplace That Is Remaking the Modern World*, New York: Simon & Schuster.

Table 14: Country Breakdown of Global Amount Raised From Privatisation (US$ million)[114]

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Australia	19	1042	1893	2057	1841	8089	9052	16815	7146
Austria	32	48	49	142	700	1035	1251	2020	2935
Belgium				956	549	2681	1222	1562	1467
Canada	1504	808	1249	755	490	3998	1770		11
Czech Rep					1077	1205	994	442	469
Denmark	644			122	229	10	366	45	4502
Finland				229	1166	363	911	835	1999
France				12160	5479	4136	5099	8189	13467
Germany		325		435	240		13228	1125	364
Greece				35	73	44	558	1395	3892
Hungary	38	470	720	1842	1017	3813	1157	1966	353
Iceland			21	10	2	6		4	129
Ireland		515	70	274		157	293		
Italy				1943	6493	7434	6265	27719	13619
Japan				15919	13773		6379	4009	6641
Korea				817	2435	480	1866	539	600
Luxembourg									
Mexico	3122	10757	6859	2503	766	167	73	2690	995
Netherlands	716	179		780	3766	3993	1239	831	335
New Zealand	3895	17	976	630	29	264	1839		441
Norway	73				118	521	660	35	28
Portugal	1192	1198	2326	500	1132	2425	3011	4968	4271
Poland	23	23	238	245	385	714	749	2179	2020
Spain	172		820	3223	1458	2941	2679	12522	11618
Sweden			378	252	2313	852	785	1055	172
Switzerland									4426
Turkey	486	244	423	546	412	515	292	466	1009
UK	12906	21825	604	8523	1341	6691	7610	4544	
US									3100
Total OECD	**24822**	**37450**	**16617**	**54895**	**47284**	**52537**	**69347**	**95955**	**86009**
Total Global	**29900**	**47863**	**36462**	**78871**	**65395**	**73652**	**97258**	**153 Bn**	**114 Bn**

Bn = billion

A third view is that there is an optimal level of taxation and government expenditure (after which there are diminishing returns) that can be identified through long-time series econometric modelling based on data for dozens of countries. Of these three views to the downsizing of government, only the third approach takes a scientific approach. Typically, there is an optimal range for government revenues and expenditures between 15-30% of GDP.[115]

While it is perhaps difficult to separately identify the benefits of privatisation as it is usually accompanied by other regulatory changes, there are many benefits to the process. Evidence shows that the benefits of privatisation include increased labour productivity, real price reductions, sustained improvements in levels of services, better management and substantial contributions to public sector finances. These benefits are particularly noticeable in the telecommunications and gas industries in the UK.[116]

[114] Source Financial Market Trends, No 72, OECD, February 1999 p 130. The amounts shown are gross proceeds and the final year 1998 is provisional data.

[115] For example, see Scully, G.W., 1991, Tax Rates, Tax Revenues and Economic Growth, Policy Report No. 98, National Centre for Policy Analysis, Dallas; Scully, G.W., 1995, "The 'Growth Tax' in the United States", *Public Choice, vol. 85, pp.71-80;* Scully, G.W., 1996, "Taxation and Economic Growth in New Zealand", *Pacific Economic Review,* vol. 1, no. 2. 169-77; and Caragata, P.J., 1998, *The Economic and Compliance Consequences of Taxation: A Report on the Health of the Tax System in New Zealand*, Dordrecht, the Netherlands: Kluwer Academic Press.

[116] See Holder (1998) Privatization and Competition: the Evidence from Utility and Infrastructure Privatization is the UK. Regulation, Competition and Privatization, Helsinki.

Two of the biggest areas of privatisation in recent years have been electricity and telecommunications, after years of political hesitation. There are several rationales behind these moves. In the case of telecommunications, competition is intensifying for long distance and local calls (in the latter case given the rapid rise in mobile phone usage), the technology is changing so rapidly, and the cost of the new technology is so significant that most governments are recognising that it is far better to let the private sector take the risks. In the electricity industry, the reasons for privatisation are similar.

In the United States, the principal advocate of free enterprise, there is still government activity in a number of commercial operations, notably passenger railways, airports, and 85-90% of the water system.[117] In New York, all the municipal betting shops are owned by the city of New York. On the other hand, in France there have been privately controlled water companies for over 100 years: Vivendi,[118] and Lyonnaise des Eaux.

A major revolution in foreign investment regulations around the world has also developed in the last 15 years. In the 1980s, Canada and Australia, both previously quite nationalistic with respect to privatisation and foreign investment, loosened their controls on inward direct investment, while at the same time, the United States gradually became less paranoid about Japanese and Arab foreign investment in the US.

In the 1990s, EU members and the United States have tolerated foreign investment in previously sensitive areas such as telecommunications. In 1999, Ford took over the car operations of Sweden's Volvo. Astra, the Swedish pharmaceuticals manufacturer has merged with Zeneca of the UK. The Swedish company Stora, part of the Wallenberg empire,[119] and the oldest recorded company in the world, [120] has merged with Enso of Finland. Both companies are in the pulp- and paper business. Sweden's Nordbanken has merged with the Finnish bank Merita.[121]

Table 15: Privatisations by Country & Sector: 1980s & 1990s

Country	Companies and Industries
Australia	Commonwealth Accommodations and Catering Services (1988); Defence Service House Corp Loan Portfolio (1988, 1991), Australian Airlines (1992); 25% of Qantas Airways (sold to British Airways); Commonwealth Bank (1993); Commonwealth Serum Laboratories (1994); Moomba-Sydney Pipeline System (1994); Commonwealth Uranium stockpile (1994); Aerospace Technologies (1995); Qantas share offer (1995); Commonwealth Bank Secondary Public share offer (1996); Commonwealth Funds Management (1996); Avalon, Melbourne, Brisbane and Perth Airports (1997);

[117] Much of US privatisation activity has occurred at the state level and involves contracting out services as observed in Financial Market Trends, No 72, OECD, p. 144.
[118] Vivendi's first commercial water operations began in 1853.
[119] 40% of the Swedish stockmarket
[120] It started its life as a copper mine in 1297.
[121] All of these mergers have led to the shift of the corporate head office out of Sweden. The principal reasons for these shifts, given by Swedish businessmen, are to be found in the tax system. Sweden has a classical tax system which taxes profits in the hands of company and then taxes dividend income in the hands of the shareholder. This double taxation of profits can be eliminated by an imputation system (such as exists in New Zealand). The second reason is that the top personal income tax rate, at 54.5%, makes it very hard to attract world class executives to work in Sweden.

	Australian National Railways; AIDC (a banking subsidiary of the Australian Industry Development Corp (1997); Works Australia (1997); Housing Loans Insurance Corp. (1997); Telstra (public share offer- A$14.3 billion)); 10 small to medium sized airports (1998); Australian Multimedia Enterprises (1998); New privatisations planned for 1999 and 2000 are Telstra (another share issue), National Rail, National Transmission Network, Removals Australia (relocations brokerage business).
Canada	The Canadian privatization program commenced in 1985. About thirty companies have been privatised, including: Northern Transportation Co. (a barge company operating on the MacKenzie river to Arctic Ocean (1985); Canadair (aircraft manufacturer) (1986); CN Route (Trucking company) (1986); Nanisivik Mines Ltd. (copper/lead/zinc) (1986); Canadian Arsenals Limited (bullets and military ammunition) (1986); Pêcheries Canada (fish processor) (1986); de Havilland Aircraft (1986). Fishery Products Intl (fish processor) (1987); Teleglobe Canada (telecommunications carrier) (1987); Canada Development Corporation (chemicals, mining, high-tech, pharmaceuticals) (1986-87).Varity (Farm equipment manufacturer) (1987; 1991); CNCP Telecommunications (1988); CN Hotels (1988); Terra Nova (Trucking company) (1988); Nortwestel (telegraph) (1988); Air Canada (1988-89); Nordion International Inc. (nuclear medical diagnostics) (1991) Cameco (World's biggest uranium mining and nuclear fuel processing company (1991-95) Petro-Canada (the national oil company) (1991,1992,1995); Telesat Canada (Telecommunications satellite operator) (1992); Co-enerco Resources (Oil & gas exploration) (1992-93). CN Exploration (oil & gas) (1995); Canadian National Railways (1995); 51% interest in Canarctic Shipping (1996); Air Navigation System (National air traffic control system) (1996); Canada Communication Group (CCG) (Queen's Printer) (1997); a 10.5% interest in National Sea Products (fish processing) (1997); Theratronics International (Cancer radiation machines) (1998)
Finland	22% of Sonera the national telecommunications firm (1998); 15% of Fortum electricity company (1998)
France	Telecom (1998: partial privatisation)
Greece	Commercial Bank, Agricultural Bank and ETVA (the Development Bank) will fully or partly privatised in 2000.
Guyana	50% sale of the electricity generator to foreign investors; the remainder will be sold to domestic investors.
Hungary	Malev Airlines, the national airline, will be sold in 1999-2000 with the government retaining 25% plus one share.
Iceland	Coastal shipping company (1991);alcohol & tobacco monopoly-ATVR (1992); printing plant (1992); geothermal drillers (1992-96); travel agency (1992); a venture capital company (1992); arts fund (1992); insurance company (1992); fish processing company (1993); fisheries quality control (1993); trawlers & fish processing (1994); pharmaceutical manufacturing and distribution (1994); pharmaceuticals (1995); data processing

	(1997); automobile safety inspection (1997); a ferro-silicon plant (1998); an investment bank (1998); 66% of Icelandic Prime Contractors (1998) with the remainder to be sold in 1999; a data processing company- Skyrr (1998); The state-owned commercial banks (National Bank of Iceland; Agricultural Bank; and the Icelandic Investment Bank (FBA) were partially privatised in 1998 and should be fully privatised by late 1999 or early 2000; fertilizer plant (1999); fish farming company (1999). Other companies to be sold in 1999-2000 are: 25% interest in Sementsverksmidjan (a cement manufacturer); 41% interest in a fish farming company (Stofnfiskur); 17.8% interest in a recycling company (Endurvinnslan); 21% interest in an internet service provider (Intis); the telecom company (Landssimi Islands) will be privatised by 2003.
Ireland	Telecom (1999: privatisation of final government holding of 50.4%)
Israel	The Netanyahu government privatised some banks in 1996-99; the Barak government has indicated that it will continue privatisation of its remaining 54% share in Telecom in 2000.
Italy	Airports (1997: partial privatisation); Telecom (1999); Oil & Gas, ENI (1995,1998: partial privatisation); BNL Bank (1998); electricity industry is next. Other activities privatised recently include: Italian Post, the Railways, Italian Federation of Mechanical Industries, the Italian Hydrocarbons Board, the Italian Insurance Institute, various banks and the Institute for the Reconstruction of Industries.
Jordan	Railways (1999)
Kuwait	Airways Corporation leasing and finance division (1999); Telecom, Kuwait Oil Tanker company, and the Petrochemicals Industries company are being prepared for sale.
Mexico	Oil and electricity (2000: proposal)
Norway	Oil and natural gas (partial privatisation, 1999) and telecommunications (2000).
New Zealand	Steel (1988); Petrocorp: Oil & Gas (1988); Banking [National Provident Fund; 1988; Rural Bank, 1989; Bank of New Zealand, 1992); Air New Zealand (1989); Shipping Corporation (1989); Government Printing (1989-90); Maui Gas (1990); Telecom (1990); State Insurance (1990); Tourist Hotel Corp (1990); Housing Mortgages (1991, 1993); Forestry Cutting Rights (1990; 1996); Synfuels (1990); New Zealand Rail (1993); Government Computing Services (1994); Works Corp (construction); Auckland Airport and Wellington Airport (1998); Capital Properties (government buildings), 1998; Contact Energy (largest electricity generator, 1999); wholesale electricity market (1999)
Poland	A cable company; the Polish bank, Pekao SA, Bank Zachodni; Telecokmunikacja Polska (telecommunications), and PZU (insurance). Lot Airlines will also be privatised in 1999 (10% to

	begin and up to a maximum of 38-50%) with the government retaining 50% plus one share. 15% of Telecom company TPSA (1998); 15% Bank Pekao, Poland's largest bank (1998)
Portugal	Telecom (a further privatisation of 13.5% of the shares in Telecom Portugal); shares in EDP (power generation), BRISA (motorways) and Cimpor (cement producer) – 1988.
Spain	Telecom (1996); electricity has been started (e.g. Endesa(1998)
Turkey	1999-2000: a shipping company, a petroleum retailer, oil refinery
United Kingdom	British Aerospace (1981; 1985); Cable & Wireless (1981; 1983; 1985); Amersham International (1981); British Petroleum (1983; 1987); Associated British Ports (1983-84); Enterprise Oil (1984); Jaguar (1984); British Telecom (1984; 1991; 1993); Britoil (1985); TSB (1986); British Gas (1986); British Airways (1987); British Airports Authority (1987); Royal Ordnance (1987); British Steel (1988); 10 Water companies (1989); 12 regional electricity companies (1990); Electricity generating companies (1991; 1995); Scottish Electricity (1991); Northern Ireland Generators (1992); Northern Ireland Electricity (1993); Coal industry assets (1994); Railtrack (1996); British Energy (1996); AEA Technology (1996). In the year 2000, the prospects for privatisation in Britain include air traffic control, the London Underground, possibly the Post Office and parts of the BBC.
Venezuela	70% of electricity generation beginning in 2000

In 1999, Singapore eliminated its 40% limit on foreign ownership of banks.[122] In 1999, for the first time, China permitted foreign banks to take inter-bank loans with deposits with a maturity longer than 4 months and raised the limits from 35% to 50% of their foreign exchange assets.[123] Taiwan will permit 100% private sector control of state-owned banks by the end of 1999. All of these measures are indicative of a more liberal approach to foreign investment. **Table 15** above summarises the key developments in privatisations for a number of countries.[124]

United Kingdom has now spent 18 years privatising the state-sector. The highlights include the privatisation of: British Aerospace (1981; 1985); Cable & Wireless (1981; 1983; 1985); British Petroleum (1983,1987); Amersham International (1982); Associated British Ports (1983-84); Jaguar (1984); British Telecom (1984); Britoil (1985); British Gas (1986); British Airways (1987); British Steel (1988); Electricity generating companies (1991; 1995); and Railtrack (1996). In the year 2000, under the Labour Party, the prospects for privatisation in Britain include air traffic control, the London Underground, possibly the Post Office and parts of the BBC.

Since it began corporatising and privatising in the mid-1980s, **New Zealand** has sold about 40 state owned enterprises. The first company sold was New Zealand Steel in

[122] *Financial Times*, 18 May 1999.
[123] "China Relaxes Restrictions on Activities of Overseas Banks", *Financial Times*, 27 August 1999.

[124] This table is incomplete.

March 1988, followed by the State owned oil and gas production company, Petrocorp, one week later. Both companies were sold to other New Zealand companies. Banking was privatised beginning in 1988 over a three year period: (Development Finance Corporation), 1989 (Post Office Bank and Rural Bank), and 1992 (Bank of New Zealand). The Post Office Bank was sold to an Australian company, ANZ Bank.

The Rural Bank was sold to a New Zealand company, and the DFC was sold to a domestic and a foreign investor, as was the Bank of New Zealand. The Bank of New Zealand is now owned by the National Australia Bank. The government owned State Insurance Office was sold to a British company, Norwich Union in 1989. There were many other insurance companies active in the market. The government sold its Housing Corporation mortgages beginning in 1991. The purchasers were largely foreign controlled banks operating in New Zealand. The transportation sector was privatised in 1989 (Shipping Corp and Air New Zealand), and 1993 (New Zealand Rail). The railways were corporatised in 1990 and then privatised in 1993 (the company was sold to a consortium led by an American railroad company).

Telecom was privatised in 1990. When Air New Zealand was privatised, 65% of the equity remained in domestic hands and the remaining 35% was sold to three international airlines: Qantas, Japan Air Lines and American Lines. When Telecom was privatised, 100% was sold to foreign investors, but the new owners were required to sell $500 million worth of shares to the New Zealand public over three yeas. A maximum ownership limit of 49.9% of equity was placed on any foreign investor. As well, the government required Telecom to provide local residential telephone services without charging for individual local calls. The New Zealand government retained one share that provided it with the opportunity to ensure that Telecom abided by these requirements. The government of New Zealand sold the wholesale electricity market operation in 1999 to a South African investor. When Contact Energy (27% of total electricity generation) was sold in 1999, 40% went to the American company, Edison, and the remainder was floated on the New Zealand Stock market.

Canada's privatization program commenced in 1985. About thirty companies have been privatised, including: Theratronics International Limited Nuclear Medicine devices (Cancer radiation machines); National Sea Products Limited (10.5% interest) This is a fish processing operation that the government had acquired on restructuring of the failed Atlantic fishing industry. Canada Communication Group (CCG) Printing, Warehousing and Distribution Services (This is the Queen's Printer). Air Navigation System (Transport Canada) National air traffic control system. Canarctic Shipping Company Ltd (51%). It includes one ship – specially reinforced for Arctic ice breaking. Canadian National Railways (80.0 % of shares).

Others include: Petro-Canada (the national oil company). Cameco (World's biggest uranium mining and nuclear fuel processing company. CN Exploration (CN's oil and gas assets).Co-enerco Resources Ltd (Oil and gas exploration). Telesat Canada (Telecommunications satellite operator). Nordion International Inc. (nuclear medical diagnostics). Varity Corporation (8 million purchase warrants and 450,000 shares), a farm-equipment manufacturer – The government obtained shares when the company defaulted on a govt. loan). Air Canada (National airline).

CN Hotels (CN Subsidiary). Northern Canada Power Commission (NWT) (a small electricity generator in the Canadian far north). Nortwestel Inc. (CN Subsidiary - Telegraph company (small, northern railway subsidiary). Terra Nova

Telecommunications Inc.(Trucking company). CNCP Telecommunications and Telecommunications Terminal Systems (50% interest). Canada Development Corporation (30.7 million shares) – a diversified conglomerate (Chemicals, mining, high-tech, pharmaceuticals). Northern Canada Power Commission (Yukon Electricity generation in the Canadian far north). Teleglobe Canada (overseas telecommunications carrier).

Fishery Products International (62.6% interest) Fish processor - acquired on restructuring of the failed fishing industry). The de Havilland Aircraft of Canada Limited (now ranked as the #3 commercial aircraft manufacturer in the world -. acquired by the government on bankruptcy). Pêcheries Canada Inc. Another fish processor (govt. acquired on restructuring of the failed fishing industry). Canadian Arsenals Limited Manufacturer of bullets and military ammunitions. Nanisivik Mines Ltd. (18% interest) – a Copper/lead/zinc mine in high Arctic (most northerly mine in the world).CN Route (Trucking company. Canadair Limited Commercial aircraft manufacturer. Northern Transportation Company Limited, a River barge companies (Mackenzie River to Arctic Ocean). The total value realised, in current dollars, from the asset sales is about US$9 billion.

Australia has been another major enthusiast of privatisation. Since its program began in 1988, it has privatised close to A$30 billion worth of assets. The major sectors included in the program have been Finance, Banking, Airlines, Medical Laboratories, Pipelines; Uranium stockpiles; Aerospace Technologies; Funds Management; Airports; Railways; Public Works; Insurance; telecommunications. New privatisations planned for 1999 and 2000 include telecommunications, railways, and the electricity network.

Greece has now developed an active privatisation program. Continued privatisation of Telecom (OTE) raised 400 billion drachmas in 1999 with the sale of another 13% of equity. The Commercial Bank, Agricultural Bank and ETVA (the Development Bank) will fully or partly privatised in 2000.

Iceland began its privatisation program in 1988-89. The official policy of the government of Iceland with respect to privatisation is to reduce the scale and scope of government's involvement in commercial activity: "It is the stated policy of Iceland's government to scale down public sector activities in areas which could be handled by private operators without raising social costs. To an increasing extent, public services are being contracted out. Tenders are mandatory for all public contracts to the value of US$700,000 or above, throughout the European Economic Area/European Union."[125]

The companies privatised by the government of Iceland include: a venture capital company; an insurance company, a fish processing company, a coastal shipping company; a machinery and heavy equipment plant; a vehicle inspectorate; a computer data centre; a ferro-silicon plant. The mistake that Iceland made is their privatisation program over the past decade is that they did not actively promote foreign investment in their SOEs.

[125] Invest in Iceland Agency, 1999, *Doing Business in Iceland*, www.invest.is p.24-25

As a result, most or the important assets sold into the market to private interests Iceland were undervalued, perhaps by as much as 10-50%. This would have provided a windfall gain to the new owners of the SOEs.[126] This under-valuation of state owned assets also would have permitted Iceland to reduce its national debt. Unfortunately, this opportunity has been partly lost. As Iceland prepares the privatisation of Telecom and the state-owned commercial banks National Bank of Iceland; the Agricultural Bank; and the Icelandic Investment Bank (FBA), in 1998 and 2000, the consequences of that previous mistake may be reconsidered.

The government offered 15% of the shares in the National Bank of Iceland in September 1998 to employees and small investors, followed by an offer to institutional investors (US$24.5 million). A principal for the spectacular success in attracting so many shareholders was that the banks and other financial institutions guaranteed that the share price would stay initially within a prescribed range for those wishing to sell their subscription rights. The initial offering of 49% of FBA's shares (US$67 million) in November 1998 was the largest share offering in Icelandic history, with shares taken up by 4% of the population. The remaining 51% will be sold in 1999, largely to foreign investors. In December 1998, 8.5% (US$10 million) of the Agricultural Bank's shares were offered to the public. About 90,000 shareholders (one-third of the population) took up the offer. Since their listing, the shares of the banks have risen by 20-30%.

In 1999, the government of Iceland is just beginning the process of corporatising the electricity industry and opening up the industry to competition by separating activities into four areas: production, transmission, distribution and sale to the end consumer. The objectives are to promote economic efficiency in the utilization of energy resources and enhancing safety and environmental values. The electricity industry corporatisation and privatisation has taken the longest to become politically acceptable

Perhaps the best way of describing Iceland's privatisation program is geometric incrementalism. They stated out with the small companies and gradually worked their way towards the larger companies.

Ireland announced its biggest privatisation in June 1999 when it indicated it would sell its remaining 50.1% stake in Telecom Eireann; 40% of the share will go to Irish retail investors. The shares will be listed in Dublin, London and New York. Foreign investors already own at least 20% of the company, shared jointly by KPN of the Netherlands and Telia of Sweden.[127]

Israel will continue privatising its 54% stake in the national Telecom (Bezeq) in 2000 after a delay that is expected to last six months in order to give the new Minister time to assess the full implications of all the planned changes.[128] Bezeq is 13% owned by Britain's Cable & Wireless, which has an option to buy another 7%.

Italy: Italy privatised Telecom Italia in 1999. In 1997, the Italy floated a minority stake in its state-owned Airport company. Italy is also beginning to prepare the electricity

[126] A good example of the windfall gain to the Treasury of having foreign bidders for the SOEs occurred in New Zealand in mid-1999 when the largest electricity generator. Contact Energy was privatised. A foreign investor, Edison of the USA, was permitted to purchase 40% of the shares of the company, at $5 per share. This helped to establish the international price for the shares. Soon after, the New Zealand public was able to buy the remaining 60% the shares at $3.10. Thus, Edison paid a 61% premium for its share of the assets. The Treasury thus received a $1 billion windfall gain that has been used to pay down the national debt and to fund some additional spending in the health sector.

[127] "Ireland Could Raise $4.7 bn from Sell-Off," *Financial Times*,14 June 1999, p. 19

[128] "Israel Delays Telecom Privatisation", *Financial Times*, 3 August 1999.

industry for privatisation[129] and has already sold much of the oil and gas company, ENI. Other commercial activities that have been privatised in recent years include Italian Post, the Railways, Italian Federation of Mechanical Industries, the Italian Hydrocarbons Board, the Italian Insurance Institute, various banks and the Institute for the Reconstruction of Industries.

Jordan, in the Middle East, has finally launched its own long-awaited privatisation program. In August 1999, it announced that it had leased the main freight railway line to an American consortium for 25 years. This move is preparing the way for the privatisation of 40 percent of the national Telecom (Jordan Communications Company) to investors from Spain and France. The rail deal will lead to a needed improvement in the country's rail infrastructure that will prepare the way for a $500 million Norsk Hydro investment in a fertiliser production plant. In making these announcements, the Jordanian Minister of Transport, Telecommunications and Post stated that: "this will give a positive signal to the world community that Jordan is serious about privatisation and restructuring our economy."[130]

Kuwait: In June 1999, in a radical departure from past practice, Kuwait passed a law permitting 100% foreign ownership of companies. Sheikh Saud Nasir al Sabah, Kuwait's Oil Minister, stated that "the trend of the government is to go for privatisation as much as we can, in as many fields as we can."[131] Also up for sale are Telecom, Kuwait Oil Tanker company, and the Petrochemicals Industries company.

Mexico: Roberto Madrazo, Mexico's leading contender to become the ruling party's (PRI) presidential candidate in the 1999 presidential election, has proposed the privatisation of Pemex, the state run oil company that was nationalised in 1938. Pemex has generally been seen as the flagship of Mexican nationalism, hence this represents a major departure from tradition. Madrazo has also proposed the privatisation of the national power grid, the Federal Electricity Commission. He observed that "what you have to do is make them autonomous companies, with their own management capacity, where you have the possibility of issuing shares on the share market. [They should] have their own administrative board not picked by the executive, and with this autonomy they should determine what areas should be open to private capital, both national and foreign."[132]

Norway's Oil Minister, Anne Enger Lahnstein, stated on 13 August 1999, that Norway was no longer opposed to a partial privatisation of its state-owned upstream oil and gas assets.[133] Part of the rationale is the increasing competition for capital in this capital-intensive industry, while another reason is the growing merger movement in the international industry (Exxon/Mobil; BP/Amoco/Arco; and Total/Fina). Norway is also planning to merge its two state-owned telecommunications companies (Telenor and Telia) and then prepare them for privatisation with the help of two merchant banks (Warburg Dillon Read and Morgan Stanley).

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[129] "IRI's Sell-Off Plans Forge Ahead", *Financial Times*, 2 August 1999, p.3

[130] "Jordan Rail Deal Boosts Privatisation Hopes," *Financial Times*, 9 August 1999, p 4.

[131] "Shake-up Mood Grips Oil League Giant," *Business Week*, 26 July 1999. A recent candidate for privatisation was Kuwait Airways Corporation's finance and leasing division, which was privatised in April 1999. "The popularity of the cradle to grave welfare system has made Kuwaiti politicians wary of reform in the past. But MPs can be credited with seeing the big picture. Since 1994, the state has divested itself of 24 companies yielding a total of $3 billion, putting it ahead of any other nation in the Gulf. A further sale of assets could yield a similar amount. By concentrating on welfare services rather than productive enterprise, the government can ensure that Kuwait's enviable literacy rate keeps the economy robust."

[132] "Pemex Sell-off Plan Floated," *Financial Times*, 9 August 1999, p.2.

[133] "Norway Faces Prospects of Sea change in Management of Oil Resources", *Financial Times*, 16 August 1999, p.3.

Poland: In 1998 and (given current projections) in 1999, Poland has attracted US$10 billion per annum in foreign investment as a result of its privatisation efforts. Assets sales this year include a cable company sold to United Pan Europe Communications; the Polish bank, Pekao SA, sold to Italian and German banks, and the Allied Irish Bank purchase of 80% of Bank Zachodni. Other privatisations expected later in the year are: Telecokmunikacja Polska (telecommunications), and PZU (insurance).

Portugal: In July 1999, the government of Portugal raised US $1.6 billion in the issue of 13.5% of the shares for Portugal Telecom to the market. The government now owns only 10% of the total shares in the company.[134]

Spain: In 1996, Spain privatised Telefonica, the state-owned telecommunications. Spain raised more than US$24 billion over 1996 – 1998 through the sales of SOEs including these telecoms, financial services and electricity. The Spanish government has declared that only mining and parts of the defence will be government owned by the year 2000.

Sweden has now decided to engaged in a detailed program of the corporatisation of its government commercial operations (railways, the national electricity grid, and the airports) in order to promote greater efficiency. But it has clearly signaled that it will not privatise these natural monopolies.[135]

Turkey is currently privatising Turkish Cargo Lines (a shipping company), a petroleum retailer, and an oil refinery.

Venezuela: The government of Venezuela is planning to sell off about 70% of its electricity generation assets in 2000.[136]

There are many, many more cases in both the developed and developing world that could be drawn on to add to this list. But the basic point has been made: corporatisation and privatization (or, in combination, marketization) are now a normal part of the political and economic affairs of most countries, either based on internal decisions made by governments, or as promoted by the World Bank (and its affiliates) and the International Monetary Fund and their various forms of *conditionality* (the quid pro quo for receiving international funds).

c) Candidates for Marketisation in the Faroe Islands

It should be obvious from the analysis above that privatisation is a lengthy, rather than a short, process, but one which creates greater efficiency and wealth and is thus worth pursuing. At least ten years has been needed by countries such as New Zealand, the UK, Australia, Canada etc to organise and manage the bulk of their marketization process, including corporatising, valuing and then privatising these assets. The Faroe Islands should expect that this process will take at least 5 to ten years, given the need to debate the project, allocate resources and manage the process.

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[134] *Financial Times*, 13 July 1999.

[135] The asset value of Sweden's SOEs is about US$54 billion. "Sweden to Review State Ownership," *Financial Times*, 15 June 1999. This corporatisation program will include: the setting of clear goals for the SOEs, more transparency, "competitive operating margins," more professional board members from the private sector and incentive-related pay for employees.

[136] "Venezuela Liberalises Electricity," *Financial Times*, 3 August 1999.

Based on information we have received, the companies which are ready, or almost ready to be marketised and then listed on a stock market, or which could be ready within a few years include:

- Atlantic Airways
- The Business Development Bank
- Føroya Bank
- Faroe Seafood
- JFK Trol (fishing)
- Føroya Tele (Telecom)
- United Seafood
- Vágar Airport - no assets and profitability data are available for this company
- Business services to the health system and other government departments such as laundry, catering and cleaning- no assets and profitability data are available for these companies.

Companies which probably can be corporatised immediately but which will take longer to privatise are: the Electricity Company; the Ports; the Transport Company and the Post Office. The State Alcohol monopoly should be subject to competition and then split up and sold.

Table 16 below provides a very preliminary assessment of the potential asset values of 13 Faroese companies and commercial activities owned by government. The table is designed as follows. In the first column, the name of the company is listed. The next three columns contain data (in thousands of Danish or Faroese kroner – the currencies are at par) for the rate of return – profit before tax - (as a percentage of net sales), net sales and profit before tax, all for 1998. The next seven columns present different estimates of the *preliminary* market value of these thirteen commercial activities.

The valuations are termed *preliminary* here because none of the companies has been subjected to a due diligence process, including a thorough assessment of their management, physical assets and the financial statements. Neither has any effort been made (because of the lack of time) to assess the net present value of future cash flows. The purpose of this preliminary assessment is to determine the extent to which local assets are available to bring down the level of the gross public debt to a level commensurate with greater fiscal responsibility and with a greater potential to deal with the next economic crisis.

The mechanics for the preliminary valuations are as follows. Current sales and current profits are a good indication of the future value of the market value of the company. In cases where a considerable degree of restructuring is still needed, the future value of the company is better captured by a valuation based on sales rather than profits. A good example of this is United Seafood or Faroe Seafood. If both were sold today on the basis of their profitability alone, the new owner would be gaining a considerable bargain, while the government would be selling the asset too cheaply.

The solution in this exercise is to grant a 50% weight to valuation based on sales, and a 50% weight to the valuation based on profits before tax.

- Case #1 thus takes 50% of its valuation based on a multiple of 1.5 times 1998 sales, combined with a 50% weight of 5 times 1998 PBT (profit before tax, ie earnings before interest and tax, or EBIT).

- Cases 2 through 5 reflect variations of this approach. Cases 6 and 7 revert to a straight PBT or EBIT-based valuation approach using, respectively, multiples of 5 and 7 times PBT.

- The final column provides an average of each of these different valuations. This is, again, a very rough measure because there are sector specific and company specific circumstances and conditions that need to be investigated in order to provide realistic estimates for each company.

Nonetheless, the range of results produced below is expected to contain the valuation for each company when individual financial statements are available and a full due diligence is undertaken.

At the bottom of **Table 16**, there is an estimate of the total potential value of the sale of each of assets, assuming that the government decides to sell them, excluding the Transport company and TRYGD, both of which are currently operating at a loss, and hence are not ready.

The estimated range of the total value of the asset sales, based on our eight different scenarios (including the average of all scenarios), ranges from 2.7 billion Dkr kroner (scenario 4) to 4.9 billion Dkr (scenario 7). Recall that the analysis of the gross public sector debt revealed that roughly 3.5 billion kroner in the national government debt needs to be paid off in order to bring the government back to a level it faced prior to the Great Economic Crisis.

Table 16: Preliminary Valuation Analysis of Faroese State Owned Commercial Activities

Company	Weighting> Rate of Return % of net sales	1998 Dkr '000 Net Sales	Dkr '000 50/50 Profit Before Tax (PBT)	Market Valuation Estimates 50/50 Case #1 1.5xsales 5xPBT Dkr mn	50/50 Case #2 1.8xsales 6xPBT	50/50 Case #3 2xsales 7xPBT	50/50 Case #4 1.2xsales 5xPBT	50/50 Case #5 2.5xsales 5xPBT	Profit Based Valuation Case #6 only 5xPBT	Only Case #7 Only 7xPBT	AVERAGE of the 7 cases
Føroya Banki	159%	225,761	359,956	1069	1283	1486	1035	1542	1800	2520	1534
Business Development Fund	95%	39,757	37,776	124	149	172	118	182	189	264	171
Municipal Electr Co	19%	205,813	38,250	250	300	340	219	391	191	268	280
Alcohol Monopoly	14%	90,293	12,734	100	119	135	86	157	64	89	107
JFK TROL	13%	106,564	14,172	115	138	156	134	204	71	99	131
Faroese Telecom	12%	180,149	22,082	190	228	257	163	302	110	155	201
Atlantic Airways	11%	118,702	13,029	122	146	164	104	194	65	91	127
Life Assurance Co	4%	117,980	4454	100	120	134	82	163	22	31	93
United Seafood	3%	550,061	18,212	458	550	614	38	751	91	127	376
Faroe Seafood	2%	788,072	19,441	640	768	856	520	1053	97	136	581
Post Office	0	71,189	0	53	64	71	43	69	0	0	43
Transport Company	-42%	120,035	-50,569	-36	-44	-57	-54	-27	-252	-35	-72
TRYGD	-335%	2,071	-6936	-15	-19	-22	-16	-21	-35	-49	-25
Total Potential Value of Asset Sales (excluding Transport Co and TRYGD)			Dkr mn	3168	3801	4314	2499	4939	2700	3780	3600

Source: McCallum Petterson Diagnostics, Wellington New Zealand, October 1999

This suggests several things. First, the government of the Faroe Islands should try to maximise the sale value of the companies it privatises. The principal method for doing that is by having foreign investors participate in the bidding.

This will raise the value of the assets sold. This point is reinforced by the fact that, according to informal estimates made by the Landsbanki Føroya, there is about 1 billion Dkr in risk capital in the Faroe Islands that could be counted on to participate in the privatisation process.

Perhaps an additional billion Dkr could be raised in loans by Faroese entrepreneurs because many of them are now cash rich given their low debt/equity ratios, arising from earlier debt write-offs and recent successes. That would mean about 1.5-2.0 billion Danish kroner (about US$285 million) is needed in foreign investment. Second, based on this preliminary analysis, the best prospect for marketization is Føroya Banki because of its good quality management, its current profitability, and its sheer size. Its sale alone would bring in about 1.5-2.5 billion Dkr, accounting for 30%-70% of the amount that is needed to reduce the gross public debt. It would also create some immediate depth to the capital market and inspire confidence among new shareholders. Every effort must be made to ensure that Føroya Sparikassi, the cooperative savings bank, has the ability to compete on an equal footing with Føroya Banki.

There is some double counting included in the valuation estimates for the Business Development Fund, which owns Faroe Seafood and United Seafood. Thus, perhaps another 800 million kroner could be raised by selling Faroe Seafood and United Seafood. It is premature to privatize the electricity company before it has under gone restructuring to separate the generation side from the network, distribution and retail, and before a wholesale market is created. This has generally been the path pursued in other countries. We understand that Telecom is now subject to competition.

The sale of the Faroe Insurance Company, Telecom and Atlantic Airways would bring in another 800 million Dkr. Recall that these are very rough estimates. Thus, altogether, the privatisation. Thus, the sale of the bank, the insurance company, the seafood companies, Telecom and the national airline will generate enough revenue (assuming about 40% of total investment comes from foreign investors, largely Icelandic and other Scandinavian investors).

Recommendation No. 35:
Other potential candidates for listing on a stock exchange would the Savings Bank (Føroya Sparikassi). It needs to become a full service bank so that it can compete with Faroya Bank across all sectors of lending activity in the Faroes.[137]Faroya Sparikassi is a cooperative bank owned by its depositors. Thus, it would have to go through a demutualisation process similar to the insurance companies in New Zealand and Australia in recent years.

Faroya Bank is an excellent prospect for privatisation and little restructuring would be needed, but its market value would dwarf that of Atlantic Airways and Telecom and absorb too much of current savings. Therefore, it could be argued that it is better to start privatisation with smaller entities such as Atlantic Airways and Telecom which have a

[137] One of the strong areas of emphasis in the Icelandic privatisation program was ensuring that all banks offered a full range of banking services. The only unfortunate exception is home mortgages which are dealt with by a state agency. This helps to explain why mortgage bonds are a prominent feature on the Icelandic. Mortgages are a standard source of income for most banks and should be integrated in the banking sector's normal commercial activity.

smaller asset base and which, according to the analysis we have received are best prepared for privatisation. Our view is that this is mistaken because of the value in generating public confidence with larger, more profitable assets. Continuing diversification of the economy will sow the seeds for more companies to become listed in the future. The SOEs that are not considered ready for privatisation, given their lower level of efficiency and profitability, are the state-owned ferry and bus service, and the Post Office.

d) Industry Issues and Constraints Affecting Marketization in the Faroes

The principal tasks required in the pursuit of marketization are:

Recommendation No. 36:
Determine Goals: There is a need to develop a clear set of goals about desired outcomes from initiating a marketization program. The goals espoused by Iceland are a good starting point for the debate in the Faroes, but may require some local adjustments or additions: (a) increase savings to promote economic stability; (b) increase economic efficiency by eliminating the distortions inherent in state-ownership; (c) widen share ownership and encourage development of a stock market; (d) raise capital in order to decrease the national debt; and (e) finance specific transportation projects and to support the growth of information technology.

Recommendation No. 37:
Develop Criteria: The key issues that need to be taken into consideration are: the level of losses and the efficiency of the SOE; the quality of management; the need for foreign technology; the cost of the needed technology (can the taxpayers really afford it?); the need for access to foreign markets; the level of liquidity likely to prevail in the buying and selling of the shares of the company; and international standards and practice.

Recommendation No. 38:
Structure a Decision-Making Process: What should be the decision-making process for organising the process of marketization? In most cases, the core decisions are made by Cabinet (Option 1), or an officials committee with advice from the private sector (Option 2). Another option is to set up an independent committee of private sector experts that makes recommendations to Cabinet, with the assistance of government officials (Option 3). A fourth option is an Independent Commission that advises Cabinet about its intended course of action, but does not seek approval (Option 4).

- Option 1 may provide the swiftest method for restructuring government's commercial activity, but this option may not have sufficient transparency in order to assure taxpayers that there are no under-the-table deals being made among friends. Some transparency would be achieved by adding an impartial external expert to that process. While option 4 has the potential of minimising any conflicts of interest, assuming that the Commission Members have been chosen carefully, there could be a serious problem of (a) ignoring political sensitivities (e.g. local or regional issues); or (b) requiring government to spend excessive taxpayer funds on marketizing companies, or spending the money at an inopportune time.

- Option 2 may leave too much power in the hands of officials who may not be well-enough informed about the market problems faced by the SOEs. Thus, option 3 may perhaps offer the best combination of transparency and expertise in managing the marketization process. Option 1 was chosen in Iceland.[138]

Criteria for Selecting Candidates for Marketization

The key criteria for developing a marketization program should be to (1) set the most important goal (this has been done: reduce the national debt; (2) determine the level of the national debt that needs to be paid down (this has been done – 3.5-4 billion kroner); and (3) pick the best performing companies (in terms of rate of return) that will inspire confidence in the market (not yet done).

It makes sense to put the poorest performing SOEs into a rehabilitation process and create a short list of the best financial performers. The market will respond best to those companies which are acting in a commercial manner, and which are potentially under-valued because they have not achieved full efficiency and productivity gains. Aside from the rate of return (to both sales and assets), the key indicators that need to be assessed for each company are

- the level of liquidity likely to prevail in the buying and selling of the shares of the company
- international standards and practice.

Other important issues in evaluating the Faroese companies being considered for marketization are: the quality of management; the need for foreign technology; the cost of the needed technology; and the need for access to foreign markets. Where the company is deficient in each of these areas, the greater is its probability of being sold in whole or part to a foreign investor.

Liquidity

The liquidity issue is an exceptionally important one. Size does matter. In the international bond market, Finland and Austria, for example, have to pay a higher price when floating government debt than Germany, even though they have top level credit ratings from Standard & Poor's (AAA). Finland's bonds are currently priced at 24 basis points over Germany's, while Austria's are 20 basis points higher. Countries such as Italy and Belgium (the latter has just been down-graded because of excessive debt) which have lower credit ratings than Finland or Austria can still have lower priced bonds because of the liquidity of their market.

[138] "Central administration of privatization is in the hands of the Government and a Ministerial Committee under its auspices, consisting of four members...the Prime Minister, the Minister for Foreign Affairs, the Minister of Finance and the Minister of Industries and Commerce. An Executive Committee operates under the auspices of the Ministerial Committee (Executive Committee on Privatization) which is in charge of preparations and coordination of projects in the field of privatization. The Committee is in charge of converting state-owned enterprises into limited liability companies, sale of state-owned enterprises, sale of state properties, sale of state shares in other enterprises as well as putting up for tender projects and services under the auspices of the state and state institutions. The Executive Committee consists of representatives appointed by the above-mentioned ministers. When specific privatisation projects are dealt with, a representative of the ministry concerned joins the Committee. The Executive Committee is assisted by 2-3 employees of the Ministry of Finance." Other steps in the privatization procedure are: (2) Coordination; (3) Review; (4) Announcements; (5) Selling Procedure; (6) Sale; (7) Securities Brokerages; (8) Restrictions on Sales to Individuals; (9) Special Rights of State Owned Enterprises; (10) Deviations; (11) Information; (12) Scope - Office of the Prime Minister of Iceland, 9 February 1996.

The message is that smaller countries need to offer a premium rate of return as a compensation to investors of the liquidity risk (that is, the risk of not being able to sell off the bonds in the event of a crisis). This same problem affects the buying and selling of shares on stock exchanges in small countries.

There are a few responses to this problem that should be considered in the context of the development of the Faroes Islands capital market. First, once the rank order of profitability has been determined, the larger share issues which are more profitable should be listed first (e.g. Telecom, Faroya Banki, the Insurance Co.) in order to ensure that the capital market depth in local trading is as deep as possible as soon as possible, and, again, to instill public confidence in the new market. Second, this liquidity constraint creates a strong incentive for ensuring that Faroese companies are listed on the Icelandic and Scandinavian stock exchanges.[139] Third, private companies with the highest rate of return should also be listed on the stock exchange as soon as possible.

International Standards and Practice

Airlines: The European Union has set an upper limit on the level of foreign control (permitted for airlines owned by its member countries: 49.9%). This was the same limit imposed by New Zealand on any single foreign owner when Air New Zealand was privatised in 1988. The maximum level permitted in the United States is 25%. In the Telecommunications industry, given the high cost of staying even with state of the art technology it is probably better to have a large international shareholder as the dominant (40%) shareholder in Telecom, with the other shares being widely held by Faroese and foreign investors.

Electricity System Options: There are various options that the Faroes can pursue. Option One is the New Zealand model, which offers a slow evolutionary approach to privatising part of the industry. New Zealand was a pioneer in restructuring the electricity system. The government began restructuring its electricity industry in the mid-1980s by corporatising the Electricity Corporation of New Zealand (the dominant company which provided most of the generation and the main transmission facilities), so that it would run on a profit-making basis. In the late 1980s, the government separated the electricity grid (network) company (which remains an SOE) from the generating company.

Then it put the distribution companies on a commercial, profit-making basis. In the early 1990s, it set up a wholesale electricity market. In 1996, it began splitting up the generating company, first into two companies and then into a total of four (There are several very small players). One of those companies, Contact Energy, has a large minority shareholding by a foreign investor, while the majority of shares was sold to the public at a price below that paid by the foreign investor. The other three companies are still SOEs, one or more of which will probably be privatised in the future, depending on which party forms the government.

Option Two is to follow the Venezuela model, which offers a more rapid approach. Venezuela is a latecomer to restructuring the electricity system, having just announced its plans in August 1999. The country has approved a new framework that will retain the

[139] A Norex Alliance has been created between the Stockholm (commodities and IT sectors – e.g. Ericcson and Nokia) and Copenhagen markets (a consumer products strength) and covers 75% of Nordic listed stocks. Oslo has become the world's largest financial centre for listing shipping stocks. Helsinki and Stockholm, however, are embroiled in legal difficulties about where Nokia should be listed. Helsinki has allied itself with Frankfurt. (*Financial Times* 26 July 1999).

grid company as an SOE (as in New Zealand), create an independent regulator (unlike New Zealand), and privatise this year 70% of its interests in the three regional power companies. The other 30% of the shares will be sold to employees, and to the general public on the stock exchange.[140]

A wholesale (spot) market for electricity was created first in Scandinavia when Nord Pool was set up in 1991. New Zealand's began in 1993. An independent wholesale electricity market began in London in June 1999, while the Netherlands set up its first spot market for electricity in May 1999 in Amsterdam. Germany has announced plans to set up a similar market in Frankfurt later in 1999.[141]

Post Office: The Post Office should go through a process of deregulation first before privatisation. The New Zealand experience with the Post Office should be taken into consideration. The company was corporatised in 1986 after separation from Telecom. Since then it has achieved major efficiency gains. By 1997, New Zealand Post was so successful against its new competitors and so profitable that it was able to reduce the price of stamps by about 10%. New Zealand Post has also set up a consulting division to offer its experiences to other countries around that wish to set up their post office on a commercial, profit-making basis. The company has not yet been privatised and there is still debate about whether or not that should happen.

e) Implications of Corporatisation and Privatisation

For various reasons, including the need to develop political consensus, some of the state-owned enterprises may take longer than others to privatise. A step-wise approach could then be considered. This would include floating 25% to 33% of the equity per year for 3 years for companies such as Telecom or the Post Office. Iceland will be privatising its Telecom over the next three years.

The Faroes may learn something from watching this process, but so many Telecoms have now been privatised that the potential market reaction is relatively easy to predict. Thus, it may be more valuable to privatise the Faroes Telecom first and position that company to take a stake in the Icelandic Telecom when it is offered for sale.

In its privatisation of roughly 40 SOEs over the period 1988-1999, New Zealand raised about NZ$25 billion (about Dkr 100 billion). What kind of values can be expected if the key assets are sold. If we use the national airline (Air New Zealand as a base), we can create a ratio that will give use some perspective on the potential value of each of the major privatisations in the Faroes.

In New Zealand, Telecom was sold for 6.4 times the nominal value of the national airline, forestry assets 4.6 times; an electricity generator (Contact Energy) that accounts for 27% of the electricity generated in New Zealand, 3.5 times; the total value of three banks privatised was 3.4 times the value of Air New Zealand, two major airports 0.84 percent of the value of the airline, and the railways 0.5 times.

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140 "Venezuela Liberalises Electricity," *Financial Times*, 3 August 1999, p. 3.
141 "Frankfurt Picked for Exchange," *Financial Times Weekend*, June12-13, 1999, p. 23.

Based on British experience, the cost of privatising SOEs, in terms of legal, financial and other advice and services, is about 2.6% of the realised proceeds of the sale of the companies.[142]

f) Implications for the Danish Subsidy Negotiations

On the basis of the experience of the last 20 years, it takes about 10-15 years to restructure an economy. This suggests that the minimum phase-out period for the Danish subsidy should be 5-7 years. The quicker the phase-out of the subsidy, the more pressure there will be to restructure.

3.6 Investment Impediment #5: Restrictions on Foreign Investment and the Current Lack of Interest by Foreign Investors

Currently, there is very little foreign investment in the Faroe Islands and no statistics are kept by the Faroese government on foreign direct investment inflows or foreign direct investment abroad by Faroese. Examples of current foreign investments in the Faroes are:

- Norwegian company in salmon farming
- Icelandic companies are operating in the Faroes in shipping, retail, fish farming technology, software.
- British company in a Suðuroy cold storage facility (100%)
- Icelandic company in shipping.

There are also 12 Danish companies operating subsidiaries or branches in the Faroe islands, according to the local KPMG office in Tórshavn.

In 1997, 2,200 letters promoting the merits of investing in the Faroes were sent to companies abroad involved in industries of interest to the Faroese government at the time.[143] About 60 replies were received, mainly from companies in Holland Switzerland and Australia. No new investments resulted from the exercise. The Report was entitled *Foreign Investment in the Faroes: A Pre-Analysis, 1998*.

The principal short term objective in promoting foreign investment in the Faroes is to maximise the value of the State-Owned Enterprises that are offered into the market over the coming decade. But there are important longer-term gains such as better access to markets, financing, technology, expertise and information that also need to be considered.

If foreign investors can demonstrate that the new investments will promote the long run general economic growth in the economy, then the Faroese public is likely to support them. But the delicate issue of control in certain industries needs to be worked out by political consensus.

[142] Based on the sale of 12 companies, including British Petroleum, British Aerospace, British Telecom and Cable & Wireless (Veljanovski, C., 1987, *Selling the State: Privatisation of Britain*, p. 107).
[143] Fishing, fish processing, software, ship services, medicine, pharmaceuticals.

a) Foreign Investment Promotion in Other Small Countries

The Cyprus Option

One of the small countries near Europe that has been most successful in attracting foreign investment is Cyprus (the Greek side), despite the periodic threat of civil war with the Turkish side of the island. Cyprus advertises itself as "Europe's Business Island." It also advertises itself as a gateway to Eastern Europe, largely because of all the tax treaties it has with the former Soviet bloc countries. Cyprus is rated as A1+ by Standard & Poor's credit rating service.

The ***corporate tax rate*** on branches of foreign companies operating in Cyprus is 20% on the first Cyprus Pounds (CYP) 40,000 (= approximately US$80,000) and 25% above that level. There are generous investment allowances for machinery and equipment, which can help to reduce this rate considerably. Corporate losses can be carried forward for 5 years from the year incurred.

There is also a very liberal regime for regional headquarters operations, with 60 percent of profits from professional services repatriated to Cyprus being exempt from corporate tax, and 90 percent of profits or dividends from permanent operations abroad are exempt from tax. Thus, a 10% corporate rate is the rule for companies that use Cyprus as a window through which operating profits are channeled from investments in various countries. In addition, the attractiveness of Cyprus' double tax treaties can be seen from the following analysis of the tax rates for dividends, interest and royalties in its tax treaties.

Cyprus has no withholding tax on ***dividends*** paid by Cyprus-based companies to non-resident companies from the following countries: Bulgaria, Canada, CIS, Czech Republic, France, Germany, Hungary, Ireland, Italy, Kuwait, Norway, Slovak Republic, the UK and the USA.

Further, Cyprus has no withholding tax on ***interest*** paid by Cyprus-based companies to non-resident companies from the following countries: Austria, Bulgaria, CIS, and Ireland. The standard tax rate on interest is 10% for most other countries.

Finally, Cyprus has no withholding tax on ***royalties*** paid by Cyprus-based companies to non-resident companies from the following countries: Austria, Bulgaria, CIS, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Norway, Sweden, the UK and the USA. The royalty rate for other countries is either 5% or 10%.

This brief analysis helps to explain why many American and British companies would choose to use Cyprus and Ireland as a conduit for channeling their profits and locating their investments.

The ***personal income tax rate*** for expatriates (employed in the Industrial Free Zone) is 50% of the amount charged to citizens, with the personal rates ranging from 0 to 25%. There is a ten-year tax holiday for certain types of investment in the tourist sector: gold courses, marinas, theme parks, health centers etc. With few exceptions, 100% foreign ownership of companies operating in Cyprus is permitted. The principal exceptions are for investments in the retail and wholesale sectors

There is a broad range of foreign investors operating in Cyprus, including Reuters, Siemens, SmithKline Beecham, NCR, HSBC, Coca-Cola, Roche, Rothmans, Moody's,

Credit Suisse First Boston, RJ Reynolds, Johnson Wax, and Barclays Bank. Cyprus promotes[144] five key features of its economy in attracting foreign investment:

- "Strategically located with convenient regional and international air links."
- "Excellent telecommunications – direct dialing to over 200 countries."
- "Numerous and attractive tax incentives including 27 double tax treaties."
- "Highly qualified bilingual staff and very competitive operating costs."
- "A pleasant environment including one of the lowest crime rates in Europe."

If we take a hard look at these advantages, we can see some similarities to the Faroe Islands, along with obvious differences. The Faroes is "strategically located" close to the Northern EU market (but is not a standard stop-over for flights to and from North America and Europe), with convenient regional and international air links with the EU and Iceland, while Cyprus is close to the southern EU market. Currently, the Faroes has reasonably good telecommunications, but will need privatisation of Telecom in order to ensure that high standards are maintained over the long run. The Faroes has much higher tax rates (27%) for investors than does Cyprus (5%) and only has tax treaties with a 5 countries (all in Scandinavia) versus 27 tax treaties for Cyprus. The Faroes does have well-trained people who can speak two or more languages fluently. But, more technical training is needed. Its operating costs are too high in some industries. The Faroes probably have the lowest crime rate in Europe, but also among the lowest hours of sunshine and the lowest summer temperatures in Europe.

There is not much the Faroes can do about the temperature and sunshine problems, but they can build on existing strengths (strategic location, good telecommunications, well-trained and multi-lingual people) and add some new strengths: privatise Telecom, train more people abroad at technical colleges and universities and lower the tax rates.

The Icelandic Option

Iceland's active encouragement of foreign investment since the mid-1990s has led to a total of US$460 million by the end of 1998. This figure should grow significantly in light of the privatisations planned for 1999 and beyond.

The basic legislation governing foreign investment in Iceland is called the 1991 Act on Investment by Non-Residents in Business Enterprise, while there are also some rules in specific pieces of legislation. Iceland maintains a liberal approach to foreign investment except for restrictions in three areas. Fishing and fish processing; hydro and geothermal energy production and distribution and aviation.

Non-residents are not permitted any direct shareholding in Icelandic companies operating in the fishing and fish processing sectors. Non-residents, however, are permitted to hold up to 33% indirectly in such companies through other companies domiciled in Iceland.[145] Thus, foreigners residing in Iceland are not caught by these restrictions.

Investment in the energy production and distribution sectors is restricted to companies and individuals resident in the EEA (Norway, Austria, Switzerland, Iceland). Again, foreigners residing in Iceland are not caught by these restrictions. Foreigners living

[144] *Financial Times*, 4 August 1999, p. 19.
[145] The shareholding by foreigners is limited to a total of 25% of the holding company (or 33% if the holding company owns less than 5% of the fisheries or fish processing company).

outside Iceland and the other EEA countries may apply to Iceland's Parliament for an exemption.

Non-resident individuals or companies resident outside the EEA countries are not permitted to own more than 49% of an aviation company.

One of the principal attractions that draws foreign investors to Iceland is cheap electricity which, at 2-3 US cents per kilowatt hour, for large industrial users, is the most competitive in Europe. Iceland has only developed 10% of its feasible hydro-electric power resources and 5% of its geothermal resources. The government also offers R&D grants on a case-by-case basis,[146] however, while some R&D expenditures can be written off in the year incurred, others must be capitalised and written off over 5 years. In the most recent Policy Statement from the coalition government it was stated that: "ways will be considered for making tax rules act as a stimulus to research, development and general innovation in business."[147]

Other key advantages are the high level of technical skills, including software development skills, the existence of the local stockmarket, the privatisation program and the profitability of local companies. According to the Icelandic Minister of Industry and Trade, among the listed companies, "the rate of return has been generally very high in recent years."[148] As a percentage of revenue, the following is the rate or return performance for 36 companies (grouped into sectors) listed on the Icelandic Stock Exchange in 1998:[149]

• Marine production	4.0
• Manufacturing	7.4
• Commerce	2.7
• Transport and Communications	1.1
• Financial institutions	25.8
• Services	5.8
Total	5.5

This suggests, among other things, that there is room for more banks in the Icelandic market and that manufacturing is a significantly better profit opportunity than fishing. It also suggests the need for restructuring in commerce and transportation and communications sectors. The forthcoming privatisation of Telecom will be a good step forward.

A further advantage is the moderate corporate tax rates (30%) by European and North American standards, *although not by Nordic standards*. A negative feature of the tax system is the existence of a net worth tax on both companies and individuals (1.2% with a 0.25% surcharge).

Another feature of the new tax system developed in Iceland is the offshore trading centre (OTC) tax regime created in 1999 (International Trading Companies Act). For companies that are registered in Iceland, but which engage in trade by matching

[146] Invest in Iceland Agency, 1999, Doing Business in Iceland, (www.invest.is).
[147] In the Forefront in the New Century, Policy Statement by the Government of the Independence Party and the Progressive Party, Office of the Prime Minister of Iceland, 28 May 1999, p. 5.
[148] Bjorgulfsdottir, M., 1999, "The Island of Opportunities", Iceland Business, *Invest Iceland*, Special Edition, p. 5
[149] National Economic Institute, 1999, *The Icelandic Economy: Developments 1998 and Outlook for 1999*, Reykjavik, April, p. 33.

offshore buyers with offshore sellers (thus the transactions do not affect Icelandic buyers and sellers),[150] the corporate tax rate is 5% not 30%, while dividends remitted abroad are taxed at 10% (as compared to 0-5% for companies in tax treaty partners), and 20% for companies from non-tax treaty countries.

Interest and royalties paid by companies operating in Iceland OTC to related companies abroad are taxed at zero. Zero tax on interest implies less restraints on thin capitalisation (high debt/equity ratio). That suggests that the companies operating in Iceland's OTC could pay minimum dividends tax and very little corporate income tax if they strip profits out in the form of interest payments. OTC companies from non-tax treaty companies do not have to pay taxes on remitted interest payments, thus this conclusion also applies to them.

This makes Iceland a conduit country for tax purposes. It is too early to pass judgment on the long run value of this OTC activity because the Operating License Committee just started work in August 1999. But, one should anticipate a strong level of interest. One license has already been granted (to Icelandic investors) and several are pending for investors from Sweden and Luxembourg. The Faroes probably needs to adopt a similar system to maintain a competitive attractiveness vis-à-vis such investments.

A disadvantage for foreign investors wishing to relocate their headquarters to Iceland, or Icelandic investors wishing to remain in Iceland is that they are taxed on their world-wide income, rather than on the income they earn in Iceland. This latter system is a territorial based income tax system, and is one of the reasons why Hong Kong has been so successful in attracting the regional headquarters of multinational corporations.

In 1996, Iceland adopted new legislation permitting foreign investment in the energy sector (Norsk Hydro is looking at prospect in the northeast). Foreigners are not permitted to own fishing companies directly. They have to establish an Icelandic company which may own up to 25% of an Icelandic fishing company. A Texas oil company has an interest in such a company.

Liberalisation of this policy is expected in the future. The principal area to which foreign investment has been attracted is energy intensive industries, notably aluminium smelting and fero-silicon. Iceland's electricity (geothermal and hydro-based) is among the cheapest in the world. These operations have created 1000 direct full-time equivalent jobs and 3000 indirect jobs.

The Icelandic option for promoting foreign investment is much cheaper to run than either the Cyprus or the Irish options, in part because less of the tax base is given away and there are no overseas offices promoting foreign investment in Iceland, as compared to Cyprus and Ireland.

The Irish Option[151]

The Irish option for promoting foreign direct investment (FDI) is deeply connected with the country's industrial strategy to promote both economic diversification and regional

[150] This is the basis for taxation in Dublin's International Financial Services Centre (IFSC). A depositor from e.g. the USA places a deposit in an IFSC bank, and the bank lends the money to a borrower in Germany. The transaction is booked through Dublin; and the profit is booked in and taxed in Dublin.
[151] Sources for this section are the Irish Development Agency annual reports for 1995, 1996, 1997 and 1998.

development. This entire process soon develops a strong momentum as was noted in 1997 by the head of the Irish Development Agency (IDA), Kieran McGowan:

"The rapid growth of the overseas industry base in Ireland has created new demands. It has focused attention on skills requirements, on regional economic development, on the need for advanced infrastructure, on access to markets and customers through good quality roads, airports and ports. It has also put new pressures on the economy in terms of general infrastructure such as zoned land, water and effluent services. It has brought with it a new level of demand for the highest quality services especially in telecommunications and electricity. In reality, it has demanded an unrelenting commitment to the ongoing development of a world class industrial and business infrastructure in Ireland, in return for a transformation in the wealth of the economy and economic integration with the developed economies of Europe. In short, we have to ensure that the growth in infrastructural investment at least matches the growth in industrial development, if that development is to prove sustainable and long lasting."

The IDA has been actively promoting foreign investment in Ireland since the 1970s. In 1995 it won the award as the "European Investment Promotion Agency of the Year." In that year it captured 14% of all new foreign direct investment going into the European Union. Its efforts have been rewarded. At the end of 1998, it was the fastest growing country in the EU and had lower unemployment rate than the EU average (11%).

Over the period 1987-97, Ireland's GNP per capita has increased by 102%; its total debt to GDP ratio has dropped by 42% to 67%; and its unemployment rate has dropped from 17.6% to 11.4%. In 1999, these improvements have continued. The country's export portfolio has changed quite dramatically as a result of the successful promotion of FDI. In 1980, food/live animals/drinks/tobacco accounted for 36% of merchandise exports. By 1995, this figure had shrunk to 19%. Meanwhile, chemicals and pharmaceutical more than doubled from 8% to 17%, electronics/engineering doubled from 14% to 28% and software rose from 0% to 6%.

The IDA's specific objectives are to attract foreign investment in order to create jobs, improve skills, promote R&D, increase exports, participate in high growth and high technology industries, and to promote regional development. The principal tools used to attract foreign investment are a 10% tax rate and subsidies for job creation. The IDA makes a point of stating that "it is not our policy to fund companies that do not have a competitive future."

The IDA has 9 offices in Ireland, 6 in the United States, 5 in Asia Pacific (Australia, Hong Kong, Japan, Korea, and Taiwan), and 4 in Europe (Germany, the United Kingdom, the Netherlands and France). In 1998, of the 1140 companies participating in IDA programs, 40.8% came from the USA, 15.6% from the UK, 13.7% from Germany, 20.3% from the rest of Europe, and 4.8% from each of the Far East and the rest of the world.

From the mid-1970s to the late 1980s, the number of sustainable jobs (jobs which endure for seven years or more) created by IDA programs in Ireland rose from 46,000 to about 65,000, and increase of about 41%. But over the period 1988-1998, the number of sustainable jobs rose by an incredible 78%. The key factors in this change include: the development of the International Financial Centre in Dublin and government investment in related infrastructure, the low tax rate, the growing high level of computer literacy

among Irish graduates[152] and growth in the international services sector in tandem with the computer revolution.

By the end of 1998, the IDA had created 115,981 sustainable jobs[153] in 1,140 companies. These jobs cost an average of approximately US$17,500 per year, for a total of 1.3 billion in subsidies[154]. This total is approximately off-set by the income tax from the 115,981 people employed in these foreign companies.

The foreign investment has been largely channeled into three industries: electronics/engineering (59,401 jobs in 1998), international services (software, financial services, telemarketing and shared services (25,510 in 1998), and pharmaceuticals/ healthcare (17,422 jobs in 1998). Over the period 1991-1998, the IDA subsidised jobs grew fastest in the international services sector (259%), followed by electronics/engineering (53%), and pharmaceuticals/healthcare (28%). The core focus of Ireland's industrial strategy is on a small number of high-tech sectors: in the information and communications technology sector, namely, computer manufacturers, software, telecommunications, components, peripherals, internet, networking systems, data processing etc.

Over the same period, the number of sustainable IDA subsidised jobs shrank by 44% in the textile/clothing/footwear sector. This trend suggests that Ireland will experience its fastest job growth in the future in the software, financial services and telemarketing and information technology areas.

Beyond that, the Government of Ireland received 800 million is corporate tax. In addition, the companies source over US$3.1 billion of inputs annually from Irish companies. And there has been a huge impact on the range of Irish exports.

Another important feature of the IDA is its "Expert Group on Future Skills". This group of public and private sector experts has already assisted with three major programs: (1) a US$388 million Education Technology Fund (1997) for increasing the number and the skills of tertiary graduates with IT skills; (2) a US$62 million Schools IT program which is designed to ensure that all primary and secondary schools have internet access and to train teachers in basic IT skills by 2001; and (3) a remedial program to train the long term unemployed in IT skills.

The Irish option could be summarised as low taxes, job subsidies, an education system closely geared towards the evolution of the information technology revolution, strong promotional efforts by government, and specialisation in computer/telecommunications/IT/financial services related industries. It should be noted that the European Union plays a very important role in providing the funding for the IDA's subsidies. Thus, unless the Faroes wishes to join the EU, it should forget any grandiose dreams of using subsidies for attracting foreign investment. Otherwise, the Faroes can aspire to undertake and deliver on many of the features of the Irish Industrial Agency's development strategy, but on a much smaller scale.

By all accounts the Irish Option has been remarkably successful. Over the period 1992-1999, the average growth rate in real GNP has been 8.5%. Per capita income rose from US$9,000 in 1987 to about US$18,000 in 1997, an increase of 100%, or 10% per year.

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[152] Ireland now exports computer literate experts.
[153] A sustainable is a job which endures for at least seven years.
[154] Over the 15 years to 1998, the average cost of subsidies per job has dropped by over 50%.

The government's debt has fallen from 95% of GDP in 1987 to about 65% in 1997. Prices are stable, with inflation averaging about 2% in the 1990s. Finally, the current account in the balance of payments has been in surplus since 1991, indicating that after years as a capital importer, Ireland is now a capital exporting country.
Ireland now advertises itself as "software centre in Europe," "the call centre capital of Europe," and "a shared services centre.[155]" As a call centre, Ireland trumpets its:

- "sophisticated telecommunications – on of the most 'feature rich' networks in Europe;"
- "a highly skilled and flexible workforce with an extensive supply of business and language skills;"
- and a :low corporation tax."

Over 60 companies, including AOL Bertelsmann, Siemens, Lufthansa, Dell, Hertz, American Airlines and Compaq are using Ireland as the basis of their "pan-European call centres."

The Swedish Option

Sweden has had 500 of its companies taken over by foreign investors since 1993, while Swedish companies have taken over 750 companies overseas during the same period.[156] This growing openness by Sweden to foreign investment it perhaps best encapsulated by Dr. Peter Wallenberg, Honorary Chairman of the Board of Investor Corp:

"In our world of globalization and intensified competition, there are no longer national companies, only successful companies. And they must be international in nature and scope. The recent years' wave of acquisitions, strategic alliances, and mergers between equals constitutes an effort to improve competitiveness....I am convinced that the knowledge-based economy and competence driven world of investments today constitute new opportunities for Sweden and Swedish industry. In partnership with others, we will continue to play an important role in international business."[157]

Sweden has a four-tiered approach to advertising itself abroad as a country that welcomes foreign investment. First, it emphasizes that it has maintained economic stability, with low interest rates, low inflation, and a budget surplus, after having had Europe's largest budget deficit and a severe exchange crisis in 1993. Second, Sweden touts itself as a centre for the development of intellectual capital and technology because of:

- its past success in developing technological innovations,[158]
- its current success as an IT leader (cellular phone systems, circuit board production, datacom, data security, enterprise resource planning systems, process control systems, medical systems, internet/intranet web systems, educational services, CD-Rom production, on-line financial services, home computer penetration),
- its development of science parks,

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[155] The term includes financial management, information technology, sales and marketing, logistics and personnel administration.
[156] *Financial Times*, 26 March 1999.
[157] Invest in Sweden Agency, Invest in Sweden, Report 1999, www.isa.se p.13
[158] The propeller (J. Ericsson), dynamite (Nobel), continuous cream separation (Laval), the telephone switch (L.M.Ericsson), self-adjusting roller bearings (Wingquist), the safety match (Pasch), adjustable wrench (Johansson), Tetra Pak (Rausing), the respirator (Engstrom), the artificial kidney (Alwall), the pacemaker (Elmqvist), welding electrodes (Kjellberg), the zipper (Sundback) etc...

- its strong investment in education, and
- the fact that the private and public sector combined spend more on R&D than any other country (3.8% of GDP, in 1997)

Third, Sweden sells its geographic location in the heart of Northern Europe in order to encourage foreign companies to set up regional headquarters in Sweden. Foreign companies with such regional headquarters include: Hoechst, Mitsubishi, Nikon, Sumitomo, Reuters, AT&T, DHL, Eastman Kodak, IBM Motorola, Nike, Sun Microsystems etc

Fourth, Sweden sells itself as a deregulated society (especially with respect to exchange controls, financial services, telecommunications, transportation, and electricity) and low tax regime (corporate tax rates are 28%, the second lowest in Europe (excluding offshore financial centres and tax havens) after Switzerland[159] and Ireland at 10% and tied with Norway and Finland). With the use of a reserves' facility in times when companies have losses, Sweden's statutory is actually lower at 26%. In 1999, the government is planning to eliminate taxes on dividends distributions from an operating company remitted to a related company abroad. Currently, dividends from subsidiaries are taxed at 5%, while there is no tax on dividends from branches of foreign companies operating in Sweden. Regional development grants ("localization grants") for small and medium sized companies are available for up to 40% of the investment cost of buildings and machinery.

The Invest in Sweden Agency has full service offices in Stockholm, New York and Tokyo and representatives in Copenhagen, Helsinki, Paris, Dusseldorf, Oslo, London, Toronto, Hong Kong, Seoul, and Taipei.

b) Options for Promoting Foreign Investment and Protecting Faroese Interests

Recommendation No. 39:
Follow the example of Iceland and adopt the EU legislation on the treatment of foreign investment, with a few caveats to protect Faroese sensitivities in the fishing sector. This would send a positive signal to all foreign investors.

Recommendation No. 40:
Provide the same privileges to all foreign investors currently accorded to the Danes.

Recommendation No. 41:
Solicit joint ventures with the Icelandic fishing companies in both fishing and fish processing, keeping in mind the need to protect Faroese national interests.

Recommendation No. 42:
Approach the Icelandic Stock Exchange and the Scandinavian stock exchanges to ensure that all Faroese companies have the option of listing on the Icelandic Stock Exchange and the Scandinavian stock exchanges.

Recommendation No. 43:
Consider the use of "A" shares (voting shares) and "B" shares (non voting shares) in the privatisation of certain SOEs. This will permit foreign investors access to some key state owned assets, but leave control of the company in the hands of Faroese private

[159] A ten percent corporate tax rate applies to manufacturing and some services.

sector investors. This strategy should be used sparingly because it has the potential for deterring foreign investors.[160]

Recommendation No. 44:
For a small country on the periphery of Europe, low corporate taxes are a necessity, as are a high level of technical and language skills, and a strong emphasis on IT industries, and or financial services, privatisation, profitable companies and a strong emphasis on innovation.

3.7 Investment Impediment #6: Taxation

Tax burdens in developed countries are finally starting to level off and decline after decades of increases. The average tax burden across 18 OECD countries and the Faroe Islands has risen from 29.6% of GDP in 1970, to 34.9% in 1980, 38.7% in 1990 and 39.3% in 1994, as indicated in the **Table 17**. This represented an increase of almost 33% in 25 years. But by 1996, the total tax burden in these 17 countries had moved up very little over the level in 1994, indicating a major shift in political sentiment and voter expectations.

With the exception of the US and the UK, over the entire period, the general trend in the total tax burden relative to GDP has been up, although both Japan and Australia have kept their tax/GDP ratios at a moderate level for most of the period. In effect, up to 1996 all OECD countries have continued their climb up the tax mountain which, by and large, began around World War I. For most of the Twentieth Century developed countries have witnessed a steady climb up that mountain.

[160] This option has worked effectively in the privatisation of Air New Zealand. Roughly 40% of the shares are "B" shares and are held by foreign investors. The remaining 60% of the shares (the "A" shares) are for New Zealanders, but New Zealanders are also permitted to trade "B" shares. As a result, the "B" tend to trade at a premium to the "A" shares.

Table 17: Tax/GDP Ratios for OECD Countries: 1970-1996

Country	1970	1980	1990	1994	1996	% change 1996/1970
USA	27.4	26.9	26.7	27.6	28.3	4.0
Japan	20.0	25.4	31.3	27.8	28.4	42.0
Australia	24.2	28.4	30.8	29.9	31.1	28.5
Spain	16.9	24.1	34.4	35.8	33.7	99.4
Portugal	16.2	25.2	31.0	33.0	34.9	115.4
New Zealand	27.4	32.9	37.6	37.0	35.8	30.7
United Kingdom	36.9	35.3	36.4	34.1	36.0	-2.4
Iceland*	30.1	33.8	36.0	35.3	36.7	21.9
Canada	31.3	31.6	36.5	36.1	36.8	17.6
Faroe Islands	**19.2**	**26.7**	**36.5**	**39.9**	**37.4**	**96.8**
Germany	32.9	38.2	36.7	39.3	38.1	15.8
Italy	26.1	30.2	39.1	41.7	43.2	65.5
Netherlands	37.0	46.3	43.6	45.9	43.3	17.0
Austria	35.7	41.2	41.3	42.8	44.0	23.2
France	35.1	41.7	43.7	44.1	45.7	30.2
Belgium	35.7	44.4	44.8	46.6	46.0	28.9
Finland	**32.5**	**36.9**	**45.4**	**47.3**	**48.2**	**48.3**
Sweden	**39.8**	**48.8**	**55.6**	**51.0**	**52.0**	**30.7**
Denmark	**40.4**	**45.5**	**48.7**	**51.6**	**52.2**	**29.2**
Unweighted Avg	**29.6**	**34.9**	**38.7**	**39.3**	**39.6**	**33.7**

* More recent data for Iceland: 36.5% of GDP (1997); 36.9% (1998); and 36.5% (1999).
OECD, 1998, Revenue Statistics, Iceland, Faroe Islands.

Since 1994, as indicated in the **Table 17**, five countries have cut their total tax burdens relative to GDP: Spain, New Zealand, Germany, the Netherlands, Belgium and the Faroe Islands. And another 3 countries (Canada, Japan and the USA) have shown very little increase. The total tax burden for the Faroes, relative to GDP, rose over the 27-year period by 97%, behind only Spain and Portugal.

The academic debate on the issue of the value of lower taxes has heated up noticeably within the last ten years, in part because of the research of Gerald Scully at the University of Texas. Much of that debate is summarised in Patrick Caragata's 1998 book on *The Economic and Compliance Consequences of Taxation: A Report on the Health of the Tax System in New Zealand* published by Kluwer Academic Press in the Netherlands. There is growing evidence that a lower level of taxes relative to the size of the economy leads to less tax evasion, more employment, higher growth rates, less deadweight loss and greater wealth creation.[161]

[161] Alesina, A., and Perotti, R., 1994, "The Welfare State and Competitiveness", NBER Working Paper Series, No.4810, Cambridge, Ma: National Bureau of Economic Research; Branson, J.H., and Lovell, C.A.K., 1997, *A Growth Maximising Tax Burden and Tax Mix for New Zealand.* March, Working Paper No. 30, Working Papers on Monitoring the Health of the Tax System, Wellington: Inland Revenue; Caragata, P.J., and Giles, D.E.A., 1996, *Simulating the Relationship Between the Hidden Economy and the Tax Mix in New Zealand*, Working Paper No. 22, Working Papers on Monitoring the Health of the Tax System, Wellington, NZ: Inland Revenue, November; Caragata, P.J. and Small, J., 1996, *Tax Burden Effects on Output Growth in New Zealand: A Non-Linear Dynamic Model*, Working Paper No. 24, Working Papers on Monitoring the Health of the Tax System, Wellington, NZ: Inland Revenue, December; Caragata, P.J., and Small, J., 1996a, *The Tax Burden, The Tax Mix and Output Growth in New Zealand: A Tax Mix Model*, Working Paper No. 25, Working Papers on Monitoring the Health of the Tax System, Wellington, NZ: Inland Revenue, December; Clark, C., 1945, "Public Finance and Changes in the Value of Money",

Many countries have recognised the difficulty imposed by heavy tax burden. Support for lower taxes, especially lower corporate taxes to promote growth and investment, cuts across the political spectrum. This is particularly true for the Scandinavian countries where there appears to be the greatest sensitivity to the mobility of business capital, and a concern that if taxes are considered to be too high they become an impediments to attracting new investors and retaining existing ones.

We can see in **Table 18** that government in these countries represents 40% of GDP. It assumed that there are no budget deficits, and probably the real situation is more like 41-42% of GDP, given budget deficits of about 2% of GDP. How does this level of government ownership of the economy compare to the economies in transition in Eastern Europe that now have had about 6-9 years

Table 18: Economies in Transition: Government Share of GDP, 1998

Country	1998 %	Country	1998 %	Country	%	Country	1998 %
Albania	25	Czech Rep	25	Latvia	40	Tajikistan	70
Armenia	40	Estonia	30	Lithuania	30	Turkmenistn	75
Azerbaijan	55	Georgia	40	Moldova	55	Ukraine	45
Belarus	80	Hungary	20	Poland	45	Uzbekistan	55
Bulgaria	50	Kazakhstn	45	Russia	30		
Croatia	45	Kyrgyz Rp	40	Slovak Rep	25	Unweighted Average	44%

Source: European Bank for Reconstruction and Development, Transition Report, 1998, Table 2.1

Economic Journal, December, 371-389. Engen E.M., and Skinner, J., 1996, *Taxation and Economic Growth*, NBER Working Paper Series, No. 5826. Cambridge, Ma: National Bureau of Economic Research; Feldstein, M., 1996, "How Big Should Government Be?" NBER Working Paper Series, Working Paper 5868, December, Cambridge, MA: National Bureau of Economic Research; Feldstein, M. and Feenberg, D., 1995, *The Effect of Increased Tax Rates on Taxable Income and Economic Efficiency: A Preliminary Analysis of the 1993 Tax Rate Increases*, Working Paper 5370, National Bureau of Economic Research, Cambridge; Feldstein, M., 1976, "On the Theory of Tax Reform", *Journal of Public Economics*, vol. 6, pp. 77-104.; Giles, D.E.A., and Caragata, P.J., 1996, *The Learning Path of the Hidden Economy: Tax and Growth Effects in New Zealand*, Working Paper No. 21, Working Papers on Monitoring the Health of the Tax System, Wellington, NZ: Inland Revenue, August ; Grossman, P.J., 1987, "The Optimal Size of Government", *Public Choice*, vol. 56, 193-200; IMF, 1995, *Taxation and Unemployment*, Washington: Fiscal Affairs Department, International Monetary Fund; Leibfritz, W., Thornton, J., and Bibbee, A., 1997, *Taxation and Economic Performance*, Economics Department Working Papers No. 176. Paris: OECD; Lindbeck, A., 1986, "Limits to the Welfare State", *Challenge*, January-February, pp. 31-36; Lindbeck, A., 1995, "Hazardous Welfare-State Dynamics", *AES Papers and Proceedings*, v. 85, no. 2. pp. 9-15; Peden, E.A. and Bradley, M.D., 1989, "Government Size, Productivity, and Economic Growth: the Post-War Experience. *Public Choice*, vol. 61, pp. 229-245; Peden, E.A., 1991, "Productivity in the United States and its Relationship to Government Activity: An Analysis of 57 Years, 1929-1986." *Public Choice*, vol. 69, pp. 153-173; Scully, G.W., 1991, Tax Rates, Tax Revenues and Economic Growth, Policy Report No. 98, National Centre for Policy Analysis, Dallas; Scully, G.W., 1995, "The 'Growth Tax' in the United States", *Public Choice, vol. 85, pp.71-80;* Scully, G.W., 1996, *Taxation and Economic Growth in New Zealand*, Working Paper No. 14, Working Papers on Monitoring the Health of the Tax System, Wellington, NZ: Inland Revenue, March; Scully, G.W. 1996a, *The Growth-Maximising Tax Mix in New Zealand*, Working Paper No. 20, Working Papers on Monitoring the Health of the Tax System, Wellington, NZ: Inland Revenue, August; Scully, G.W. 1996b, *Taxation and Employment in New Zealand*, Working Paper No. 23, Working Papers on Monitoring the Health of the Tax System, Wellington, NZ: Inland Revenue, August; Scully, G.W., 1996c *Taxation and Employment in the United States*, Dallas, Texas: National Center for Policy Analysis, Policy Report, in draft; Scully, G.W., 1996e, "Taxation and Economic Growth in New Zealand", *Pacific Economic Review, vol. 1, no. 2pp. 169-77;* Spiro, P.S., 1996, "The Impact of Income Taxes on Job Creation", *Canadian Tax Journal*, v. 44, no. 3, pp. 1-27; Tanzi, V, and Schuknecht, L., 1997, "Reconsidering the Fiscal Role of Government: The International Perspective", *AEA Papers and Proceedings*, v. 87. No. 2, pp.164-168; Tanzi, V, and Schuknecht, L., 1995, "The Growth of Government and the reform of the State in Industrial Countries", IMF Working Paper 95/130, Washington DC: Fiscal Affairs Department, International Monetary Fund; Zee, H.H., 1997, "Taxation and Unemployment," *Tax Notes International*, Jan. 20, pp. 225-51.

of down-sizing government. According to the European Bank for Reconstruction and Development, about one-third of these countries (Albania, Russia, Czech Republic, Estonia, Hungary Lithuania and the Slovak Republic) now have a government sector that is smaller than 15 of these 17 OECD countries. The latter five countries are growing quite quickly, while the first two are continuing to have (largely political) problems.

The Trend to Lower Taxes

The movement for lower taxes has picked up further considerable momentum in the last three years (1997-99), as indicated below (**Table 19**):

- The conservative coalition government in **Australia** has proposed cutting corporate taxes from 36% to 30% over a two year period beginning in 2000. This will place strong pressure on New Zealand to do the same.
- The Conservative government of the province of Ontario in **Canada** has cut income taxes by 30% in the last few years. Currently, Ontario has "the most robust economy of any Canadian jurisdiction."[162] Canada has recently created a budget surplus after years of deficits. As a result, the Minister of Finance, Paul Martin, announced in September 1999 that "There is no doubt that we have to get taxes down. We're going to bring taxes down as quickly as we possibly can." Currently, 50% of the budget surplus goes to new spending and 50% to debt reduction and tax cuts.[163]
- At the end of the 1986-87 fiscal year, the government of **Iceland** shifted to a pay-as-you-earn (PAYE) income tax system. The transition required that income tax not be levied during a one-year period, presumably in order to create a level playing field. As a result, there was a boom is consumer spending during 1986-87, and then a sharp fall-off when the PAYE system kicked in.
- In 1990, **Iceland** cut its corporate tax rate from over 50% to 30%. Since 1996, the government has cut personal income tax by 8.8% from 42% to 38.3% (this personal tax rate includes about 11.5 percentage points of municipal tax). In early 1998, after Iceland cut personal taxes there was a very positive effect on increasing tax revenues because of the resulting economic stimulus. According to the Central Bank of Iceland: Tax "revenues rose by 11 percent in nominal terms over 1997 with the indirect tax yields rising somewhat faster than direct tax revenue, due to a cut in the general income tax rate at the beginning of 1998."[164] About 28% of tax revenue in Iceland comes from taxes on income and wealth and 62% from indirect taxes (largely from a 24.5% VAT). Thus, the tax mix in Iceland favours the use of indirect taxes, and thus encourages savings, reduces tax evasion and enhances growth.[165]
- Another example of the value of low corporate taxes is **Ireland**. Its corporate tax rate, currently at 10%, is a major factor in attracting foreign investment. Specifically, 20% of all US foreign investment of all US foreign investment is now located in Ireland, in part because of the attractive tax regime.[166] Ireland has guaranteed its investors that it will maintain a 12.5% tax rate until 2025, after 2005 when it raises the corporate tax rate to 12,5% from 10%.

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[162] "Premiers To List Demands on Ottawa", *Financial Times*, 10 August 1999, p. 5.
[163] "Plans to make Canada Land of Opportunity," Financial Times 29 September 1999.
[164] Central Bank of Iceland, 1999, *The Economy of Iceland*, May, p. 13
[165] Our models for the New Zealand economy report that this type of tax mix will be generally beneficial for promoting economic growth and reducing the size of the hidden economy, as compared to a tax mix favouring 62% direct and 28% indirect taxes. See Caragata, P.J., 1998, *The Economic and Compliance Consequences of Taxation: A Report on the Health of the Tax System in New Zealand*, Dordrecht, the Netherlands: Kluwer Academic Press.

[166] *Financial Times*, 18 May 1999; by agreement with the European Union, Ireland will raise that rate to 12.5% in 2003. This rate is still well below the corporate tax rates in other EU member countries.

- The Social Democrat-Green coalition government in **Germany** has proposed cutting the corporate tax rate (including local trading taxes) from more than 60% to 35% starting in 2001. Excluding local trading taxes, the corporate rate will fall to 25%. This is more in line with rates in Scandinavian countries.[167] These lower tax rates were a response to the threats by German companies to leave because the tax burden was too high.[168]
- In Great Britain, the Institute of Directors has specified a number of conditions before it would support the UK's participation in the Euro. One of those conditions is that the other members of the EU would, on average, have to drop their corporate tax/GDP ratios from 6 to 3 per cent.[169]
- The government of the Netherlands announced that it would be cutting payroll taxes by US$2.4 billion in 2001, as a result of its improved fiscal position. The country is now running a fiscal surplus, the first time in a generation.[170]
- The Social Democratic government of **Sweden** is expected to cut taxes between 0.5 and 0.8 percent of GDP in 2000 as a result of strong economic growth in 1999.[171] There is growing concern in Sweden that the country is losing high skilled technical professionals (e.g. software specialists) because the personal income tax, at 54.5% is too high. Support for the tax cuts was secured in early September 1999 from the left wing and green partners of the Social Democrats in the government. Most economists in Sweden support the tax cuts because Sweden ties Denmark for having the highest tax burden among the OECD countries. But, Peter Lindqvist, the chief Nordic economist with Hong Kong Shanghai Bank (HSBC) in Stockholm said that simply cutting taxes is not enough: "Tax cuts should have been countered by cutting spending or structural reforms to ensure more participation in the labour market. If this is not done, we will see interest rates rise sharply next year."[172] A series of tax cuts is expected in future years, affecting both personal and corporate taxes.[173]

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[167] "Bonn Cuts $4.2bn Off Business Taxes," *Financial Times*, 24 June 1999, p. 1-2.
[168] "Europe's New Frontier", *Financial Times*, 16 April 1999, p. 13
[169] *Financial Times*, 17 August 1999
[170] *Financial Times*, 25 September 1999, p.2
[171] "Sweden Shows Strong Growth", *Financial Times*, 10 August 1999, p. 2
[172] "Sweden's Small Parties Will Support Budget," *Financial Times*, 8 September 1999, p. 3.
[173] "Sweden Unveils Big Income Tax Cuts," Financial Times 21 September 1999, p. 2

Table 19: Countries Currently Reducing Or Planning To Reduce Tax

Country	Tax Type	Amount
Australia	Corporate Tax Rate	Plan to cut rate from 36% to 30% in 2000 & 2001.
France	Payroll taxes	The government is eliminating payroll taxes for all employees whose wages are 1.3 times higher than the minimum wage. It is also expected to eliminate VAT on home repairs.
Iceland	Personal Tax Rate	The personal tax rate was cut in early 1998.
Ireland	Corporate Tax	Ireland now guarantees a 10% rate of corporate tax to the year 2005 for financial services and 2010 for other qualifying businesses and after that a 12.5% rate guaranteed to the year 2025 for all manufacturing and traded services.[174]
Germany	Corporate Tax Rate	Cutting the rate from 50% to 25% in 2001
Hong Kong	General	Honk Kong cut taxes by US$13 billion in 1998 in order to stimulate its economy.
Italy	General level of taxes	Bank of Italy warned the goverment that the current level of taxes was likely "to distort economic choices significantly in the long run and hinder efforts to bring the hidden economy into the open."[175]
Japan	Personal and corporate income taxes	The proposal for a US$80 billion cut in personal and corporate taxes was announced by the Liberal Democratic Party in hopes of stimulating the faltering Japanese economy.
Ontario, Canada	Personal Income Tax	30% cut in the last few years
Federal Government in Canada	Total Tax Burden	Ottawa will be cutting taxes in the future now that it is running budget surpluses.
New Zealand	Personal Income Tax	The National Party, currently in power, has proposed $400 million in tax cuts, to be implemented if it wins the 1999 election. The Labour Party has said it will cut corporate taxes when Australia does.
Netherlands	Payroll Tax	US$2.4 billion in tax cuts in 2001
Puerto Rico	Corporate Tax Rate	In 1998, in order to promote further external investment and increase economic growth, Puerto Rico reduced the corporate tax rate from 14.5% to 7%; the rate can go as low depending on the number of jobs created by any new investment and the type of investment made.
Sweden	Personal Income Tax	The personal income tax will be cut by 0.5-0.8% of GDP; Sweden is also preparing to introduce a 25% tax rate for foreign personnel working in Sweden for short periods.[176]
USA	Personal Income Tax	Big cuts being proposed by the Republicans, smaller cuts by the Democrats

- A few years ago **Sweden** cut corporate taxes from a statutory rate of over 40% to 28% in order to stimulate the economy and encourage Swedish companies to remain at home. But companies such as Ericcson and Astra have also been complaining about the high taxes on personal income and have started to move functions (R&D) or headquarters outside the country (e.g. to the US and the UK, where taxes on

[174] Irish Development Agency, 1996, IDA Ireland Annual Report for 1996, p. 5-6
[175] *Financial Times*, 5 March 1998.
[176] Since the residency requirement that entails an obligation to pay local tax is usually about 180 days (by tax treaty), this innovation is likely to be applicable for overseas executives coming to Sweden for several years. If this is not the case, the gesture is meaningless.

personal income are lower).[177] **Finland** cut its corporate tax rate to 28% at about the same time.

- The Republican Party in the **United States**, which has a better than even chance of winning the US Presidency next year with George Bush Jr., has called for tax cuts in the US totaling US$792 billion over ten years; the Democrats counter-proposal is $300[178] billion over the same period. In 1999, 20 of 50 states in the United States have cut taxes.[179]

Another approach to the search for an optimal level of taxation is to examine the average effective tax rate that a multinational enterprise (MNE) pays on its global operations. This approach takes into consideration strong use of transfer pricing and thin capitalisation by these MNEs, which involve the shifting of profits from high to low tax jurisdictions and costs from low tax to high tax jurisdictions. An example of this approach is Eli Lilley, the American pharmaceutical company. Its average global tax rate in 1999 was just over 20% on earnings before tax, while a less tax efficient Japanese pharmaceutical company pays about 50%.[180] This suggests that companies are prepared to engage in considerable transaction costs to reduce their effective tax burdens to around 20%.

Recent Faroe Islands Tax Changes

In the early 1990s, the Faroes' government reduced the corporate tax rate from 49% to 22%. At the time, the corporate tax rates in the other Scandinavian countries were close to 50%. Thus, as a member of the Scandinavian tax treaty network, the Faroes' new ***corporate income tax*** (CIT) rate would have been viewed by its tax treaty partners in Scandinavia as designed to exploit their tax space. As a result of some discussions, The Faroes decided to reduce the CIT to 27%, rather than 22%. In the interim all the Scandinavian countries lowered their own CITs from above 45% to between 27% and 30%. Thus, if the Faroes were to lower the corporate tax rate to 20%, there would likely be little reaction among the Scandinavian countries.

In 1993, municipal taxes were raised from 18.2% to 20.4% of income. This 12 percentage point increase in the tax rate raised tax revenues to the municipalities by 15%

Summary of the Optimal Size Fiscal State in the Faroe Islands (see Appendix B)

The small, open economy of the Faroe Islands is very heavily dependent upon fishing and its allied industries, and with Danish subsidies, has a level of government expenditure as a share of GDP comparable to most Nordic welfare states.

The major structural change in the Faroese economy over the period is due to the growth of government. Public services were 9.0 percent of GDP in 1962 and 28.0 percent in 1997. This trend is due to the rapid growth of taxation and Danish expenditures on the Faroese public sector. In 1962, total taxes were 18.8 percent of GDP at market prices. Adding Danish transfers brings the size of the fiscal sector to

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[177] "Astra May Shift More Research Overseas," *Financial Times*, 23 March 1998; "Ericcson May Move HQ to Escape Swedish Taxes," *Financial Times*, 18 March 1998.
[178] "Republicans Seek Unity on Tax Cuts", *Financial Times*, 5 August 1999, p. 1; 3.
[179] *Financial Times*, 24 August 1999, p. 1.
[180] "Taxing in the Extreme", *Financial Times*, 2 August 1999, p.13.

29.4 percent of GDP. In 1997, total taxes were 45.8 percent of GDP. With Danish expenditures and grants, the government sector constituted 68.1 percent of GDP. Thus, the relative size of the fiscal state in the Faroe Islands in 1997 is 2.3 times its size in 1962.

Over the period 1963-1997, the real economic growth of GDP (at market prices) has averaged 3.61 percent per annum. This growth rate is neither exceptionally good, nor is it exceptionally bad. Economic growth averaged nearly 4.0 percent per year during 1963-69, and was 5.2 percent in 1970-79. Economic growth returned to an average rate of 4.0 percent during the 1980s, but fell drastically during 1990-97, due mainly to the collapse of fishing.

As a preliminary empirical investigation, the relationship between the rate of real economic growth and the growth rate in the average level of taxation is examined. A simple regression of the rate of economic growth (g_Y) on the rate of growth of taxes as a share of GDP (g_τ) yielded the equation $g_Y = 5.7 - .34g_\tau$. The empirical result, which is statistically significant (a simple correlation of 0.41), indicates that if the growth rate of taxation is zero (a constant level of taxation as a share of GDP through time), the long-term growth rate of the Faroese economy is 5.7 percent per annum. Each one percentage point increase in the growth rate of average taxes lowers the economic growth rate by about a third of a percentage point

Some goods and services provided by government raise the productivity of inputs in the private sector. By acting as a negative externality on the private sector, taxes reduce economic growth. Increased taxation, by increasing the distortion in the allocation of resources, discourages economic growth. Thus, up to some fiscal size of government, the positive externalities of expenditures exceed the negative externalities of taxation, and national output and economic growth will be higher as the size of government expands. Beyond some fiscal size of government, the negative externalities of taxation are greater than the positive externalities of expenditures, and economic growth will be lower as government size increases.

The basic model, that links the growth rate to the tax rate, and finds the level of taxation that maximizes the growth rate, was estimated for the period 1963-97. On the basis of the estimation, the optimal tax rate for the Faroe Islands is 31.5 percent. At this tax rate, the growth rate of GDP is maximized at a real rate of 6.2 percent per annum, versus its historical average of 3.6 percent.

As an alternative, the optimal tax rate for the Faroe Islands can be estimated for an earlier period in her economic history. Examination of the series on taxes as a share of GDP reveals that 1975 was the first year in which it broke the 30 percent barrier. By dropping the period 1975-97 we will omit the higher tax-regime period. The estimate of the optimal tax rate for the period 1963-74 is 19 percent. This optimal tax rate is much closer to results that have been obtained for the United States, New Zealand, and other countries.

There is yet another way of estimating the optimal tax rate, which is useful in its own right, and will serve as a cross-check on the above estimates. A theory which is gaining growing support[181] says that over some range of tax rates there is a positive relationship

[181] Scully, G.W., 1995, "The 'Growth Tax' in the United States", *Public Choice, vol. 85, pp.71-80;* Scully, G.W., 1996, "Taxation and Economic Growth in New Zealand", *Pacific Economic Review, vol. 1, no. 2pp. 169-77;* Spiro, P.S., 1996, "The Impact of Income Taxes on Job Creation", *Canadian Tax Journal*, v. 44, no. 3, pp. 1-27;

between the growth rate and the level of taxation, but that beyond that range there is a negative relationship. Define these two ranges as $\tau < \tau_{(crit)}$ and $\tau > \tau_{(crit)}$, where $\tau_{(crit)}$ is the cut off point for the tax rate. Let $1 + g = a\tau^b$. Two regressions are estimated for each critical value of the tax rate.

These equations are solved simultaneously for τ^*, and $1 + g$ obtained. A search over the critical values of the tax rate found that b was positive if and only if the tax rate was less than or equal to 23 percent of GDP. Solving the two equations in the footnote simultaneously for τ^* yields an optimal tax rate of 19.5 percent. At this tax rate the long-run growth rate of the economy is 5.6 percent per annum, a result not inconsistent with the prior results describe above.

In conclusion, given the lack of data for the Faroe Islands before 1962, the optimal tax rate is in the range of 20 to 30 percent of GDP. The lower rate is consistent with Iceland and with Faroese data confined to the earlier period of her economic history. The latter rate should be treated as the upper bound on the growth-maximizing tax rate.

We can estimate the static and the dynamic output loss from sub-optimal taxation. The conservative estimate of the optimal tax rate is 0.30. At that tax rate, the economy grows at 6.2 percent per annum, versus its historical rate of 3.6 percent with its existing mean tax rate percent. The static or one year cost is 0.074 percentage points of GDP for each one percentage point increase in the tax rate.[182] Multiplied by the mean tax rate, this leads to static loss of 2.6 percent of real GDP. Evaluated at the nominal GDP (at market prices) in 1997, the one-year loss is 147.4 million kroner.

For the dynamic output loss, the evaluation is made by comparing the growth rate under the optimal tax rate with that at the mean. After ten years, the dynamic cost of taxation is 0.85 kroner per percentage point of the tax rate. Thus, if ten years is the time horizon, then in a benefit cost analysis of government expenditure 1.85 kroner of cost (one kroner of tax plus 0.85 kroner of output never produced) is the appropriate basis with which the present discounted benefits should be compared.

Naturally, since the average real growth rate is 2.6 percentage points lower than the growth rate under the optimal tax rate, the dynamic loss of output will grow through time. The cost at say 20 years is 1.96 kroner. Thus, if the time horizon is 20 years, one kroner of tax plus 1.52 kroner of output loss for a total of 2.96 kroner ought to be the cost basis for any benefit cost analysis of government expenditure. Thus, in public projects with a twenty-year horizon, with existing levels of taxation, the cost basis should not be one kroner, but about three kroner.

The policy implication of this study is that the current level of taxation imposes an excessive burden on the economy. Central and municipal government taxes were 45.8 percent of GDP in 1997. This level of taxation is counterproductive because, in addition to the direct burden of taxation, which removes resources from the private sector, it imposes additional costs of lost income and output. Estimates suggest that every additional kroner of tax revenue costs the economy significantly more than one kroner. Substantial deadweight losses are evident.

The implication of the excess burden of taxation is that any additional public spending should take place if and only if the benefits exceed the full costs of the taxes necessary

[182] If the tax burden is raised by one percentage point of GDP, the loss of economic output would be 0.074% of GDP.

to pay for it, including the deadweight costs of these taxes. It also suggests that tax reduction would reduce some of these excessive costs.[183]

The deadweight costs of the excessive tax burden in the Faroe Islands have important negative consequences for long-term economic growth. This is one of the reasons that tax reduction will improve long-term macroeconomic performance of the economy. If the Faroe Islands is to move from a modest growth path of 3.4 percent per annum to a high growth path of about 6 percent per annum, the level of taxation will have to be halved to about 23% of GDP.

Changing marginal tax rates, for income taxes and for company taxes, impacts a number of relative prices that affect behavioral choice, resource allocation, and real economic activity. Tax-induced relative price changes affect choice between work and leisure, current and future consumption (consumption and saving), and market and non-market activity (taxable and non-taxable activities). Similarly, qualities that are difficult to measure, but that have profound consequences to economic growth, such as ambition, motivation, intensity of work effort, innovation, managerial skills, and entrepreneurial activity, are also affected by tax rate changes. Thus, changes in marginal tax rates affect the supply of factors of production such as labor, capital, innovation, and entrepreneurship, which in turn affect productive capacity, aggregate supply, and long-term economic growth.

Tax cuts will help constrain the growth of government spending, thereby limiting the size of the fiscal state and encouraging economic growth. Government spending and the taxes necessary to pay for it is the public sector burden imposed on the economy. Any policy that limits the size of government not only minimizes the financial burden, but frees up resources that are more productively employed in the private sector, thereby enabling the economy to grow more rapidly than would otherwise be the case.

Tax cuts help limit government spending in a number of ways. Government has an incentive to spend every kroner of tax revenue, and then some. Even in a case where a budget surplus is achieved, there is political pressure to spend the accumulated revenues, rather than return it to the citizens as tax cuts. By constraining tax revenue, the key source of spending is constrained. Moreover, special interests have a strong appetite for additional public spending, and tax cuts serve to undermine the influence of special interests.

Without such tax cuts, the special interests will exert political pressure for more public spending. Thus tax cuts can help muster citizen support to restrain public spending. Finally, by bolstering economic growth such tax cuts lessen the need for certain types of government spending (unemployment benefits, income support programs, and other transfer payments).

With domestic taxation and Danish spending in the Faroe Islands at about 70 percent of GDP, the Faroe Islands, like their Nordic neighbors, is a universal welfare state, where benefits are distributed largely without regard to the economic circumstances of the individual recipient. To shrink the size of the public sector (from roughly half of GDP,

[183] This result could be simulated with the GE Model if the full efficiency gains (productive, allocative and dynamic) associated with a much smaller size of government were to be incorporated in the model. Once a more efficient level of performance is achieved and per capita incomes rise, some overseas Faroese will return and immigration will increase.

or 70 percent, counting Danish spending) welfare benefits should be curtailed by constraining their scope and size and by means-testing most of them.

For those non-transfer income government services some priority should given to fee for service (as in Iceland) and privatization of SOEs. What is proposed here, in general, is that the welfare state be considered as a safety net, not an alternative life style. We propose that government commission a study of the Icelandic welfare state. Iceland is a welfare state that costs about half of the other Nordic welfare states. Such a study may focus public debate on shrinking the size of the public sector in the Faroe Islands without abandoning the truly needy.

Tax Policy Recommendations

At 27%, the Faroes' corporate tax rate is not sufficiently low to attract companies from Europe to the Faroes. A much lower rate would be required to make the Faroes' tax attractiveness stand out.

Recommendation No. 45:
The first priority in developing an improved tax policy is to cut taxes. Over the next ten years the government should aim to reduce the total tax burden from 45.8% of GDP in 1997 to at least 30% of GDP.

Recommendation No. 46:
With respect to individual tax rates, the first priority is to reduce the statutory corporate tax rate to 20% preferably effective 1 January 2000. Thereafter, reduce the statutory corporate tax rate to 12.5% as soon as it is fiscally and politically expedient.

Recommendation No. 47:
Personal taxes should gradually be lowered. The best way to initiate personal tax cuts is to offer deductions for those that invest their money in Faroe shares directly or indirectly through mutual funds. The precise magnitude of the cuts and timing of the cuts would have to be modeled extensively. Our analysis using the General Equilibrium Model shows that an average tax rate of 20% on personal income is certainly viable.

Recommendation No. 48:
Strong consideration should be given to setting up an offshore companies tax regime (where buys and sellers are outside of the Faroes) similar to Iceland's new international trading company regime. The tax rate is 5%.

4. Recommendations to Meet the Objectives of the New Faroe Islands Industrial Policy

The objective of this Report is: to lay the policy foundations, according to the stated business policy of the Ministry of Trade and Industry, for creating an optimal fiscal and legislative framework that promotes an economic and commercial environment amenable to raising local investment funds and attracting foreign investment, and capable of generating income, wealth and tax revenue for the Faroe Islands sufficient to fill the fiscal gap likely to be caused by any reduction of Danish financial assistance.

The strategy in this report has involved a four-pronged approach. First, we put a mirror up to the Faroes to summarise the obstacles facing the country in its effort to prepare for the inevitable reduction and elimination of the Danish subsidies. Second, we provided a window on the world so that the Faroes could examine what the rest of the world was doing to make their governments and their economies more efficient and wealthier. Third, we developed models to simulate the optimal size of government and the optimal level of tax for the Faroes.

Fourth, we developed an input-output table integrating all industries and then developed a general equilibrium model to simulate the shocks and potential responses for the economy as the subsidy is withdrawn. Simultaneously, we examined the potential implications of the development of offshore oil for the Faroese economy.

It is now up to the Faroese people to choose from among a range of alternatives that we have provided, and to choose the timing of those policy options for meeting the serious challenges that are waiting in the next decade.

What are the major lessons to be learned from the failure to heed the early warning signs leading up to the Great Economic Crisis? The principal problem was that government and the public servants of the day were not exercising good governance and an appropriate level of responsibility. What is better appreciated now is that government:

- spending must be kept under tight control;
- should minimise or end the use of loan guarantees and subsidies to industry;
- should restrain debt levels to the long run trend;
- improve the quality of statistics and information for monitoring the economy and cost benefit analysis for policy decisions;
- reduce the regulatory barriers that undermine the potential for diversifying the economy;
- and, should have a sustainable fishing policy.

The looming loss of the Danish subsidies provides a timely reminder to the people of the Faroe Islands that their forefathers were pioneers not welfare recipients.

It is the policy of the Faroe Islands government to a create legal and fiscal framework to enable Faroe industries and businesses to develop, to follow international trends, to make them more innovative and acquire up-to-date skills through diverse communications, with appropriate concern for Faroe national interests.

The following recommendations cover the nine principal areas of concern in industrial policy in the Ministry of Industry and Trade's 1999 Industrial Policy paper:

(1) Improved international market cooperation
(2) Improved communication with the outside world
(3) Enhancement of science and technical qualifications
(4) Reliable infrastructure
(5) Convenient equity financing
(6) Improved tax policy
(7) Cautious law-making
(8) A high level of public service; and
(9) Simple, non-subsidised industry development schemes

1. Improved international market cooperation

If the Faroes are to achieve their full long term economic potential, they will need to develop a series of links with foreign suppliers of markets, capital, information and technology. The best conduit for this package of values is a foreign investor or a joint venture or strategic alliance between a Faroese investor and a foreign investor. The principal means by which the Faroese people can promote their future wealth are:

(1) **diversify** the economy; **Tier One Priorities:** These priorities would be based on the industries in which the Faroese have a competitive advantage in terms of knowledge and skills. This would include market-led (not government-led) development of food supplies and equipment for the aquaculture industry; biotechnology such as the development of faster growing fish for aquaculture, or fish that need less food input per kilogram of weight; shipbuilding and ship repairs; and educational support for the development of information technology related industries. **Tier Two Priorities:** These would be short to medium term prospects that may not have long term sustainability); This would include the development of telephone call centers for the Danish market, or for other Scandinavian markets depending on the linguistic abilities of the Faroese. **Tier Three Priorities:** These would be longer term but presently uncertain opportunities such as ancillary services for the oil industry in the event that oil is discovered in commercial quantities.

(2) increase the level of national **savings** by reducing the level of government **debt**

(3) increase efficiency in government with a two-pronged approach: (a) reduce the costs in government administration and eliminate subsidies. (This will require a TAP Program: Transparency, Accountability and Performance measurement; and a Fiscal Responsibility Act); and (b) reduce costs in government services such as electricity: Electricity prices in the Faroes are very high by international standards and are an important factor in making the Faroes less competitive in international markets and less attractive for investors, both domestic and foreign. This will involve corporatisation and privatisation, or a combination of both, ie marketization.

(4) ensure the development of an efficient Capital Market (especially through the establishment of efficient markets for debt and equity) and through the promotion of a strong entrepreneurial culture.

(5) ensure there is a supply of good quality companies by corporatising and privatising state owned enterprises

(6) reduce the barriers to domestic and foreign investment in the Faroes; the six major impediments to investment in the Faroes are:

#1: inadequate formal control over government expenditures
#2: minimal diversification of the economy
#3: absence of a formal capital market
#4: inadequate supply of good quality companies
#5: restrictions on foreign investment and the current lack of interest by foreign investors
#6: an excessive tax burden

(7) develop an effective foreign investment promotion service, using a combination of activities and legislation found in the following four options: The Cyprus Option; The Irish Option; The Icelandic Option; and The Swedish Option

(8) reduce the level of taxation, starting with corporate taxes.

In summary, the development of the future wealth through international cooperation can best be achieved through diversification of the economy, increasing savings, reducing public debt, eliminating subsidies, increase efficiency in government, developing an efficient Capital Market, corporatising and privatising state owned enterprises, reducing barriers to domestic and foreign investment, developing an effective foreign investment promotion service, and reducing the level of taxation.

2. Improved Communication with the Outside World

- continue the deregulation and privatisation of Telecom
- promote the acquisition of at least 40% of Telecom by an advanced and progressive foreign telecommunications company; pass appropriate legislation to ensure that the Insurance company can invest in blue chip utilities or low risk investments such as Telecom and the Electricity Company. Thirty percent of Telecom equity could be subscribed to by the Insurance company. Another thirty percent could be made available to the Faroese investing public, and 40% should be made available to a single foreign investor. This will help to ensure that capital upgrading needed to ensure sustainable growth is in place.
- turn the Faroes into an international IT service centre
- develop a website for international investment promotion of the same quality as the Industrial Development Authority in Ireland.

3. Enhancement of Science and Technical Qualifications

- develop special scholarships for overseas education and upgrading of technical and scientific training at all levels of education in the Faroes see the section on "IT" (following the example of Ireland).

4. Reliable Infrastructure

- as fiscal pressures abate, build more tunnels or bridges to link the main population centres, thereby alleviating pressures for regional economic development assistance.
- a cost benefit analysis should be undertaken to determine if a new airport should be built in preparation for oil development; the Vagar airport should not be sold until it is clear whether a new airport is sustainable. If a new airport is to be built, it should probably be built with at least some private sector money.
- the ultimate objective should be to privatise the bus transport/ferries, parts (generation and distribution, wholesale and retail, but not the network) of the electricity industry

5. Convenient Equity Financing

There is a need to strengthen both the supply side of the market (the companies which might list on the market) and the demand side (the various means by which savings can be channeled into the equity market, including mutual funds and pension funds).

There are twelve pillars for establishing a robust capital market in the Faroes:

1. Review the legislation created by Iceland to promote the development of a stock exchange, bond and bills markets, mutual funds, the role of banks, brokers etc and appropriate responsibilities: Central Bank of Iceland Act (1986); Icelandic Securities Exchange Act (1993); Act on U.C.I.T.S. (Open-ended Mutual Funds) (1993); Commercial Banks and Savings Banks Act (1993); Securities Transactions Act (1996); Electronic Registration of Title to Securities Act (1997), Securities Exchanges and Regulated Securities Markets Act (1998);

2. Provide for internet trading, using a European Union legislation model.

3. Electronic model for trading (based on a Danish commercial software package)

4. Promote the supply of good quality companies through privatisation: A generic piece of legislation should be developed covering the privatisation of the State Owned Enterprises and the Development of a Capital Market in the Faroe Islands (The State Owned Enterprise and Capital Market Development Act). The Faroes should study the Icelandic privatisation program, as well as those of other countries. The general privatisation program of the Icelandic government has five main objectives: (1) increase savings; (2) increase economic efficiency; (3) widen share ownership and continue to encourage development of the Icelandic stock market; (4) raise capital in order to decrease Treasury debt; (5) finance specific transportation projects and to support the growth of information technology. The companies which are ready, or almost ready to be listed on a stock market, or which could be ready within a few years include: Atlantic Airways; Telecom (Telefonverk Føroya Løgtings); Føroya Banki; United Seafood; Faroe Seafood; JFK TROL (fishing); and Business services to the health system and other government departments such as laundry, catering and cleaning

5. Encourage potential candidates to list on the market e.g. the Savings Bank (Føroya Sparikassi).

6. Promote the development of pension funds that could invest in the Faroes stock exchange

7. An adjustment of the tax system to promote investment in shares (see Icelandic example).

8. Reduce restrictions on foreign investment, including (1) follow the example of Iceland and adopt the EU legislation on the treatment of foreign investment, with a few caveats to protect Faroese sensitivities in the fishing sector.. This would send a positive signal to all foreign investors; (2) provide the same privileges to all foreign investors currently accorded to the Danes; (3) solicit joint ventures with the Icelandic fishing companies in both fishing and fish processing, keeping in mind the need to protect Faroese national interests; (4) approach the Icelandic Stock Exchange and the Scandinavian stock exchanges to ensure that all Faroese companies have the option of listing on the Icelandic Stock Exchange and the Scandinavian stock exchanges. (5) Consider the use of "A" shares (voting shares) and "B" shares (non voting shares) in the privatisation of certain SOEs. This will permit foreign investors access to some key state owned assets, but leave control of the company in the hands of Faroese private sector investors. This strategy should be used sparingly because it has the potential for deterring foreign investors.

9. Promote education of the public about the key issues related to the development of a capital market.

10. Create a Faroe Islands Heritage Fund that will take future oil royalty and tax revenue from oil and invest it offshore and on-shore. Since the development of oil revenue is about a decade away, the initial development of the Heritage Fund could be based on some of the revenue from the privatisation of State Owned Enterprises. This Fund could be used to develop a venture capital fund that can be used to promote coaching, training and some seed capital for potential entrepreneurs

11. Link the Faroese Stock Exchange with the Icelandic Stock exchange, and thereafter with the other Nordic exchanges.

12. Develop legislation to promote profit sharing plans for employees and ultimately, stock option plans, when the timing is right.

6. Improved Tax Policy

- The first priority in developing an improved tax policy is to cut taxes. Over the next ten years the government should aim to reduce the total tax burden from 45.8% of GDP in 1997 at least down to 30% of GDP.

- But caution is needed in order to avoid putting the government budget into deficit. The best area to commence tax cuts is corporate taxes. The objective should be to reduce the statutory corporate tax burden to about 20% of GDP by 2001. Thereafter, the statutory rate should be lowered to 15% or 12.5%, whichever is feasible in terms of avoiding a budget deficit.

- Personal taxes should gradually be lowered over the same period. The best way to initiate personal tax cuts is to offer deductions for those that invest their money in

Faroe shares directly or indirectly through mutual funds. The precise magnitude of the cuts would have to be modeled.

7. Cautious Law-Making

Cautious law-making requires good quality information and careful planning.

Data Quality:

- Improve the financial resources available to the Department of Statistics so that is can hire the expertise needed to develop better quality information for the country. Without good quality information, good decisions cannot be made. The specific areas that need attention are: (1) the CPI basket of prices and weights; (2) the development of a GDP deflator; (3) integrated and consistent national accounts; and (4) industry financial performance and financial position data.

Early Warning System for Policy Analysis:

- The Faroe Islands government needs to improve the quality of its risk management standards. This involves the need to develop certain key annual reports to Cabinet, and the improvement in cost benefit analysis reporting standards for the key risks facing the economy, namely (1) the restructuring of the fishing industry and the fate of fishing stocks and prices, (2) the potential loss of the Danish subsidy, (3) the decision to retain the existing currency arrangement with the Danish kroner or move to the Euro, (4) the decision to join or not join the European Union, (5) the constraints facing the development of a capital market, and (6) progress in the privatisation of State Owned Enterprises (SOEs).

8. A High Level of Public Service

- A key priority is to reduce the gross public sector debt. In 1997 it was roughly 5 billion kroner higher than it was before the Great Economic Crisis. By 1999, it is estimated that the gross public sector was 3.5 billion kroner higher than in 1987. As a result, the government is now paying about 350 million kroner per year more in interest payments than before the crisis. This is a serious problem because it is preventing the government from offering better quality services in key areas such as education, and it also is an impediment to lowering all taxes, especially personal income tax.

- A reduction in or elimination of the use of subsidies will mean less wasteful expenditures and thus more savings for use on improving the quality of spending in key areas.

- A lower level of government spending will promote faster economic growth, more careful government planning and greater cost efficiency.

- Provide the Ministry of Finance with the power to vet (at the beginning of the budget year) and review (at the end of the budget year) all revenues, expenditures, assets and liabilities for each government department, agency and commercial enterprise. An alternative is to set up an Auditor General's Office with a similar function. Another alternative is to require the Ministry of **Finance** to vet the expenditure proposals of each government department, agency and commercial enterprise, while the Auditor General's Office would review the expenditure

performance and asset and liability status of each government entity at the end of each year.

- Require all government entities to set up a TAP program: **Transparency, Accountability and Performance Measurement**. The TAP program will be the basis for external review of performance with respect to revenue, expenditures, assets and liabilities.

- Create a Fiscal Responsibility Act similar to New Zealand.

Integrity in Government

- The privatisation process should be managed by a privatisation commission and not by Cabinet in order to avoid accusations that politicians are favouring any friends.

- The government should adopt an *Ethics in Public Office Act,* similar to that in Ireland, in order to ensure that public servants and politicians sign an ethical conduct pledge and declare all of their interests so that they are not benefiting personally at **taxpayers'** expense or **at** the expense of **investors**.

9. Industry Development

a) Fishing Industry Restructuring

Restructuring of the fishing industry can be facilitated by lower taxes, vertical integration, takeovers and mergers, tradable fishing days/quota, encouraging joint ventures with Icelandic companies, promoting the development of shareholder wealth, profit-sharing with employees and shareholding by employees.

- ***Taxes*:** Lower the corporate tax and the tax on personal income so that the fishing unions are encouraged to place less pressure on the profit margins of the fishing and fish processing companies.

- ***Vertical Integration:*** Encourage vertical integration between fish processing companies and fishing companies. This will ensure a more stable supply of fish stocks for the processors.

- ***Promote efficiency and cost savings through consolidation*** in the demersal fishing industry, perhaps by encouraging takeovers and co-operatives. This option could get around the problem arising from political pressure in individual villages to retain village specific licenses.

- The entire fishing industry would benefit from the introduction of Economic Value Added (EVA) measurement with respect to adding value for shareholders. Processing plants and fishing vessels need to be treated as profit centers. Information on company financial and efficiency performance needs to be provided on a regular basis. Quality control needs to be strengthened. Marketing could be strengthened; for example, more effort should be made to sell processed fish directly to overseas restaurants in order to increase margins.

- Plant and equipment needs to be upgraded in ***fish processing*** companies and the total number of employees in the industry needs to be reduced. As the industry becomes more successful, it may offer more jobs to the market in the long term. The

key priority for the immediate future is to rationalize and restructure the industry in order to make it more profitable so that more wealth can be created for the Faroese economy.

- Gradually make ***fishing management*** in the Faroes similar to that in Iceland and facilitate the creation of joint ventures between Faroese fishing and processing companies and similar Icelandic companies. This will help to promote greater long run efficiency in the Faroese fishing industry. There is a need to fix the number of licenses/catch volumes. Once the fishing industry has become more profitable, a resource royalty should be introduced to capture the resource rent that will be more readily found in a more efficient industry characterised by economies of scale. Until the impediments to investment are substantially reduced by creative governmental policy change, it is premature to introduce a fisheries resource rent royalty.

- The best possibilities for developing the ***salmon farming industry*** are: (1) hatcheries; (2) fish food for salmon farming; (3) value added processed products and related technology (bone stripping, slicing, cutting, smoking); (4) technology (including software based technology) for salmon farming to compete with imported Norwegian products;[184] and (5) technology (including software based technology) for the new market of fast food salmon products.

b) Oil Development

A Faroe Islands Heritage Fund

- Assuming that there is a reasonable probability of commercial oil discoveries, create a Faroe Islands Heritage Fund based on revenues from a hybrid oil royalty. Revenue from profit taxes is not expected for perhaps up to a decade because of the losses (dry holes) and the high start-up expenditures (offshore-rigs and pipelines or transport vessels). Ensure that most of the funds will be invested offshore. This project requires much more analysis.

- Even though oil development is not expected for at least 5-10 years, a Faroe Islands Heritage Trust Fund should be established several years in advance in order to educate people about the need to promote intergenerational equity, minimise local inflation, protect the Faroes' international competitiveness, fund technical training, promote pension fund development and promote the creation of a venture capital market.

- The models that should be studied to learn the strengths and weaknesses of such funds are

1. The Alaska Permanent Fund, Alaska, USA
2. The Alberta Heritage Fund, Alberta, Canada
3. The Norwegian Petroleum Fund, Oslo, Norway
4. The Kuwait Future Generations Fund

- Provide a detailed assessment of the onshore business prospects for Faroese to provide goods and services to any offshore oil developments. This would include

[184] Currently, one Icelandic company is working with a Faroese company to provide salmon farming technology for the domestic and potentially the international market. Currently, most salmon farming equipment is imported from Norway.

supply ships, stevedoring services, outfitting, rig repairs, and helicopter services, and any related tourist spin offs.

c) Tourism

The principal requirements are: a higher level of political commitment; a new legal framework; a new tourism development strategy; a new destination development plan; a joint marketing arrangement between the industry and the national tourist board; improved service quality; improved tourist facilities; and a new method for financing the local tourist offices. The details follow below:

- **A higher level of political commitment** to tourism is needed which ensures that more resources are available for developing tourism. Even though discussions about tourism may be enthusiastic, at the end of the day, the Tourist Board's budget is not big enough to seed the development of a more progressive tourist industry. Also, a commitment to e.g. a three-year budget would be a big step forward. Appropriate audit procedures will need to be put in place to ensure that the money is not wasted.

- **a new legal framework** is needed to promote tourism. At present the laws regarding the 'use' of nature apply only to Danish citizens (Faroese) for example with respect to rights to fishing in the sea and hunting on land. Laws related to mountain paths also need updating because at the present nobody is responsible for restoring them and keeping them in good condition.

- **a new tourism development strategy** with reachable goals and realistic tasks in relation to the budget for the Tourist Board's marketing outside the Faroe Islands and the developing of facilities and products in the Faroe Islands is needed. This would include several key features:

1. **a new destination development plan** for the Faroe Islands in which the strengths of the individual tourism areas are developed and promoted.

2. **a joint marketing between the industry and the national tourist board**, in which everybody pays their share. At the moment the tourist board and the transportation companies are the 'big' spenders;

3. **a new method for financing the local tourist offices** needs to be developed because the current method is not providing adequate funding. At present, local tourist offices are funded half and half by the local authorities (communities) and the Tourist Board. There is too little money (and thereby staff) and too many tasks which means that overall planning and development is often neglected. A lot of this work is done outside regular working hours and involuntarily. This current, unsatisfactory situation has prevailed for more than a decade.

4. **improved tourist facilities;** Better facilities in hotels and guesthouses. According to tourists, the best hotels in the Faroe Islands can be compared to only two-star hotels in other countries. Also, the quality of the food in relation to the cost, needs upgrading.

5. **improved service quality**; owners and staff in small private companies need education in relation to marketing, product development, languages and service

management. Also, staff in shops, taxies, busses, ferries and the like need better skills in languages and how to give good service.

d) High Tech Industries and Other Opportunities

There are five key areas in the IT industry that can be promoted because they are exportable:

- hardware development;
- standard software;
- software subcontracting;
- facility management; and
- help-desk services.

One common denominator for these areas is that they are all part of what the Faroese IT industry delivers to the home market today, and thus the skills needed are – albeit in limited quantities – already available. These market segments can best be promoted by:

- developing an IT skills program similar to Ireland for all levels of education in the Faroes
- providing Faroese students better incentives to choose IT when they want to study abroad by providing special scholarships or grants to enroll in leading U.S. universities.
- developing financial markets in the Faroes
- improving Faroese ability to speak, read and write English, the language of the IT industry, and
- developing a national IT strategy.

The government should be cautious about leading the market. If it tries to pick winners, it may fail. It is best for government to: (1) support a strong role for IT in the education system, as in Ireland, (2) support R&D in promising areas (based on local expertise), (3) promote joint ventures with overseas companies, and (4) assist in the marketing of promising start-up companies.

Appendix A

Applied General Equilibrium Model Description and Assumptions

Model Outline

The Føroyar general equilibrium model, developed by Dr. Adolf Stroombergen of New Zealand, is a structural model of the Faroe Islands economy based on an input-output table of economic activity. This table describes the nature of the transactions (buying and selling of goods and services) between one industry and another, and between industries and final demand - which comprises private and government consumption, exports, investment and stock changes.

An input-output table is a picture of economic activity in the economy in a single year, in this case 1997. However, we are primarily concerned about the development of the economy over a period of years into the future. In this context issues such as the formation of capital stock through investment, the utilisation of capital in production, labour force availability, costs and prices, and producers' and consumers' reactions to those price signals, all become important.

The model portrays producers in industries as price takers and profit maximisers, and households (consumers) as price takers and utility maximisers. These producers and households buy and sell goods, services, labour and capital in "markets" implicit in the model. All these markets must clear. That is, in the solution supply must equal demand unless otherwise specified. Demand is generated from exports, household consumption, government consumption, replacement and new capital investment, inventory requirements and intermediate goods used in production.

The model is medium term in nature and solved in level form (that is in terms of absolute values rather than rates of change). It takes into account all of the inter-dependencies in the economy, such as flows of goods from one industry to another, plus the passing on of higher wage costs in one industry into prices and thence the costs of other industries.

It is useful to think of the model as simply a larger and more sophisticated form of cost-benefit analysis, applied one year at a time. The analogy is perhaps made clearer by noting that traditional cost-benefit analysis is a partial equilibrium technique. That is, variables and events which are defined as being outside the issue of interest are held constant, assumed unchanged, or whatever. For example, in the (partial) cost-benefit analysis of the impacts of a change in wage subsidies for a particular industry, the changes in the cost of inputs for a different industry would usually be ignored. A general equilibrium model, however, enables such economy-wide interactions to be taken into account. Essentially it enlarges the scope of the partial equilibrium analysis to include many of the variables usually held constant. We would like to say "all variables" but even with a general equilibrium model, simplifications and abstractions are unavoidable if it is to remain tractable.

The standard characteristics of a general equilibrium model are well known. The equation structure of the Føroyar model is set out in the form of numerous equation blocks; with one equation for each industry, commodity, factor, etc.

Production Functions

These equations determine how much output can be produced with given amounts of inputs of labour and capital. A standard translog specification is used which distinguishes three factors of production – capital, labour, and materials (including energy, although in most models this would be disaggregated with substitution between energy types).

KLM Allen elasticities of substitution

	K	L	M
K	endog	0.70	0.40
L	0.70	endog	0.25
M	0.40	0.45	endog

Note that symmetry is imposed and that the values along the diagonal of the table vary from industry to industry in order to satisfy the homogeneity and adding up properties of a demand system. (Note that this approach may yield small linearisation errors in the solution algorithm).

Intermediate Demand

A composite commodity is defined which is made up of a domestic and an imported component - where relevant. The share of each of these components is determined by the elasticity of substitution between them and by relative prices. No substitution involving non-competitive imports is permitted. The elasticities below are drawn from a mix of international evidence.

Import-Domestic Elasticities of Substitution and Export Demand Price Elasticities

		Allen elasticity of substitution	Export price elasticity
AGMN	Agriculture and Mining	0.1	-
FISH	Fishing	5.0	-5.0
AQUA	Aquaculture	-	-3.0
FSPR	Fish Processing	-	-5.0
SHIP	Ship Building and Repair	-	-3.0
OMFG	Other Manufacturing	0.8	-3.0
ENGY	Energy	-	-
CONS	Construction	-	-
TRAC	Trade, Restaurants and Accommodation	0.2	-2.0
TRNS	Transport	2.0	-3.0
COMM	Communications	-	na
PRIS	Finance, Business etc Services	2.0	-3.0
GOVS	Government Services	-	-
DWEL	Dwellings (Imputed) Rental	-	-

Price Determination

The price of industry output is determined by the cost of factor inputs (labour and capital), domestic and imported intermediate inputs, and tax payments (including tariffs). World import prices are not affected by Faroese purchases, but Faroese export prices are determined by the cost of manufacture although it is also possible to set them exogenously. Of course, if Faroese export prices are too high relative to those of its competitors, sales volumes will suffer.

Consumption Expenditure

This is divided into Government Consumption and Private Consumption. For the latter five household commodity categories are identified, and spending on these is modeled using price and income elasticities in an AIDS framework. An industry by commodity conversion matrix translates the demand for commodities into industry output requirements and also allows import-domestic substitution. The demand elasticities given in the following table are based in New Zealand and Icelandic estimates.[185]

Household Consumption
Cross Price and Income Elasticities

	Food	Housing	Household Operation	Transport	Other Goods & Services
Food	-0.80	0.18	0.17	0.13	0.32
Housing	0.15	-0.56	0.12	0.10	0.20
Household Operation	0.22	0.18	-0.91	0.18	0.33
Transport	0.17	0.15	0.18	-0.74	0.24
Other Services	0.24	0.17	0.19	0.13	-0.74
Expenditure Elasticities	0.49	1.20	0.83	1.21	1.06

Government Consumption is usually either a fixed proportion of GDP or is set exogenously. Where the budget balance is exogenous, either tax rates or transfer payments are assumed to be endogenous.

Stocks

Owing to a lack of information on stock change, this is exogenously set as a proportion of GDP, domestic absorption or some similar macroeconomic aggregate. The industry composition of stock change is set at the base year mix, although variation is permitted in the import-domestic composition.

Investment

Industry investment is related to the rate of capital accumulation over the model's projection period as revealed by demand for capital in the horizon year. Allowance is made for depreciation. Rental rates or the service price of capital (analogous to wage rates for labour) also affect capital formation. Investment by industry of demand is converted into investment by industry of supply using a capital input- output table. Again, import-domestic substitution is possible between sources of supply.

[185] Bye, Torstein, Robin Choudhury, Magnus Hardarson and Pall Hardason (1999), *The ISM model: A CGE model for the Icelandic Economy*, National Economic Institute of Iceland.

Exports

These are determined from overseas export demand functions in relation to world prices and domestic prices inclusive of possible export subsidies, adjusted by the exchange rate. It is also possible to set export quantities exogenously. The price elasticities are shown above with the import-domestic substitution elasticities.

Supply-Demand Identities

Supply-demand balances are required to clear all product markets. Domestic output must equate to the demand stemming from consumption, investment, stocks, exports and intermediate requirements.

Balance of Payments

Receipts from exports plus net capital inflows (or borrowing) must be equal to payments for imports; each item being measured in domestic currency net of subsidies of tariffs.

Factor Market Balance

In cases where total employment of a factor is exogenous, factor price relativities (for wages and gross rates of return) are usually fixed so that all factor prices adjust equiproportionally to achieve the set target.

Income-Expenditure Identity

Total expenditure on domestically consumed final demand must be equal to the income generated by labour, capital, taxation, tariffs, and net capital inflows. Similarly, income and expenditure flows must balance between the five sectors identified in the model – business, household, government, foreign and capital.

Industry Classification

The 14 industries identified in the model (and their abbreviations) are as follows:

1. AGMN Agriculture, Mining and Quarrying
2. FISH Fishing
3. AQUA Aquaculture
4. FSPR Fish Processing
5. SHIP Ship Building and Repair
6. OMFG Other Manufacturing
7. ENGY Energy
8. CONS Construction and Building
9. TRAC Wholesale and Retail Trade, Restaurants and Accommodation
10. TRNS Transport and Storage
11. COMM Communications
12. PRIS Finance, Business, Other Private and Household Services
13. GOVS Government Services
14. DWEL Imputed Rental on Owner Occupied Dwellings

In one scenarios an extra industry for hydrocarbon (oil and gas) extraction is included.

Miscellaneous Notes

We have estimated the 1997 input-output table for the Faroe Islands from a diverse range of sources including SFI, Landsbanki Føroya, Føroya Banki, Icelandic input-output information (not a full table and released under confidentiality restrictions), a Danish input-output table and a New Zealand input-output table. In addition, many companies and organisations have provided very useful information on their own industries.

Ideally all VAT should be modeled as being paid by households (private consumption) except where industries are exempt, in which case VAT is paid by those industries. In practice the only instance of the latter for which reliable estimates could be obtained is financial and other private services.

Gross rates of return seem to be artificially high in some industries for 1997 (such as in Fishing) due to the low book values of many assets; a consequence of the recent economic crisis.

In most economies it is difficult to discern a relationship between output and capital stock in the government services industry. We have assumed that this is also the case in the Faroe Islands and therefore capital stock is not a factor in the production function for the government services industry. This does not, however, affect the potential of the industry to improve its labour productivity. Also, government investment is still explicit in the model.

Finally we caution that the estimated input-output table for the Faroe Islands for 1997 is not of the quality that would be expected if it was compiled by an official statistical agency with an appropriate level of resources. Nevertheless we believe that we have captured sufficiently accurate information about the structure of industries and key inter-relationships (between main industries, households, government and foreigners), to able to produce reliable assessments of the impact of the removal of Danish subsidies and possible policy responses to it.

Social Accounting Matrix

A social accounting matrix depicts the flow of funds between the major sectors (as distinct from industries) of the economy. It captures flows such as income taxes and transfers which are not part of the production account and thus do not appear in an input-output table. Based on national accounting data, we have compiled the following table for the Faroe Islands. We do not have sufficient information to model intra-sectoral flows, that is the diagonal cells in the table.

Purchases by:	Business	Households	Government	Capital	Overseas	TOTAL
Sales to:						
Business	0	2998	2076	971	3481	9527
Households	4409	0	979	0	430	5818
Government	688	2131	0	0	922	3741
Capital	1383	689	144	0	0	2216
Overseas	3046	0	542	1245	0	4833
TOTAL	9527	5818	3741	2216	4833	26136

A brief explanation of each cell with a positive entry is given below, on a row by row basis. See also Table 8 in section 2. All figures are in millions of Dkr.

Business (which includes the government services industry) receives income from the sale of goods and services to:

- households - private consumption [3433] less indirect taxes [435].
- government - government consumption [1837] plus subsidies to the fishing industry [243], plus net interest [-4]. (The -4 is a residual).
- capital - gross investment [875] plus stock change [96].
- overseas - exports [3051] plus net interest income [62] plus the non-government share of the Danish transfers [368], mostly in the form of wages, subsidies and pensions. (All are routed through the business sector, although this is not ideal).

Households receive income from:

- business - compensation of employees [3766] plus the surplus on the imputed rental of owner occupied dwellings [643]. (We have not been able to identify any dividends etc, although allowance is made for these when modelling scenarios for 2007).
- government - social welfare benefits [979] of which 228 is estimated to be unemployment benefits.
- overseas - wage income from Faroese working abroad [200] plus interest earnings [230].

Government (central and local) receives income from:

- business - corporate income tax [147] plus gross indirect tax on production [356] plus tariffs on imports [185]. (Tariffs on consumer imports are routed through the business sector).
- households - income tax and other direct fees [1696] plus indirect tax on private consumption [435]. (In the model the mean effective household tax rate is expressed in relation to household income including the surplus on the imputed rental of owner occupied dwellings. Thus the tax rate may seem low when compared to actual income).
- overseas - the proportion of Danish assistance which goes directly to government in the form of the block grant [922].

The capital sector is composed of:

- business - depreciation as allowed for tax purposes [849] plus retained earnings [534]. (Any omitted dividends would be in here).
- households - net savings [689] estimated as the residual between income and expenditure.
- government - net fiscal surplus for central plus local government on current account [144].

Overseas residents receive income from the Faroe Islands in the form of:

- business - expenditure on imports [3046]. (All imports whether by industry or final demand are routed through the business sector).
- government - payment of interest on foreign debt [542].
- capital - the balance of trade on goods and services [5] plus wage income from Faroese abroad [200] plus net interest payments [-250] plus all Danish transfers [1290]. This is just the current account balance.

Note that the SAM framework preserves the fundamental macroeconomic identity that the difference between savings [2216] and investment plus stocks [971] is equal to the current account balance [1245]

Main Features of the 1997 Input-Output Table

Owing to confidential data relating to the Icelandic input-output table, (which was one resource we used to construct the Faroe Islands table), we are not permitted (until about February 2000) to release the details of the core inter-industry flows that stem from the Icelandic research - the A_{ij} in more technical terms. However, the tables presented below, which do not depend on the Icelandic research, present most of the salient aspects of our estimated 1997 Faroe Islands input-output table.

Macroeconomic Aggregates

	Dkr,m
Private Consumption	3433
Gross Investment	875
Government Consumption	1837
Stock Change	96
Exports	3051
Imports	3046
Gross Domestic Product	6246

Industry Output and Value Added

	Gross Output	Employ-ment	Capital Stock	Net Indirect Tax/Subs	Effective Wage Rate	Capital User Cost	Value Added
	(Dkr,m)	No FTE	(Dkr,m)	(Dkr,m)	(Dkr,m)	(%)	(Dkr,m)
AGMN	91.2	37.3	420.3	0.3	0.322	8.91	49.8
FISH	1748.0	2135.9	1370.0	-243.0	0.321	28.74	837.0
AQUA	673.0	402.5	599.0	2.9	0.186	4.67	106.0
FSPR	1244.0	1748.9	456.0	6.7	0.137	2.15	256.7
SHIP	255.0	416.9	102.0	1.3	0.197	13.72	97.3
OMFG	467.0	717.0	266.4	19.9	0.159	7.15	155.9
ENGY	329.0	144.8	972.4	1.5	0.256	13.77	172.5
CONS	511.0	626.3	118.0	3.4	0.241	31.36	193.4
TRAC	1585.0	2412.0	1151.6	207.6	0.163	19.19	822.6
TRNS	906.0	778.2	921.0	26.8	0.248	6.34	278.6
COMM	204.7	569.0	585.4	2.3	0.195	4.19	138.3
PRIS	1531.6	1607.4	972.1	65.0	0.213	13.10	536.4
GOVS	1776.7	7111.1	0.0	18.8	0.187	-	1347.7
DWEL	862.2	0.0	12873.8	0.1	-	4.99	643.2
	12184.4	18707.0	20808.0	113.6			5635.2

Sales to Final Demand - Domestic and Imported

	Domestic Sales to Final Demand					Imported Sales to Final Demand (purchasers prices)		
	Private Cons. (Dkr,m)	Govt. Cons. (Dkr,m)	Gross Invest. (Dkr,m)	Stock Change (Dkr,m)	Exports (Dkr,m)	Private Cons. (Dkr,m)	Gross Invest. (Dkr,m)	Stock Change (Dkr,m)
AGMN	26.3	0.0	0.0	43.5	0.0	14.5	0.0	0.0
FISH	1.6	0.0	2.3	-30.7	1015.0	0.0	0.0	0.0
AQUA	0.4	0.0	0.0	271.6	401.0	0.0	0.0	0.0
FSPR	13.8	0.0	0.0	-71.9	1009.0	0.0	0.0	0.0
SHIP	0.0	0.0	40.6	0.0	20.0	0.0	0.0	0.0
OMFG	91.0	0.0	27.1	0.0	133.0	909.6	401.2	44.0
ENGY	137.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONS	0.0	4.2	164.1	120.3	0.0	0.0	0.0	0.0
TRAC	384.8	127.9	175.0	-280.7	121.7	241.0	0.0	0.0
TRNS	69.5	0.0	0.0	0.1	325.7	23.8	0.0	0.0
COMM	33.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIS	158.2	0.0	64.9	-0.1	26.0	0.0	0.0	0.0
GOVS	30.8	1704.9	0.0	0.1	0.0	0.0	0.0	0.0
DWEL	862.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1809.4	1837.0	473.9	52.2	3051.4	1188.9	401.2	44.0

Sales and Purchases for Intermediate Consumption - Domestic and Imported and Total Imports

	Domestic Inter-mediate Sales (Dkr,m)	Imported Inter-mediate Sales (Dkr,m)	Domestic Inter-mediate Purchases (Dkr,m)	Imported Inter-mediate Sales (Dkr,m)	Total Imports in Purchasers Prices (Dkr,m)	Total Imports in Basic Prices (Dkr,m)
AGMN	21.4	11.4	17.8	23.5	25.8	25.8
FISH	759.8	289.0	740.2	171.0	289.0	289.0
AQUA	0.0	0.0	377.8	189.3	0.0	0.0
FSPR	293.1	0.0	868.6	118.9	0.0	0.0
SHIP	194.4	0.0	55.4	102.3	0.0	0.0
OMFG	216.0	879.0	187.1	127.0	2233.8	2049.0
ENGY	191.9	0.0	114.1	42.6	0.0	0.0
CONS	222.5	0.0	143.8	175.9	0.0	0.0
TRAC	1056.3	134.1	604.5	157.9	375.0	375.0
TRNS	510.8	232.6	326.1	301.6	256.4	256.4
COMM	170.9	0.0	53.3	13.6	0.0	0.0
PRIS	1282.6	51.0	913.4	82.9	51.0	51.0
GOVS	41.1	0.0	358.4	71.6	0.0	0.0
DWEL	0.0	0.0	200.2	18.9	0.0	0.0
TOTAL	4960.6	1597.0	4960.6	1597.0	3231.1	3046.3

Assumptions and Constraints for 2007

Scenario A (Business as Usual)

As mentioned in Section 2 the model requires a number of assumptions in order for it to produce a "business as usual" projection of the economy to 2007. The intention is to produce a realistic picture of what the economy might look like in 2007 if there were no substantial policy changes or external shocks. It is not necessarily a best-guess forecast.

The assumptions are as follows:

- Unemployment as a proportion of the labour force is assumed to fall to 5%, from 9.2% in 1997 and 7.4% in 1998. We consider this to correspond to full employment and to be an objective of government policy.

  On the basis of projections by Statistics Faroe Islands (SFI) this implies a growth in employment (on a full time equivalent [FTE] basis) of 1.4% pa to reach 21404 FTEs. The projected labour force in 2007 is 22531.

- The ratio of gross investment to gross domestic product rises from a low of 14.0% in 1997 to an historically more comparable 17.5% in 2007.

- Government consumption rises at the SFI projected rate of population growth of 0.9% pa. This is lower than historically, but is necessary if the share of the economy accounted for by government is not to increase further. We assume that there is some degree of political consensus in this regard. However, government social investment (in infrastructure, health, education etc) is assumed to grow somewhat faster at 1.5% pa.

- Consistent with a smaller role for government, the fiscal surplus is raised from Dkr144m in 1997 to Dkr500m in 2007 so as to allow somewhat greater debt repayment.

- The balance of trade on goods and services is zero, but inflows of wages from Faroese citizens working abroad (Dkr200m), net interest receipts (Dkr250m), plus assumed unchanged total Danish grants and assistance (Dkr1290m) combine to produce an external current surplus of Dkr1740m.

- 100 houses per annum are built at an average real 1997 price of Dkr1.2m.

- The shifts in the foreign demand curves for Faroe exports are shown in the table below. These shifts are influenced by historical trends, projections of foreign demand (at a given price), biological constraints and the exporting zeal of Faroese exporters. A low rate of shift does not necessarily mean that export volume growth will be low, as volume is also related to price.

  The high growth rate for ship building/repairs is due to the assumption that export earnings can be lifted to around Dkr100m. This is still well below the levels achieved 10 years ago.

For communications the volume of exports is exogenously set at Dkr20m as the lack of (recorded) communication exports in 1997 means that there was no demand curve to be projected to 2007.

- Relative prices for Faroese exports and imports are assumed unchanged from 1997, except with regard to fish, for which a 10% relative price decline is assumed.

- Labour and capital productivity improvements are shown in the table below. These figures are largely based on world-wide trends. However, higher labour productivity assumed for fish processing as the industry is inefficient by world standards.

Industry Specific Assumptions for 2007 'Business as Usual' Scenario

		Efficiency Gains		Export Demand	
		Labour augmenting (% pa)	Capital augmenting (% pa)	Relative world prices (1997=1.00)	Demand curve shifts* (% pa)
AGMN	Agriculture and Mining	1.0	1.0	-	-
FISH	Fishing	2.0	0.5	0.90	2.72
AQUA	Aquaculture	2.0	1.0	1.00	0.46
FSPR	Fish Processing	5.0	2.0	1.00	-2.47
SHIP	Ship Building and Repair	1.0	1.0	1.00	15.17
OMFG	Other Manufacturing	2.0	2.0	1.00	2.85
ENGY	Energy	3.0	2.0	-	-
CONS	Construction	1.0	1.0	-	-
TRAC	Trade, Restaurants and Accommodation.	1.0	2.0	1.00	3.72
TRNS	Transport	1.0	1.0	1.00	4.15
COMM	Communications	4.0	2.0	1.00	na
PRIS	Finance, Business etc Services	1.0	2.0	1.00	3.85
GOVS	Government Services	0.5	-	-	-
DWEL	Dwellings (Imputed) Rental	-	0.0	-	-

* These are not the rates of volume growth actually achieved - see Table 10.

Scenarios B-E (Removal of Danish Transfers)

The approach taken in Scenarios B-D is to "shock" the economy in some way so that the effects may be observed in an experiment type setting. Thus some variables need to be allowed to respond to the shock whilst others need to be held invariant so that the effects of the shock can be properly identified. Inevitably this means that there is more than one way to investigate a given shock. We have endeavoured to construct scenarios which are representative enough such that plausible variations in their specification would not alter the underlying message. Nevertheless, some issues may need to be addressed in more detail such as through additional sensitivity analysis.

Scenario B

Removal of all Danish grants and other transfers (worth Dkr 1.290 billion in 1997), subject to the following conditions, relative to Scenario A:

- No change in the level of employment and no existence of idle capital stock, so that only the allocative effects of the shock may be analysed.

- Higher exports of goods and services to prevent a deterioration of the external current account. The real exchange rate is endogenous to accommodate this constraint.

- Restoration of the fiscal balance through higher personal income taxes. The model knows about the effective mean rate of taxation, but not its specific structure. Thus any given increase in the effective rate could be consistent with many different structures of the tax scale as it relates to individuals and families.

Scenario C

The shock is the same as in Scenario B, but we now allow for a more plausible dynamic effect. In particular it is assumed that the full extent of the increase in exports required under Scenario B is not possible. Thus imports need to decline to maintain external account balance. This can be expected to lead to a decline in activity, particularly in household spending.

Scenario D

Scenarios B and C demonstrate the disastrous effects of a removal of the Danish transfers in the absence of any policy responses. This supplies a reference against which the effects of consequential policy changes may be assessed. The policy changes we specify are listed below. Whilst it is possible to explore the effects of each policy in isolation, our intention is to portray a package of measures which reinforce each other both economically and politically.

- The sale of Dkr3000m of government assets over the decade, with half being sold to foreigners and half to Faroese citizens and companies. The proceeds are used to repay remaining debt so that by 2007 the government no longer pays interest offshore. This removes the Dkr500m assumed originally in Scenario A.

- However, there is an annual remittance by business offshore of dividends (or interest) of about Dkr170m, plus around Dkr140m in dividend payments to Faroese households.

- Government subsidy to the fishing industry removed. This was worth about Dkr240m in 1997, but is above Dkr300m in Scenario A.

- Government consumption reduced to the level of 1997. There is no change to government social investment.

- Unemployment benefit rates reduced by 17% and other benefit rates, pensions etc reduced by 11% on average.

- Government budget surplus set to a lower target of Dkr100m. A zero surplus could be assumed, but a small surplus allows a modest accumulation to provide a cushion in the event of other adverse events or to seed a "Heritage Fund". Alternatively it may used by central government to temporarily aid local governments in regions which face high restructuring costs.

- Gross investment as a proportion of GDP raised back its Scenario A ratio of around 17.5% in response to greater private sector corporate control and an enhanced ability to raise funds in both foreign and domestic capital markets.
- The 5% unemployment rate in Scenario A is re-imposed.
- Fishing quota have reverted back to being expressed in terms of fish weight rather than in terms of allowable fishing days.

Note that the model does not include a variable or routine which corresponds directly to a given fish quota management regime. It is important, however, that the fishing industry is open to injections of foreign capital as part of the overall policy package.

Scenario E

This scenario has the same specifications as Scenario D, but with increases in labour and capital productivity made possible by industry restructuring - including tradable biomass quotas in Fishing. The changes are shown below. Note that there is no increase in the efficiency of the government services industry, although a good case could be made for this. Overall the efficiency enhancements are modest and probably understate the favourable effects of restructuring.

Labour and Capital Augmenting Technological Change

		Scenario A		Scenario E	
		Labour augmenting (% pa)	Capital augmenting (% pa)	Labour augmenting increment (% pa)	Capital Augmenting Increment (% pa)
AGMN	Agriculture and Mining	1.0	1.0	-	-
FISH	Fishing	2.0	0.5	+1.0	+2.0
AQUA	Aquaculture	2.0	1.0	-	-
FSPR	Fish Processing	5.0	2.0	+1.0	+1.0
SHIP	Ship Building and Repair	1.0	1.0	-	-
OMFG	Other Manufacturing	2.0	2.0	-	-
ENGY	Energy	3.0	2.0	+0.5	+0.5
CONS	Construction	1.0	1.0	-	-
TRAC	Trade, Restaurants and Accommodation	1.0	2.0	-	-
TRNS	Transport	1.0	1.0	-	-
COMM	Communications	4.0	2.0	+0.5	+1.0
PRIS	Finance, Business Services	1.0	2.0	+0.5	+0.5
GOVS	Government Services	0.5	-	-	-
DWEL	Dwellings (Imputed) Rental	-	0.0	-	-

It is further assumed that four industries manage to "push out" the foreign demand curve for their products through more innovative marketing, a change in product mix, better access to foreign markets as a result of equity investment or joint ventures, and so on. The assumed changes are as follows:

- Fish Processing 20%
- Transport 10%
- Communication 50%
- Private Services 50%

The latter two may seem large, but exports from these industries are coming off a very small base in Scenario A - Dkr20m and Dkr 49m respectively.

Sensitivity Test on User Cost of Capital in Fishing

As shown in the table on industry output and value added for the base year (1997), the user cost of capital in many industries is unusually high; amazingly so in Fishing where it is 28.7%, even given that it is measured before allowing for depreciation. It is not that the industry is earning super-normal profits, but that the denominator in the equation - the book value of assets - is remarkably low due to the effects of the 1990's economic depression.

In itself this is not necessarily a problem for modelling as it may just indicate that the capital stock in Fishing is extremely depreciated, thus having a very low economic value. For many years the low profitability of the industry has meant that its capital stock has not been adequately maintained or replaced. This tells us that further expansions in output will require significant investment. Where there is a problem, however, is if the value of the capital stock has been artificially lowered (below its true economic worth) such as in a situation where a downturn in the industry together with a limited market for the sale of fishing boats (foreign ownership is constrained) leads to asset sales at bargain prices.

Without more research into the matter we cannot adjudicate on the relative significance of these two reasons. Undoubtedly both have some merit. Nevertheless, because of the importance of fishing in the Faroese economy, even in 2007, it is useful to undertake some sensitivity analysis to ascertain how robust the modelling results are to a higher capital-output ratio in the fishing industry. We arbitrarily double the ratio and then re-run Scenarios A and E. Our interest is in whether the relative differences between these two scenarios, that is the effects of the restructuring in response to the removal of the Danish transfers, are sensitive to the capital-output ratio in fishing. The table below shows the results.

It is clear that the benefits of economic restructuring are robust with respect to the capital-output ratio in fishing, at least over the range considered. There is, however, a general tendency for the effects of the restructuring to be slightly greater. This is attributable to improved productivity in fishing - arising out of a newer fishing fleet.

Sensitivity Test Results

	Scenario E compared to Scenario A	
	Original K/X in Fishing	Doubled K/X in Fishing
Private Consumption	5.0	6.0
Gross Investment	9.2	10.0
Exports	6.4	6.8
Imports	6.4	6.6
Gross Domestic Product	2.5	3.2
Terms of Trade	0.0	-0.2
Fishing gross output	-3.6	-3.2
Fishing exports	-17.7	-17.6
Fish Processing gross output	16.5	16.9

Thus it is evident that the attraction of new capital into the fishing industry will enhance the beneficial effects of restructuring. As discussed elsewhere, this may require injections of foreign capital, something which is unlikely if the quota management regime retains its current structure with respect to restricted tradability and specification in terms of fishing days rather than fish mass.

Scenario O (Oil Production)

Scenario O incorporates an additional industry for oil exploration and extraction. Naturally the precise nature of such an industry cannot be specified. However, a reasonable approximation is likely to be the New Zealand offshore oil and gas industry, which relates to a field of about 2000PJ, or 320m bbl. of oil equivalent energy. This is consistent with the hypothesized size of potential discoveries in Faroese waters. The industry structure is shown in the table below, along with the composition of investment goods for the industry. Whilst our scenario deals with an industry which is already producing oil, it is assumed that investment in exploration and development continues.

Assumed Structure of Faroe Island Offshore Oil Extraction Industry

		Production	Investment	Comments
AGMN	Agriculture and Mining	0.0202	0.0000	
FISH	Fishing	0.0000	0.0000	
AQUA	Aquaculture	0.0000	0.0000	
FSPR	Fish Processing	0.0000	0.0000	
SHIP	Ship Building and Repair	0.0028	0.0997	
OMFG	Other Manufacturing	0.0083	0.5838	mostly imported
ENGY	Energy	0.0000	0.0000	
CONS	Construction	0.0131	0.1772	
TRAC	Trade, Rests. & Accom.	0.0050	0.1048	
TRNS	Transport	0.0289	0.0003	
COMM	Communications	0.0018	0.0000	
PRIS	Finance, Business Services	0.0760	0.0339	
GOVS	Government Services	0.0012	0.0000	
DWEL	Dwellings (Imputed) Rental	0.0000	0.0000	
OILE	Oil Extraction	0.1091	0.0003	
	Labour costs	0.0784	L/X ratio is 0.1983 FTE/Dkr,m)	
	Capital costs	0.5786	capital-output ratio is 3.45	
	Indirect taxes	0.0546		
	Imports (mfg)	0.0218	mostly PRIS, OMFG & AGMN	

Other assumptions relating to the oil industry are:

- All output is exported without further refining or processing.
- Annual production is 300PJ or 48m bbl.
- The price of oil is US$17.50/bbl, implying a total annul output value of US840m, or about Dkr5800m.
- For an output of 48m bbl, about 1100 full time equivalent personnel will be required.
- There is a royalty which *ex post* is equivalent to 5% of revenue, although this would probably be structured in a different manner. Whilst the optimum royalty regime is a matter for detailed investigation, our suspicion is that some combination of a tax on profits and an *ad valorem* royalty on the value of output is likely to be the preferred option - for operational fields.

In some regards the specification of an industry structure for oil production is not as difficult as specifying the characteristics of the wider economy; for example fiscal policy, savings behaviour, immigration and so on. The assumptions below should be seen as preliminary. They represent a mixture of changes that are likely to occur and changes that should occur if the discovery of oil is to have long term sustainable benefits. Testing of alternative scenarios is strongly recommended:

- All oil industry personnel who work on the platform or in Faroese waters are assumed to be subject to Faroese taxation rules.
- The discovery of oil will attract people to the Faroes. Some, such as Faroese citizens who have previously emigrated will return. Other permanent immigrants can also be expected. In addition many temporary "residents" can be expected.

  It is assumed the Faroe Islands attract additional immigration of 400 people per annum over and above the SFI projections implicit in Scenario A. This leads to an increase in the population by 2007 of 4000 above the SFI projections. Whilst this is a significant amount it is still less than the number of people who emigrated during the 1990's depression.

- These 4000 immigrants increase the labour force by 1500 people. This is further augmented by another 1500 people who obtain permission to work in the Faroe Islands (largely offshore), but who do not become permanent residents. They are obliged to pay tax in the Faroes, but remit the rest of their income back to their home country.
- To accommodate the new residents new housing building rises from Dkr120m per annum in Scenario A to Dkr240m per annum (in 1997 pries). This corresponds to about 100 extra dwellings per year.
- Similarly, government social investment expands at 2.5% pa from 1997, versus 1.5% pa in Scenario A. This is still above the rate of population growth.

- There is no change to government consumption, nor to per capita transfer payments. However, the higher population implies some increase in total transfer expenditure.

- Half of the income which the government receives from the oil royalty is distributed equally to all Faroese citizens. The other half is placed in a "heritage fund" which invests entirely offshore. This latter condition raises the required fiscal surplus from Dkr100m in Scenario E to about Dkr240m.

- As in the other scenarios, personal income tax rates adjust to meet the fiscal requirements of the fiscal budget.

- Relative price inflation (primarily against Denmark), as defined by the real exchange rate, is controlled by encouraging Faroese citizens to save and invest in industry, pension funds and so on. This limits the need for inflation-inducing foreign capital inflows. This is essential for minimising the negative impact on the international competitiveness of other industries that would be caused by an appreciating real exchange rate.

The above assumptions represent just one (hopefully plausible) specification of the Faroese economy in or around 2007 if oil has been discovered by then. The greatest areas of uncertainty relate not so much to how much oil there might be, but to how macroeconomic variables such as the fiscal budget, the external account and inflation will respond, or could be directed to respond, to a shock which has the potential to double gross domestic product. Sensitivity analysis with regard to different macroeconomic responses, different oil prices, different migration assumptions and so on, is essential if maximum long term benefit to the Faroese people is to be achieved.

Appendix B
The Optimal Size Fiscal State in the Faroe Islands[186]

Introduction

The small, open economy of the Faroe Islands is very heavily dependent upon fishing and its allied industries, and with Danish subsidies has a level of government expenditure as a share of GDP comparable to most Nordic welfare states. In 1962, the earliest year for which GDP data exists, fishing and fish processing were 35.5 percent of GDP (at factor cost).[187] If allied industries (aquaculture (not appearing in GDP from 1962 to 1980), hunting and whaling, shipyards/machine shops, and sea transport) are added, fishing and allied industries constituted 44.0 percent of GDP. The corresponding percentages in 1997 are 26.3 and 34.9 percent, respectively. Thus, while fishing is less important today, it still constitutes a substantial fraction of economic activity, and remains virtually the only source of export earnings (94.8 percent, in 1997). Except for aquaculture (2.8 percent of GDP in 1997), attempts at diversifying the Faroese economy have not met with much success.

The major structural change in the Faroese economy over the period is due to the growth of government. Public services were 9.0 percent of GDP in 1962 and 28.0 percent in 1997. This trend is due to the rapid growth of taxation and Danish expenditures on the Faroese public sector. In 1962, total taxes were 18.8 percent of GDP at market prices. Adding Danish transfers brings the size of the fiscal sector to 29.4 percent of GDP. In 1997, total taxes were 45.8 percent of GDP. With Danish expenditures and grants, the government sector constituted 68.1 percent of GDP. Thus, the relative size of the fiscal state in the Faroe Islands in 1997 is 2.3 times its size in 1962. While this change is not extraordinary by Nordic standards (France, Germany, the Netherlands have been on a strong upward trend as well), most other OECD nations

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[186] (1) Barro, R. AGovernment Spending in a Simple Model of Endogenous Growth. Journal of Political Economy 98 (5) [Part 2] (1990): S103-S125. (2) Becker, R.A. ACapital Income Taxation and Perfect Foresight. Journal of Public Economics 26 (March 1985): 147-67. (3) Colgate, P. Databases for Taxation Modelling. Report to the Inland Revenue Department, Wellington, New Zealand: New Zealand Institute of Economic Research, 1991. (4) Feldstein, M.S. Incidence of a Capital Income Tax in a Growing Economy with Variable Savings Rates. Review of Economic Studies 41 (October 1974): 505-13. (5) Grossman, P.J. The Optimal Size of Government. Public Choice 56 (1987): 193-200. (6) Judd, K.L. Redistributive Taxation in a Simple Perfect Foresight Model. Journal of Public Economics 28 (October 1985): 59-83. (7) Kennedy, On Measuring the Growth-maximizing Tax Rate, Pacific Economic Review, forthcoming. (8) Koop, G., Osiewalski, J., and Steel, M.F.J. Modeling the Sources of Output Growth in a Panel of Countries, Tilburg, Netherlands, Department of Econometrics, Tilburg University, 1997. (9) Peden, E.A. and Bradley, M.D. AGovernment Size, Productivity, and Economic Growth: the Post-War Experience, Public Choice 61 (1989): 229-45. (10) Peden, E.A. AProductivity in the United States and its Relationship to Government Activity: An Analysis of 57 Years, 1929-1986.≅ Public Choice 69 (1991): 153-73, (11) Porter, P.K. and Scully, G.W. AInstitutional Technology and Economic Growth., Public Choice 82 (1995): 17-36. (12) Sato, K. Taxation and Neo-classical Growth. Public Finance 22 (3) (1967): 346-70, (13) Scully, G.W. The Institutional Framework and Economic Development., Journal of Political Economy, 96 (3) (June 1988): 652-62 (14) Scully, G.W. The Size of the State, Economic Growth, and the Efficient Utilization of National Resources Public Choice 63 (2) (1989): 149-64, (15) Scully, G.W. Constitutional Economics and Economic Growth. Princeton: Princeton University Press, 1992, (16) Scully, G.W. The Growth Tax in the United States Public Choice 85 (1995): 71-80, (17) Scully, G.W. Taxation and Economic Growth in New Zealand, Pacific Economic Review, 1 (2) (1996): 169-77, (18) Scully, G.W. The Growth-maximizing Tax Rate Pacific Economic Review, forthcoming. (19) Scully, G.W. Government Expenditure and Social Progress, draft, September, 1998. (20) Stiglitz, J.E. Notes on Estate Taxes, Redistribution, and the Concept of Balanced Growth Path Incidence. Journal of Political Economy 86 (2, Part 2) (1978): S137-S150. (21) Tanzi, V. and Schuknecht, L. The Growth of Government and the Reform of the State in Industrial Countries. IMF Working Paper, Washington, D.C., International Monetary Fund, December, 1995.

[187] All data upon which these and other calculations are made is from Magni Laksafoss and Olavur Christiansen, Faroe Islands Statistics, prepared in July, 1999. In September, the GDP data was revised for the period 1985-97, and is utilized here.

(Iceland included) have not followed the Nordic path of replacing private with government economic activity.

Economic Growth.

Over the period 1963-1997 the real economic growth of GDP (at market prices) has averaged 3.61 percent per annum. This growth rate is neither exceptionally good, nor is it exceptionally bad. Two features of economic growth in the Faroes stand out. The growth rate is quite unstable, and it is considerably lower in the later half of the period (1980-97) than in the earlier half (1963-79). Over the entire period of 1963-97 the coefficient of variation (standard deviation divided by the mean) is 1.62. At one standard deviation, economic growth is in the range of -2.24 to 9.47 percent. At two standard deviations it is in the range of -8.10 to 15.32 percent. Without doubt, this instability is partly (perhaps, mainly) due to the instability in fishing catches and in fish prices.

Table 1. Economic Growth, Average Taxation, and Danish Transfers, 1963-97

Period	Growth Rate	Tax Rate	Danish Subsidy Rate
1963-69	3.98	21.7	13.4
1970-79	5.15	29.6	15.3
1980-89	3.99	41.5	13.8
1990-97	0.90	46.8	22.5

As can be seen in table 1, economic growth averaged nearly 4.0 percent per year during 1963-69, and was 5.2 percent in 1970-79. Economic growth returned to an average rate of 4.0 percent during the 1980s, but fell drastically during 1990-97, due mainly to the collapse of fishing.

Taxation and Danish Subsidies.

The average level of taxation (central plus municipal government) has risen sharply over the period. In 1962, taxes as a share of GDP was 18.8 percent, and Danish subsidies were 10.6 percent. At a total size of the fiscal state of 29.4 percent of GDP, the Faroe Islands were already larger than their neighbor Iceland at 26.2 percent. No data are available on the economy or the public sector accounts prior to 1962.[188] If the historical situation in Iceland is a reasonable guide to what was occurring in the Faroes, the public sector was smaller prior to 1962.

In 1946, total taxes as a share of GDP was 19.3 percent in Iceland. In Denmark, total taxes were 23.9 percent of GDP in 1948, but fell to 20.3 percent by 1950. In the Faroe Islands, just after World War II, taxes plus Danish subsidies probably were on the order of 12 to 20 percent of GDP. Assuming the highest estimated figure, this would make the size of the fiscal state comparable to that of the United States (federal, state, and local taxes as a share of GNP) in the late 1940s.

[188] We have been provided with a figure of 6.42 million Dkr as the total Danish and Faroese government expenditures around 1944 and 1945. The growth rate of nominal GDP from 1963 to 1997 is 9.2 percent. Assuming that this growth rate applies to the period 1944-62, the estimated nominal GDP in 1944 is 52.5 million Dkr. Total government expenditure then is estimated at 12.2 percent of GDP in the 1944-45 period.

In the 1960s, taxes represented 21.7 percent of GDP, and Danish subsidies 13.4 percent (a total fiscal sector of 35.1 percent of GDP). The average level of taxation and Danish transfers rose to about 45 percent in the 1970s and to 55.3 percent during the 1980s. In the 1990s, they averaged 69.3 percent of GDP. Over the entire period, the trend in the level of average taxation is very strong at about one percentage point of GDP per year.

Taxation and Economic Growth.

As a preliminary empirical investigation, the relationship between the rate of real economic growth and the growth rate in the average level of taxation was examined and a reduced form econometric model was developed by Professor Gerald Scully of the University of Texas at Dallas. Two matters need to be kept in mind. First, the economic growth rate of any nation is highly variable, and hence is an extremely noisy variable. For the Faroe Islands, economic growth is much more variable than for the OECD nations. This means that any correlation between economic growth and taxation by its nature will be weak. Second, such a correlation tells us nothing about the optimal or growth-maximizing tax rate for the Foresee economy. Nevertheless, its estimation gives useful information in its own right, and will serve as a crosscheck on the estimate of the growth-maximizing tax rate.

Economic progress came to a halt in 1989, and in 1990 total spending from Denmark on the Faroe Islands rose to 1,005 million Dkr from 438 million Dkr. The period 1990-94 is unusual because the average level of taxation was lower than in 1989 (in part due to the large infusion of Danish spending), and because economic growth was negative. As a result of these economic and fiscal conditions, it is better to estimate the relationship over the period 1963-89, when economic and fiscal conditions were more normal.

A simple regression of the rate of economic growth (g_Y) on the rate of growth of taxes as a share of GDP (g_τ) yielded the equation[189] $g_Y = 5.7 - .34g_\tau$. The empirical result, which is statistically significant (a simple correlation of 0.41), indicates that if the growth rate of taxation is zero (a constant level of taxation as a share of GDP through time), the long-term growth rate of the Faroese economy is 5.7 percent per annum. Each one percentage point increase (decrease) in the growth rate of average taxes lowers (raises) the economic growth rate by nearly a half of a percentage point (i.e., from 5.7 to 5.4 and from 5.7 to 6.0 percent per annum). The average growth rate of taxation over the period is 3.8 percent with a standard deviation of 5.9 percent. The empirical relationship between the economic growth rate and the growth rate in the average level of taxation indicates that taxation and economic growth are linked.

A Model of the Optimal Size Fiscal State

It is recognized that government expenditures contribute to economic growth, while taxes retard growth.[190] Some goods and services provided by government, such as a legal system, enforcement of property rights and contracts, a set of measures and standards, an infrastructure, the provision of national defence, public health, and, perhaps, free or subsidized education raise the productivity of inputs in the private sector. Lets leave aside the controversy as to how public some of these public goods and

[189] The regression estimated over the period 1963-89 is:

$$g_Y = 5.69 - .339\, g_\tau, \quad R^2 = .171.$$
$$(5.53)\ (2.27)$$

[190]. A substantial literature links high income tax rates to lower economic growth. The most important are by Sato (1967), Feldstein (1974), Stiglitz (1978), Becker (1985), and Judd (1985).Earlier papers linking the level of taxation or the size of the fiscal state to lower rates of economic growth are by Grossman (1987), Peden and Bradley (1989), Barro (1990), Peden (1991), and Scully (1989, 1995).

services are and the appropriate or optimal expenditure level on them. In the Faroe Islands domestic and Danish expenditures on these services (courts and police, infrastructure, education, health, and government) amounted to about 21 of GDP in 1997, up from less than 10 percent in 1962.

Beyond these government expenditures, some of which are redistributionalist (i.e., education beyond secondary schooling and health expenditures) government redistributes income through its fiscal function. Some income redistribution may be efficient in that it preserves social order (prevents rebellion). But, in recent times, about a third or so of government expenditures (about 17 percent of GDP) are transfer payments (social security expenditures) of various sorts, up from about 6 percent in the early 1960s. These expenditures contribute to economic growth on the demand side, since a dollar of public money buys goods and services as well as a dollar of private funds.

By acting as a negative externality on the private sector, taxes reduce economic growth. All taxation, except lump sum taxes, creates distortion, by imposing wedges and reducing incentives (e.g., incentive effects such as work versus leisure, the wedge between personal saving and investment, debt versus equity financing). It is widely recognized in the public finance literature that the deadweight costs of taxation, due to allocative inefficiency, rise with the square of the average level of taxation and the differentials among tax rates. Thus, increased taxation, by increasing the distortion in the allocation of resources, discourages economic growth.

Additionally, taxation may induce a shifting of resources out of the formal economy into the hidden economy, which can lower officially measured GDP. The hidden economy is composed of illegal or criminal activity, which is not affected by the level of taxation, and normal economic activity, which occurs fully or in part outside of the tax collector's view (casual labor for cash, barter exchange of services, cash pocketed but not recorded in stores and among the self-employed, and so on).

Moreover, from a public choice perspective, political markets are no different from any other market. There are buyers (i.e., citizens that receive benefits) and sellers (i.e., politicians and bureaucrats) of government services. To get elected and stay in office, politicians must capture the majority of votes, and hence must appeal to the median voter or the middle class. This fact is exacerbated when many political parties compete for seats in Parliament, and must form a coalition government. Coalition government is compromise government, with outcomes that yield left or right center coalitions.

These coalition governments tend toward the middle or median voter's desires. This implies that many government benefits will be broad-based, and hence, not means-tested. An implication of the public choice model is that government will expand in size well above its efficient level and become like an ATM machine, collecting taxes and doling out benefits geared to the median voter. Also, since government has a monopoly on coercion, it can sell or rent its coercive power to one special interest group or another.

None of these benefits of the political market are free to citizen-voters or special interest rent-seekers. Resources have to be withdrawn from the productive private sector, at their opportunity cost, and gambled in the directly unproductive political sector for the chance to receive a fiscal benefit or a favor for the special interest. This reallocation of resources from the private market to the political market is a pure social waste that

lowers national output from what it would be in the absence of these rent-seeking activities.[191]

The kroner external benefit of government expenditure on public goods conceptually can be ranked from highest to lowest. These external benefits of public goods then can be compared to the opportunity cost of raising tax revenue (i.e., the withdrawal of resources from the private economy priced at their opportunity cost). Thus, a kroner of government expenditure on enforcement of property rights and contracts may produce a high external benefit to the private economy, and a rate of return greater than a kroner of resources employed in the private sector.

Some infrastructure investment may be more efficiently provided by government, and the benefit produced by these expenditures may exceed the opportunity costs of those resources withdrawn from the private sector through taxation. The lower bound, in the sense of a net benefit of zero, of a government benefit is one kroner, as with a costless transfer payment, raised by a costless (efficient) tax of one kroner.
Thus, up to some fiscal size of government, the positive externalities of expenditures exceed the negative externalities of taxation, and national output and economic growth will be higher as the size of government expands. Alternatively, a kroner worth of taxes buys more than a kroner worth of benefit from government expenditure, up to some fiscal size of the state. As the fiscal size of government expands toward its optimal level, the net external benefit of government expenditure declines.

At some fiscal size of the state, the net benefit of fiscal policy is zero. Beyond some fiscal size of government, the negative externalities of taxation are greater than the positive externalities of expenditures, and economic growth will be lower as government size increases. Alternatively, beyond some fiscal size of government, the net benefits of taxation are negative (i.e., the cost of taxation on the economy exceeds the benefits of public expenditure), and the net external benefit is negative at an increasing rate. See **Figure 1** in this appendix.

Figure 1

[191].See Scully (1992: 80-105) and Porter and Scully (1995) for the theory of the relationship between the political market and neoclassical growth.

The Optmal Size Fiscal State.

There are many causes of economic growth. In neoclassical growth theory, capital accumulation (physical capital in exogenous growth models; human capital in endogenous growth models) and technological change are the main driving force for economic advance. But, population growth, labor force participation, openness of trade, inflation, and a wide array of government policies also affect economic growth. One modeling approach would recognize all of these causes and their interrelationships, and specify a structural model. But, since we don't even have measures of aggregate capital stock and a good proxy for technical change, such an exercise would lead to model that can't be estimated.[192] The alternative approach is to employ a reduced form model in which factors other than taxation yield some rate of

economic progress, and then that rate of economic growth is affected by the level of taxation. Thus in a world absent of taxation, current national output, Y_t , equals last period's output, Y_{t-1}, times one plus the growth rate, or $Y_t = (1 + g)Y_{t-1}$, where g is a constant growth rate. This specification assumes that whatever is occurring in a neoclassical world (i.e., capital accumulation, technical change), the underlying process produces a constant growth rate.[193] Thus, the change in current national output with respect to last period's output equals one plus the growth rate, or $MY_t/MY_{t-1} = 1 + g$. In the model that is developed mathematically in the appendix and is verbally described below, the growth rate in a world of taxation is shown to be $1 + g = a\tau^b(1 - \tau)^{1-b}$, where τ is the tax rate. Thus, in a world of taxation $Y_t = a\tau^b(1 - \tau)^{1-b}Y_{t-1}$. Then, $MY_t/MY_{t-1} = a\tau^b(1 - \tau)^{1-b}$. In this case, there is a different growth rate for each value of the tax rate.

The discussion above indicates that the effect of government expenditure on the level of national output (and, on the rate of economic growth) is increasing at a decreasing rate, and that the effect of taxation necessary to pay for those expenditures is decreasing at an increasing rate (see the appendix for a complete mathematical development of the model of the optimal size fiscal state). When these two effects are added together, a relationship between the level of taxation and economic growth is obtained, shown in **Figure 2**, that is an inverted-U.

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[192].To aggregate the net capital stock one must assume that each unit of capital is homogeneous and depreciates at a constant decay rate. If capital is heterogeneous (e.g., a new tractor (machine) or computer is more productive than an old one), aggregation breaks down. Initial efforts at measuring national capital stock broke down because of this problem, and were abandoned. This is not a problem in the GE model where a putty-clay simulation of capital accumulation is used and depreciation rates are industry-specific.

[193].In the neoclassical growth model, for a given rate of population growth and a fixed savings rate, capital accumulates, and, hence, $g > 0$, until the rate of return on capital equals the marginal productivity of capital. At that point, net capital formation is equal to the rate of population growth, the capital-labor ratio becomes constant, and $g = 0$. When technical change is introduced, there is no unique steady-state capital labor ratio. If technical change is occurring at a rate equal to the rate of decline in the marginal productivity of capital, then the economy grows at a constant rate, forever.

Figure 2

In the figure, as the tax rate, τ, increases over the range 0 to τ^*, the rate of economic growth, g, increases. This is due to the fact that over some level of an increase in the size of the fiscal state the marginal benefit of government expenditure exceeds the opportunity cost of the private resources withdrawn by taxation, and these expenditures increase the productivity of the resources employed in the private sector. Beyond a tax rate of τ^* in the figure, the marginal benefit of government expenditure is less than the opportunity cost of the private resources withdrawn by taxation, and these expenditures (taxes) lower the productivity of the resources remaining employed in the private sector. The optimal tax rate, in the sense of the tax rate that maximizes the rate of economic growth is τ^* in the figure. At that tax rate, ignoring business cycles and exogenous shocks to the economy, the economy grows at a constant g^* percent per annum. At any fixed tax rate different from the optimal tax rate, the economy grows at a lower constant growth rate.

The Effect of Danish Transfers on the Optimal Tax Rate.

The Faroese public sector is somewhat unusual in the sense that there is a large transfer of money from the Danish government to the government of the Faroe Islands. At issue is whether the presence of these subsidies alters the optimal tax rate. That is, is the optimal tax rate in the Faroe Islands lower or higher as a result of these foreign subsidies (denoted as s, which is the Danish government expenditures in the Faroe Islands divided by GDP at market prices)? The mathematical model of the optimal size fiscal state in the presence of foreign subsides is developed later. All that will be described here is the result obtained in the last section of this appendix.

Recall that the basic model is contained in the equation $1 + g = a\tau^b(1 - \tau)^{1-b}$. As is shown in the appendix, the solution to the model, i.e., the optimal tax rate, is $\tau^* = b$. In the presence of the Danish subsidies, the model is rewritten as $1 + g = a(\tau + s)^b(1 - \tau)^{1-b}$. The solution to the model is $\tau^o = b + bs - s$. The difference between the two optimal tax rates is $\tau^* - \tau^o = s - bs$. Therefore, the optimal tax rate under the presence of the Danish transfers, τ^o, is less than the optimal tax rate without the transfers, τ^*. For example, if the optimal tax rate in the absence of foreign subsides is .3, then the optimal tax rate in the presence of subsidies, which are say 20 percent of GDP, is .3 + .3*.2 - .2 = .16 , and the difference in the optimal tax rates is .14 = .2 - .3*.2.

Optimal Government Expenditure.

We do not have much evidence on the benefit of government expenditure to answer the question of whether more government in the fiscal expenditure sense buys us more than less government. An interesting paper by Tanzi and Schuknecht (1995) sheds some light on this question. They asked whether on the basis of certain social indicators (e.g., unemployment, income distribution, literacy, schooling, life expectancy, infant mortality) industrialized nations with large fiscal sectors do better than those with smaller ones, and whether we have gained that much improvement in the social indicators in the post-1960 big-government era from what was achieved in the pre-1960 smaller government era. They conclude that smaller governments do as well as larger governments.

In a subsequent paper (Scully, 1998), the question is addressed more precisely by determining (i) the level of per capita government expenditure where the marginal benefit of social progress is zero (MB = 0) and (ii) the level where marginal benefit equals marginal government expenditure (MB = ME). Social progress is measured by aggregate physical quality of life indicators for 112 countries in 1995.

In one construction, the simple physical quality of life index (life expectancy, literacy, infant mortality) is utilized. In another, a multidimensional index is constructed with sixteen attributes. The aggregations to the overall indexes are constructed through equal weighting, principal component weighting, and hedonic weighting of the attributes. Several nonlinear functional forms are imposed on the data (polynomial, Pareto, differential equation, and exponential models). The fits are very good.
The models are solved for the value of per capita government expenditures that yield MB = 0 and MB = ME. These estimates are divided by GNP (PPP) per capita to determine the appropriate size of the fiscal state for advanced nations. For the average high-income OECD nation, MB = 0 at government spending equal to 18.6 percent of GNP and MB = ME at 5.6 percent.

Physical quality of life indexes (life expectancy, infant mortality, literacy or educational levels) for the Faroe Islands are comparable to other Nordic states, and above the average OECD nation. The empirical evidence in the Scully paper indicates that a maximum quality of life is attained with government expenditure of US$3,000 per capita, or about Dkr 21,000. Multiplying by the population in the Faroe Islands in 1997 of 44, 262, one obtains Dkr 929.5 million as the level of government expenditure that yields the maximum physical quality of life. This represents less than 25 percent of current government outlays and about 17 percent of GDP. This means that the size of government in the Faroe Islands can be shrunk considerably without endangering the physical quality of life of Faroe Islanders.

Estimates of the Optimal Tax Rate for the Faroe Islands

The basic model, briefly described in the text above, and more fully developed in the appendix, was estimated for the period 1963-97. On the basis of the estimation, the optimal tax rate for the Faroe Islands is 31.5 percent.[194] At this tax rate, the growth rate of GDP is maximized at a real rate of 6.2 percent per annum, versus its historical average of 3.6 percent. There are two problems with the estimate. First, there is the collapse of the fisheries, that led to negative growth. Second, there is the lack of data on

[194] Estimation is by nonlinear least squares (NLLS), with asymptotic t-values in parentheses below the coefficient estimates. The result is: $1 + g = 1.9812 * \tau^{0.3151}$.
(59.5) (14.79)

GDP and the fiscal sector, prior to 1962, which may bias up the estimate of the optimal level of taxation.

The first problem can be evaluated by dropping the observations for the 1990s, and re-estimating the model for the period 1963-89. The result is that the optimal tax rate does not change very much ($\tau^* = .306$). The second problem can be dealt with in a fashion, if we are willing to assume that Iceland is a good proxy for the Faroese economy. Certainly, Iceland is larger, but it is a fishing-based economy. While fishing is less of a component of GDP now than in the past, it dominated the economy in the earlier period.

Using data on real GDP and taxes as a share of GDP from 1946 to 1997, the estimated optimal tax rate for Iceland is 23 percent. As an alternative, the optimal tax rate for the Faroe Islands can be estimated for an earlier period in her economic history. Examination of the series on taxes as a share of GDP reveals that 1975 was the first year in which it broke the 30 percent barrier. By dropping the period 1975-97 we will omit the higher tax-regime period. The estimate of the optimal tax rate for the period 1963-74 is 19 percent. This optimal tax rate is much closer to results that I have obtained for the United States (Scully 1995), New Zealand (Scully 1996), and other countries.

There is yet another way of estimating the optimal tax rate, which is useful in its own right, and will serve as a cross-check on the above estimates. Theory says that over some range of tax rates there is a positive relationship between the growth rate and the level of taxation, but that beyond that range there is a negative relationship. Define these two ranges as $\tau < \tau_{(crit)}$ and $\tau > \tau_{(crit)}$, where $\tau_{(crit)}$ is the cut off point for the tax rate.

Let $1 + g = a\tau^b$. Two regressions are estimated for each critical value of the tax rate. These equations are solved simultaneously for τ^*, and $1 + g$ obtained. A search over the critical values of the tax rate found that b was positive if and only if the tax rate was less than or equal to 23 percent of GDP.^[195] Solving the two equations in the footnote simultaneously for τ^* yields an optimal tax rate of 19.5 percent. At this tax rate the long-run growth rate of the economy is 5.6 percent per annum, a result not inconsistent with the prior results describe above.

In conclusion, given the lack of data for the Faroe Islands before 1962, the optimal tax rate is in the range of 20 to 30 percent of GDP. The lower rate is consistent with Iceland and with Faroese data confined to the earlier period of her economic history. The latter rate should be treated as the upper bound on the growth-maximizing tax rate.

Optimal Tax Rates by Economic Sector.

Is the optimal tax rate for particular sectors of the economy substantially different from that of the economy as a whole? This question is of interest if only for the reason that it may identify sectors of the economy that would benefit or suffer more from the lowering of taxes. Hence, potential political allies or opponents may be identified, and from a policy perspective one would want to know the costs and the benefits across economic sectors before proceeding with a tax-lowering strategy.

Optimal tax rates were estimated for five economic sectors, over the period 1963-89, with the results presented in **Table 2**. For three of the sectors (fishing and fish processing, public services, and business services), the optimal tax rate does not depart

[195] The two equations are (1) $1 + g = 1.5679*\tau^{0.2415}$ and (2) $1 + g = .9966*\tau^{-0.0357}$.

too much from the optimal tax rate for the economy as a whole. However, for two sectors (shipyards and machine shops plus other manufacturing and construction, and trade, hotel, and restaurants), the optimal tax rate is less than half that for the economy as a whole.

Table 2. Optimal Tax Rates by Economic Sector

Economic Sector	Optimal Tax Rate
Fishing/Processing	32.8
Public Services	34.6
Shipyards/Machine Shops	18.2
Trade, Hotel, Restaurants	13.7
Business Services	35.2

Static and Dynamic Costs of Taxation.

We can estimate the static and the dynamic output loss from sub-optimal taxation. For the static or one year loss, equation (10) in the appendix is used and the evaluation is made at the mean real GDP (Dkr 2483.7 million). The conservative estimate of the optimal tax rate is 0.3. At that tax rate the economy grows at 6.2 percent per annum, versus its historical rate of 3.6 percent with its existing mean tax rate percent. The static cost is .074 per cent of GDP per percentage point in the tax rate. This means that any benefit cost analysis for government expenditure should take the one period cost as 1.074 kroner. Multiplied by the mean tax rate, this leads to static loss of 2.6 percent of real GDP or 65.5 million kroner at the mean real GDP. Evaluated at the nominal GDP (at market prices) in 1997, the one year loss is 147.4 million kroner.
For the dynamic output loss, equation (16) in the appendix is utilized and the evaluation is made by comparing the growth rate under the optimal tax rate with that at the mean. After ten years, the dynamic cost of taxation is .85 kroner per percentage point of the tax rate. Thus, if ten years is the time horizon, then in a benefit cost analysis of government expenditure 1.85 kroner of cost (one kroner of tax plus .85 kroner of output never produced) is the appropriate basis with which the present discounted benefits should be compared.

Naturally, since the average real growth rate is 2.6 percentage points lower than the growth rate under the optimal tax rate, the dynamic loss of output will grow through time. The cost at say 20 years is 1.96 kroner. Thus, if the time horizon is 20 years one kroner of tax plus 1.52 kroner of output loss for a total of 2.96 kroner ought to be the cost basis for any benefit cost analysis of government expenditure. Thus, in public projects with a twenty-year horizon, with existing levels of taxation, the cost basis should not be one kroner, but about three kroner.

The loss of output associated with excessive taxation can be treated from two perspectives (i.e., static or dynamic loss). If the objective is to estimate the value of gains by reverting to the optimal policy now, then, because the past is the past, prior loss is irrelevant. If the objective is to estimate the relative cost of taking one policy option or another, then, past loss is very useful in guiding current policy choice, since it gives an indication of the relative long term impact of the different policy options.

Policy Implications

(i) ***The Current Level of Taxation Imposes an Excessive Burden on the Economy.***
Central and municipal government taxes were 45.8 percent of GDP in 1997, with 62.7 percent of the taxes raised directly through income taxation and 37.3 percent through VAT and other taxes. This level of taxation is counterproductive because in addition to the direct burden of taxation, which removes resources from the private sector, it imposes additional costs of lost income and output. Estimates suggest that every additional kroner of tax revenue costs the economy significantly more than one kroner. Substantial deadweight losses are evident. The excess burden of taxation, beyond the allocative deadweight costs, is now well understood.

The implication of the excess burden of taxation is that any additional public spending should take place if and only if the benefits exceed the full costs of the taxes necessary to pay for it, including the deadweight costs of theses taxes. It also suggests that tax reduction would reduce some of these excessive costs.

The deadweight costs of the excessive tax burden in the Faroe Islands have important negative consequences for long-term economic growth. This is one of the reasons that tax reduction will improve long-term macroeconomic performance of the economy. If the Faroe Islands is to move from a modest growth path of 3.4 percent per annum to a high growth path of about 6 percent per annum, the level of taxation will have to be halved.

(ii) Tax Rate Changes Impact Economic Incentives.
Changing marginal tax rates, for income taxes and for company taxes, impacts a number of relative prices that affect behavioral choice, resource allocation, and real economic activity. Tax-induced relative price changes affect choice between work and leisure, current and future consumption (consumption and saving), and market and non-market activity (taxable and non-taxable activities).

Similarly, qualities that are difficult to measure, but that have profound consequences to economic growth, such as ambition, motivation, intensity of work effort, innovation, managerial skills, and entrepreneurial activity, are also affected by tax rate changes. Thus, changes in marginal tax rates affect the supply of factors of production such as labor, capital, innovation, and entrepreneurship, which in turn affect productive capacity, aggregate supply, and long-term economic growth.

(iii) Tax Policy Should Focus on Long-term Growth.
Using fiscal policy in an attempt to iron out the ups and downs of economic activity is a dubious exercise at best (This was also noted in the context of the GE modelling in Section 2). The post-war evidence is that fiscal policy simply has led to a secularly rising size of the fiscal state. This was not what Keynes had in mind, when he proposed using fiscal policy to iron out economic cycles of boom and bust. Fiscal policy ought to be about maximizing economic opportunity. A pro-growth tax policy improves efficiency and incentives, and removes distortions and deadweight losses, thereby impacting aggregate supply rather than manipulating aggregate demand.

(iv) Tax Cuts Will Constrain the Growth in Government Spending.
Tax cuts will help constrain the growth of government spending, thereby limiting the size of the fiscal state and encouraging economic growth. Government spending and the taxes necessary to pay for it is the public sector burden imposed on the economy. Any policy that limits the size of government not only minimizes the financial burden, but

frees up resources that are more productively employed in the private sector, thereby enabling the economy to grow more rapidly than would otherwise be the case.

Tax cuts help limit government spending in a number of ways. Government has an incentive to spend every kroner of tax revenue, and then some. Even in a case where a budget surplus is achieved, there is political pressure to spend the accumulated revenues, rather than return it to the citizens as tax cuts. By constraining tax revenue, the key source of spending is constrained. Moreover, special interests have a strong appetite for additional public spending, and tax cuts serve to undermine the influence of special interests. Without such tax cuts, the special interests will exert political pressure for more public spending. Thus tax cuts can help muster citizen support to restrain public spending. Finally, by bolstering economic growth such tax cuts lessen the need for certain types of government spending (unemployment benefits, income support programs, and other transfer payments).

(v) Change the Welfare State from Universal to Means-tested Benefit.

With domestic taxation and Danish spending in the Faroe Islands at about 70 percent of GDP, the Faroe Islands, like their Nordic neighbors, is a universal welfare state, where benefits are distributed largely without regard to the economic circumstances of the individual recipient. The size and the scope of the welfare state has grown for two reasons.

First, politicians and government agents have been ingenious in making people think that they receive public benefits and don't have to pay for them. Most advanced countries have automatic deduction of taxes from employee paychecks (withholding or PAYE), so the employee sees only his/her net wages. Some countries (e.g., New Zealand) now are not even requiring some of those who pay income taxes on wage earnings to file an annual income tax form. In those countries that have VAT or a general sales tax, the tax is inclusive of the price, so consumers are not aware that they are paying a consumption tax. Thus, many citizens are not aware that they even pay taxes. All that they see is a large array of government public consumption expenditures and transfer payments, which they freely take.

Second, times have changed. In the past, with the personal shame and social opprobrium associated with taking a benefit from the state, many were reluctant to ask for public benefits. Over time, as more and more citizens took advantage of these benefits, it became more socially acceptable to receive public benefits. Now, public benefits are considered a right.

To shrink the size of the public sector (from roughly half of GDP, or 70 percent, counting Danish spending) welfare benefits should be curtailed by constraining their scope and size and by means-testing most of them. For those non-transfer income government services, which are not amenable to privatisation, some element of fee for service or a co-payment should be considered. Even a 70 kroner co-payment fee to see a physician will curtail visits for minor aches and pains.

Transfer payments should exist to provide a safety net, not an alternative life style. Benefits to the unemployed and solo mothers should be limited in amount and duration so that there is always an incentive to seek employment.

For a variety of government services, such as trash collection, water, roads, public transportation, and so on, there is no inherent reason why government should be

involved in directly providing these services or in subsidizing them. As noted elsewhere, where practical, consideration should be given to privatizing government services. Where impractical, great care should be exercised in subsidizing services (bus transportation, ferries, etc.). Subsidies are a great big black hole. The more an activity is subsidized, the more it becomes inefficient, and the more subsidies it requires.

(vi) Encourage the Creation of a Pool of Risk Capital.
In addition to the tax burden, an impediment to economic growth in the Faroe Islands is a shortage of risk capital. Much of the household saving goes into conservative instruments (savings accounts and life insurance) and into residential mortgages. A continuous refrain from private businesses in the Faroe Islands is the lack of capital necessary to replace worn-out buildings and capital equipment, or to expand the business. Foreign investment is one source of risk capital.

Two sources of risk capital are available domestically, and a third source if the petroleum reserves are economically exploitable. First, most start-up businesses, and immature ones as well, self-finance out of cash flow. Cutting company and personal tax rates will create a larger pool of retained cash flow for further investment. Second, a large pool of capital is locked up in the housing stock. In a restructured economy with efficient industry and deeper capital markets, people will establish a more diversified portfolio. Third, if and when royalties arrive from oil, some portion should be put into a government investment fund to seed new businesses.

Since such income from oil is the people's money, government should exercise prudence in its use, but should not directly have a say in who gets the seed money. Perhaps, an independent advisory council of businessmen should make recommendations based on the business plans of those submitting requests for seed money.

Models of Economic Growth and Taxation

A Model of the Optimal Size Fiscal State

Let there be two sectors in the economy. Government provides services, G_{t-1}, which are own-produced or purchased from the private sector, and pays for them out of taxes collected, τY_{t-1}. For mathematical convenience, budget balance is assumed (i.e., $G = \tau Y$). The private sector retains private goods, $(1 - \tau Y_{t-1})$. These public and private goods then are used to produce national output at time, t.[196] Thus,

$$(1)\ Y_t = a\,(G_{t-1})^b\,[(1 - \tau)Y_{t-1}]^{1-b}.$$

The national income generating function is assumed to be homogeneous of degree one, since there is no reason to believe that the aggregate good, GDP, is produced under conditions other than constant returns.

Dividing equation (1) by Y_{t-1}, yields the growth relation.

$$(2)\ 1 + g = Y_t/Y_{t-1} = a(G_{t-1})^b\,(1 - \tau)^{1-b}\,Y_{t-1}^{-b}.$$

[196] The subscripts t and t-1 merely reflect the logic that current period output depends on past outputs from the public and private sectors, even if this is only an instantaneous moment of time.

What is the effect of an increase in government expenditure and an increase in the tax rate to pay for it on the growth rate?[197] Differentiating g with respect to G_{t-1} and simplifying yields:

$$(3)\ Mg/MG = aG^{b-1}\, b(1 - \tau)^{1-b}\, Y_{t-1}^{-b}$$

and

$$(4)\ M^2g/MG^2 = aG^{b-2}\,(b - 1)\, b(1 - \tau)^{1-b}\, Y_{t-1}^{-b}.$$

The effect of an increase in government expenditures on the growth rate is positive, but at a diminishing rate.

Differentiating g with respect to τ and simplifying yields:

$$(5)\ Mg/M\tau = aG^{b}\,(1 - \tau)^{-b}\,(b - 1)Y_{t-1}^{-b}$$

and

$$(6)\ M^2g/M\tau^2 = [(aG^{b}(1 - \tau)^{-b-1}\, b(b - 1)Y_{t-1}^{-b}.$$

The effect of an increase in the tax rate on the growth rate is negative, at an increasing rate.

Since $G = \tau Y$, substitution into equation (1) yields:

$$(7)\ Y_t \doteq a\,(\tau Y_{t-1})^{b}\,[(1 - \tau)Y_{t-1}]^{1-b}$$
$$= a\tau^{b}(1 - \tau)^{1-b}Y_{t-1}.$$

The growth rate is:

$$(8)\ 1 + g = a\tau^{b}(1 - \tau)^{1-b}.$$

Differentiating g with respect to τ yields:[198]

$$(9)\ Mg/M\tau = a\tau^{b-1}\,(1 - \tau)^{-b}\,(b - \tau).$$

The sign of $Mg/M\tau$ depends on whether $(b - \tau)$ is positive or negative. If the tax rate is less than b, an increase in the tax rate increases the growth rate. If the tax rate is greater than b, an increase in the tax rate lowers the growth rate. Solving for the growth-maximizing tax rate yields, $\tau^* = b$.

The magnitude of the parameters a and b are an empirical matter. Some theoretical discussion on the effect of the size of the parameters on the growth rate, however, is warranted. Of course, it is straight forward that a higher value of the intercept means a higher growth rate, since $Mg/Ma = \tau^{b}(1 - \tau)^{1-b}$. The effect of variation in the b parameter on the growth rate is $Mg/Mb = a\tau^{b}(1 - \tau)^{1-b}\,(\ln(\tau) - \ln(1 - \tau))$, with Mg/Mb # 0 for τ # .5 and Mg/Mb > 0 for $\tau > .5$.

The model can be illustrated diagrammatically. In **Figure 1**, there are three optimal, maximum, or potential levels of national output: Y^*_0, Y^*_1, and Y^*_2, which correspond to initial period output and output in periods one and two. These are the attainable output levels with available resources, technology, and other factors when the optimal or output-maximizing (growth-maximizing) tax rate, τ^*, is in effect. There are many actual

[197]. The derivatives of Y_{t-1} with respect to G_{t-1} and τ will have the same signs.
[198]. The second derivative is $M^2g/M\tau^2 = a\tau^{b}b(1 - \tau)^{1-b}(b - 1)/\tau^2(\tau - 1)^2$.

levels of national output, which are less than potential national output, that are given by a level of taxation that is less than or greater than τ^*, along the curves Y_0, Y_1, and Y_2.

Suppose that the tax rate τ^* is in effect and is constant. If the optimal tax rate is unchanging, the economy grows at a constant rate of g^* percent. Next, suppose that the tax rate is not optimal, but is at an unchanging level of $\tau > \tau^*$. Then, the constant growth rate is $g < g^*$. By the model, nothing has changed with regard to the underlying neoclassical forces affecting economic growth. The potential growth rate remains at g^*. What has changed is that the economy has moved from an optimal to a sub-optimal or inefficient mix between the public and the private sectors. Lastly, let the tax rates change from τ^* to τ_1 to τ_2 in the figure. The corresponding actual levels of national output achieved are: Y^*_0, Y^A_1, and Y^A_2. The corresponding growth rates are $g_2 < g_1 < g^*$. Again, nothing has changed in the underlying (neoclassical) determinants of growth. The potential growth rate remains at g^*. Only the mix between the public and private sectors has changed. This relationship between the growth rate and the tax rate is shown in **Figure 2** in the text.

Technical Inefficiency and Sub-optimal Taxation

There is a fairly longstanding notion of efficiency loss in the literature. Broadly, it is an attempt to move away from the theoretically convenient but misleading Marshallian representative firm to a recognition that firms in the same line of business are heterogeneous, differing in allocative (price), scale, and managerial or technical efficiency.

A firms actual output can be compared with its potential output and the ratio of actual to potential output calculated and partitioned into the fractions associated with non-optimal input choice (allocative inefficiency), non-optimal scale (scale inefficiency), and sub-optimal managerial performance (technical failure of not getting the maximum amount of output from factors of production, given input mix and scale). A cottage industry of sorts has arisen in which hundreds of papers have been written (most, but not all, employ data envelopment analysis) that measure the sources of inefficiency among firms in the same line of business.

Overwhelmingly, technical inefficiency is found to be the largest source of the efficiency differences among firms. Allocative efficiency, the main focus of the economic theory of the representative firm, becomes of paramount concern when the firm, or an economy, is operating on the frontier. Since this is generally not the case, technical efficiency concerns are paramount.

Figure 3

Figure 4

To our knowledge, Scully was the first to extend the notion of technical efficiency to the national economy (Scully 1988, 1989). Now, the application of efficiency analysis to national economies is fairly common (Koop, Osiewalski, and Steel 1997). However, as far as we know, this notion of technical inefficiency (actual national output being less than potential national output) or output loss is not part of the welfare economics literature.

The incorporation of output loss arising from technical inefficiency into welfare economics would shift the focus of the cost of taxation to a static treatment of technical efficiency loss, as well as allocative efficiency loss, and to a dynamic as well as a static analysis. Nearly all analysis of the welfare cost of taxation is static, uses compensated elasticities, and ignores the income effects of taxation. As such, the focus is on the deadweight costs of allocative inefficiency. Less frequently used is an approach that incorporates income effects of tax changes.

In terms of **Figure 3** and the set of calculations, the productive loss associated with a movement away from the optimal level of taxation to a sub-optimal level is as follows. The technical efficiency of the economy associated with τ_1 is $TE_1 = Y^A_1/Y^*_1$ and for τ_2 is $TE_2 = Y^A_2/Y^*_2$, with $TE_2 < TE_1 < 1$.

It is important to bear in mind here that these output losses arise exclusively from a non-optimal mix between the government and private sectors. They do not imply that inputs have been idled.

These static (one period) output losses from sub-optimal taxation may be expressed per unit of tax. In relative form, the loss, L, is

$$(10)\ L = [(Y_t^*/Y_t) - 1]/\tau$$
$$= [(a\tau^{*b}(1 - \tau^*)^{1-b}Y_{t-1} / a\tau^b(1 - \tau)^{1-b}Y_{t-1}) - 1]/\tau$$

The derivative of the loss with respect to the tax rate is

$$(11)\ ML/M\tau = [\tau^{*b}(1 - \tau^*)^{1-b}\, b - 2\tau^{*b}(1 - \tau^*)^{1-b}\,\tau + \tau^{*b}(1 - \tau^*)^{1-b} - \tau^b(1 - \tau)^{1-b} + \tau^b(1 - \tau)^{1-b}\,\tau]/(\tau^b(1 - \tau)^{1-b}\,\tau^2(-1 + \tau)).$$

The denominator of the derivative is negative. The numerator is negative for $\tau > \tau^*$ (or, $\tau > b$) and positive for $\tau < \tau^*$ (or, $\tau < b$). The numerator is zero for $\tau = \tau^*$. Hence, the loss increases with the tax rate when the tax rate is above the optimal rate. The pattern of the output loss with respect to the tax rate is shown in Figure 4.

The Dynamic Cost of Taxation

The path of potential real GDP, Y^*_t, is given by $Y^*_t = Y_0e^{g^*t}$, where g^* is the growth rate that corresponds to the optimal tax rate, τ^*. The actual path of real GDP is given by $Y_t = Y_0e^{gt}$, with $g < g^*$. If expressed as a difference, the difference between potential and actual national output at each time period is $Y_0e^{g^*t} - Y_0e^{gt}$. Integrating this difference over the interval from zero to infinity yields:

$$(12)\ (Y_0e^{g^*t}/g^*) - (Y_0e^{gt}/g) + [Y_0(g^* - g)/(g^*g)], \text{ or}$$
$$Y_0[(e^{g^*t}/g^*) - (e^{gt}/g) + ((g^* - g)/(g^*g))].$$

Note that the integral will be zero if and only if $g = g^*$.

If expressed relatively, $(Y_0e^{g^*t} / Y_0e^{gt}) - 1 = e^{(g^*-g)t} - 1$. Integrating, we obtain

$$(13)\ [e^{(g^*-g)t} / (g^* - g)] - t - (g^* - g)^{-1}.$$

For a fixed tax rate, the path of real taxes is given by $T_t = T_0e^{gt} = \tau Y_0e^{gt}$. One expression for the multi-period loss (dynamic cost) of taxation, L, at time t, is the difference between potential and actual GDP at time t divided by the level of taxation at that time.

$$(14)\ L_t = (Y_0e^{g^*t} - Y_0e^{gt})/\tau Y_0e^{gt}$$

Alternatively, the dynamic cost of taxation can be expressed relatively. We have

$$(15)\ L_t = [(Y_0e^{g^*t}/Y_0e^{gt}) - 1]/\tau.$$

Both expressions for the dynamic cost of taxation simplify to

$$(16)\ L_t = (e^{(g^*-g)t} - 1)/\tau.$$

Except at the optimal tax rate, τ^*, actual output is less than potential output. Thus, the dynamic cost of taxation is positive for an economy with a fiscal size state that is less than or greater than the optimal size. Thus, only when $\tau = \tau^*$ will $g = g^*$. Then, the numerator in equation (14) or (15) is zero, and $L = 0$. For $\tau > \tau^*$, $g < g^*$ and $L > 0$.

For many advanced nations, including the Faroe Islands, the fiscal size of government is greater than the optimal size. As such, the gap between potential and actual GDP naturally will widen over time, and the dynamic cost of taxation will increase over time. Differentiating L_t with respect to time in equation (16) yields:

$$(17)\ ML_t/Mt = e^{(g^*-g)t}\,(g^* - g)/\tau.$$

Since $g^* > g$, $ML_t/Mt > 0$.

A natural question is why politicians and citizens allow the imposition of a level of taxation that is above that which maximizes private wealth. Staying within the confines

of the model at hand, excessive taxation may arise simply because the tax rate that maximizes revenue to the state exceeds the rate that maximizes economic growth or GDP. A simple extension of the model shows that this is so. Utilizing equation (7) and noting that $G = \tau Y$, we may write

$$(18)\ G_{t-1} = \tau\, a\tau^{b}(1 - \tau)^{1-b}Y_{t-1}.$$

Differentiating G with respect to τ and simplifying yields[199] :

$$(19)\ MG/M\tau = a\tau^{b}(1 - \tau)^{-b}Y_{t-1}(1 + b - 2\tau).$$

Solving for the revenue-maximizing tax rate, τ^{**}, yields $\tau^{**} = (1 + b)/2$. Clearly, $\tau^{*} < \tau^{**}$; i.e., the growth-maximizing tax rate is less than the revenue-maximizing tax rate.

A Model of the Optimal Size State with Foreign Subsidies

A fact of the Faroese economy is that the Danish government provides considerable subsidies, either directly for some government services or indirectly through a block grant. Currently, these subsides amount to about 20 percent of GDP. At issue is whether the growth-maximizing tax rate differs or remains unchanged in an economy with foreign subsidies.

Denote foreign subsidies as a share of national output as s. Then, equation (7) is rewritten as

$$(20)\ Y_t = a(\tau + s)^{b}(1 - \tau)^{1-b}Y_{t-1}$$ and equation (8) as

$$(21)\ 1 + g = a(\tau + s)^{b}(1 - \tau)^{1-b}.$$

Differentiating g with respect to τ yields:

$$(22)\ Mg/M\tau = a(\tau + s)^{b-1}(1 - \tau)^{-b}(b + bs - (\tau + s)).$$

The sign of $Mg/M\tau$ depends on whether $(b + bs - (\tau + s))$ is positive or negative. If the tax rate plus the subsidy rate is less than $b + bs$, an increase in the tax rate increases the growth rate. If the tax rate plus the subsidy rate is greater than $b + bs$, an increase in the tax rate lowers the growth rate. Solving for the growth-maximizing tax rate yields, $\tau^{o} = b + bs - s$. A comparison of the optimal tax rate under no foreign subsidy versus the presence of a foreign subsidy reveals that it is lower under a foreign subsidy. That is, $\tau^{*} - \tau^{o} = b - (b + bs - s)$.

What is the effect of the foreign subsidy on the growth rate? Differentiating s with respect to g yields

$$(23)\ Mg/Ms = a(\tau + s)^{b-1}b(1 - \tau)^{1-b},$$

which is clearly positive. The second derivative is negative.

$$(24)\ M^{2}g/Ms^{2} = a(\tau + s)^{b}b(1 - \tau)^{1-b}(b - 1)/(\tau + s)^{2}.$$

[199] The second derivative is $M^{2}G/M\tau^{2} = a\tau^{b-1}(1 - \tau)^{-(1+b)}Y_{t-1}(b - 2b\tau - 2\tau + 2\tau^{2} + b^{2})$.

Appendix C: Data Quality

As with any country there are always problems with data availability and data quality. The Faroe Islands is no exceptions. But some of the issues warrant special attention. In its 1993 report the IMF evidenced some frustration with the quality of national accounts data from the Faroes:

"Because of the lack of national accounts for the Faroe Islands and the weaknesses of statistical collection, it is not possible to construct even a simple macroeconomic model for the economy. It is necessary to employ a very simple technique for constructing the scenario. A preliminary measure of GDP in 1990 has been prepared from available income statistics."[200]

Since those early days some effort has been made by the Faroe Islands government to improve the quality of the data. But even the experts in government who provided us with considerable guidance and assistance admit that much remains to be done. Our first efforts in this mission were to place heavy demands on the departments in government to provide new and revised data that would permit a better understanding of the strengths and weaknesses in data quality.

Based on hours of discussions, the following areas of data are considered to be of good quality and hence reliable for modelling purposes: foreign debt; balance of payments; GDP and gross fixed capital formation from 1962-1980 and 1989-1997; 1985-97 production value; government output data; CPI until 1992 and after 1994 (the VAT shock for 1993-94 has not apparently been captured by the CPI); and all maritime investment data.

Existing official data which are less reliable include GDP for 1980-88, the GDP deflator, gross fixed capital formation for 1981-1987, gross fixed capital formation for the municipalities, and private sector fixed capital formation for 1989-97, and input-output data. In all cases, estimations have been made for these data (except for the GDP deflator) either by the Statistics Department or the Mission Team.

The Mission Team has spent considerable time during the course of our visits in July and August 1999 checking and cross-checking the quality of data. In some cases, we discovered that the private sector held more reliable data than the Statistics Department, or the Landesbanki had more consistent data than the Statistics Department.

[200] IMF, 1993, *Memorandum of Economic Policies*, Washington DC Appendix.

About the Authors: Mission Team

Dr. Patrick Caragata, Managing Director, McCallum Petterson Financial Diagnostics Ltd, Wellington, New Zealand

Patrick Caragata received his Ph.D. in political economy from the University of Toronto in 1981. He has 18 years experience in the field of risk assessment and risk management and is the developer of a software package for automating the process of producing corporate credit ratings and life cycle performance analysis for companies.

At age 33, he was placed in charge of the country risk analysis group of the Toronto-Dominion Bank that examined the bank's overseas risk for its multi-billion dollar portfolio in 65 countries. He worked on the Canadian Bankers Association committee dealing with the Latin American debt crisis in the early 1980s. In 1986, the Canadian government asked for his secondment from Toronto-Dominion Bank to examine the investment risks of the Canada-US Free Trade Agreement until 1988. This was the first trade agreement to contain investment provisions.

He moved to New Zealand in 1988 to become Chief Economist at the Ministry of Energy. From 1991 to 1997 he was Chief Tax Policy Adviser and then Special Adviser, Taxation Economics at New Zealand's Inland Revenue Department. His work included the development of a hybrid royalty system for petroleum, revision of the petroleum mining taxation legislation, and a 100 page report examining the costs and benefits of an offshore financial centre for New Zealand. He led a four year study on the *Economic and Compliance Consequences of Taxation: A Report on the Health of the Taxation System in New Zealand*' which was published by Kluwer Academic Press in the Netherlands in July 1998.

In 1997 Dr. Caragata was appointed Managing Director of McCallum Petterson Financial Diagnostics Ltd in Wellington, New Zealand. His company specialises in corporate financial health and credit risk assessments and company performance analysis with a specific focus on corporate rescue and turnarounds. He is also on the Board of directors of New Zealand's *Turnaround Management Association* and the New Zealand director on the Board of the Tuvalu Investment Trust Fund.

Dr. Caragata has also been a consultant for the World Bank in Sri Lanka in 1994 where he worked on the taxation of foreign investment, and a consultant in Albania for the IMF in 1995 where he blew the whistle on the illegal pyramid schemes whose collapse led to the rioting in January 1997.

He is the author of four books, two on resource economics and two on taxation. He is also the co-author, along with Rod Robinson of Marsh Inc in New Zealand, of a new book on *Business Early Warning Systems: A Manager's Guide for Minimising Risk*© It will be published for the international market by Butterworth's in November 1999. He developed a strategic alliance with Marsh and McLennan in 1998.

Dr. Adolf Stroombergen, Managing Director, Infometrics Consulting, Wellington, New Zealand.

Dr. Stroombergen received his Ph. D. in economics from Victoria University in Wellington, New Zealand in 1986. He is New Zealand's leading expert in applied general equilibrium modelling, microsimulation modelling and cost benefit analysis in areas such as investment savings and insurance, social welfare benefits, accident

compensation benefits, aviation services, resource rentals for fishing and natural resources, student loans, electricity, road safety, road funding and road pricing, municipal government subsidies, the allocation of police resources, energy and carbon taxes, and import tariff regimes affecting the automotive industry,

In addition, he has modeled the forecasting of tax revenue, and undertaken developmental work on measures of regulatory burdens on the New Zealand corporate sector; econometric investigations of links and trade-offs between taxation, growth, efficiency, equity, and deadweight loss; the development of a social accounting matrix for examining the trade-offs between the competing macroeconomic goals of equity, growth and efficiency,

His business modelling experience includes the application of data envelopment analysis and econometric modelling to conduct performance and efficiency analysis in the retail sector, the effects of regulations on the wool industry, the gaming and gambling industry, the wholesale gas market and intra-energy competition, and forecasts of energy resource demand

Professor Gerald Scully, University of Texas at Dallas

Gerald Scully has been a Professor of Economics at the University of Texas at Dallas in the United States since 1985. He received a Ph.D in economics from Rutgers University in 1968. He has been a distinguished Visiting Scholar (Fall, 1995) at the International Center for Economic Research, Turin, Italy, the Inland Revenue, Wellington, New Zealand (1996), the Heritage Foundation, 1990-91. He has taught at southern Methodist University, Harvard University, Southern Illinois University, and Ohio University.

His fields of expertise include: Microeconomic Theory, Managerial Economics, Labor Economics, Statistics, Econometrics, Public Finance, and Pure Theory of Trade. He has also been Acting Dean, School of Management, 1987-88 and Chair, International Management, 1986-88 at the University of Texas at Dallas.

He is a member of the Mont Pelerin Society, Senior Fellow, at the National Center for Policy Analysis in Dallas Texas and is on the Editorial Board, of Public Choice, the Pacific Economic Review, the Journal of Sport Management, and Managerial and Decision Economics

He is the author of numerous books including, Measuring the Quality of Life Across Countries: A Multi-dimensional Analysis. (with D. Slottje), Boulder: Westview, 1991, and Constitutional Environments and Economic Growth. Princeton: Princeton University Press, 1992.

He has published many articles, including work on Interstate Wage Differentials, the Theory of Wage Differentials, Business Cycles and Industrial Strike Activity, Technical Progress, Economic Growth and the North-South Wage Differential, Temporary Labour Migration and the Theory of Optimal Intervention, Static vs. Dynamic Phillips Curves, International Investment, Trade Diversion and Trade Creation, Buyers Prices, Sellers Prices and Price Flexibility, Domestic Distortions and the Theory of Customs Unions, Industrial Policy and the Nature of the Firm, Economic Efficiency in Cooperatives, The Choice of Law and the Extent of Liberty, Liberty and Economic Progress, The Institutional Framework and Economic Development, Wealth and Income Inequality in America, The Paradox of Politics and Policy in Redistributing Income, The Size of the State, Economic Growth, and the Efficient Utilization of National Resources, Is the Size

Distribution of Income a Random Walk?, Statism versus Individualism and the Course of Economic Progress, The Political Market for Real Income Redistribution through Choice of the weights in COLAs, The Equality-Efficiency Tradeoff, Rights, Equity, and Economic Efficiency, Ranking Economic Liberty Across Countries, Rent-seeking in U.S. Government Budgets, The Convergence of Fiscal Regimes and the Decline of the Tiebout Effect, Liberalizing Foreign Trade: Indonesia, Pakistan and Sri Lanka, Efficiency Differences between Private and State-owned Enterprises in the International Petroleum Industry, Measuring Economic Liberty, The Economic Efficiency of Backward Vertical Integration in the International, Petroleum Refining Industry, A New Method for Detecting Individual and Group Labor Market Discrimination, Rent-seeking: A Trivial or Serious Problem?, The Theory and Measurement of the Net Benefits of Multinationality, Institutional Technology and Economic Growth, Congressional Tenure: Myth and Reality, The Growth Tax in the United States, The Distribution of Earnings and the Rules of the Game, Taxation and Economic Growth in New Zealand, Rule and Policy Spaces and Economic Progress: Lessons for Third World Countries, Constitutional Political Economy in a Public Choice Perspective, Relative Income and Investment Comparisons Among OECD Nations, Reform and Efficiency Gains in the New Zealand Electrical Supply Industry, and The Growth-maximizing Tax Rate.

His recently completed work includes, Government Expenditure and Quality of Life, The Optimal Size Fiscal State, Taxation and Employment in New Zealand, The Equity-Efficiency Trade-off in New Zealand: A Preliminary Analysis (with Adolf Stroombergen) and Taxation and the Limits of Government, eds. G.W. Scully and P.J. Caragata.