

1989/1990

OECD ECONOMIC SURVEYS



ICELAND



OECD
ECONOMIC SURVEYS

ICELAND



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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BASIC STATISTICS OF ICELAND

THE LAND

Area (1 000 sq. km)	103	Unproductive area (1 000 sq. km.)	82
Productive area (1 000 sq. km)	21	of which:	
of which:		Glaciers	12
Cultivated area	1.1	Other area devoid of vegetation	70
Rough grazings	20		

THE PEOPLE

Population, December 1st, 1988	51 743	Occupational distribution 1986 (per cent):	
Net increase 1981-1988, annual average (per cent)	1.1	Agriculture	5.8
		Fishing and fish processing	13.2
		Other manufacturing	16.2
		Construction, total	9.1
		Commerce	17.2
		Communications	6.6
		Services and other	31.9
			100.0

GOVERNMENT AND PARLIAMENT

Parliament, number of seats:	1983	1987	
Independence Party (Lib. Cons.)	23	18	
Progressive Party (Agrarians)	14	13	
Peoples' Alliance (Socialists, Communists)	10	8	
Social Democratic Party	6	10	
Citizen's Party	—	7	
Women's Alliance	3	6	
Other	4	1	
	60	63	

Last general election: April 1987

PRODUCTION AND CAPITAL FORMATION

Gross National Product in 1988:		Gross Fixed Capital Formation in 1988:	
Millions of I. Kr.	245 971	Millions of I. Kr.	40 465
Per head, US \$	22 707	Per cent of GNP	16.5

FOREIGN TRADE

Exports of goods and services in 1988, per cent of GNP	34.2	Imports of goods and services in 1988, per cent of GNP	34.7
Main exports 1988 (per cent):		Imports 1988, by use (per cent):	
Fish products	71.1	Consumer goods	34.5
Aluminium	10.7	Investment goods	32.0
Other manufacturing products	11.7	Intermediate goods (excl. fuels)	27.3
Agricultural products	1.7	Fuels and lubricants	6.2
Miscellaneous	4.8		

THE CURRENCY

Monetary unit: Krona		Currency units per US \$, averages of daily figures:	
		Year 1989	57.1
		March 1990	60.75

Note: An international comparison of certain basic statistics is given in an annex table.

This Survey is based on the Secretariat's study prepared for the annual review of Iceland by the Economic and Development Review Committee on 5th March 1990.

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After revisions in the light of discussions during the review, final approval of the Survey for publication was given by the Committee on 22nd March 1990.

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The previous survey of Iceland was issued in October 1988.

Introduction

The Icelandic economy has been going through a period of rapid change. The 1980s saw the introduction of far-ranging structural reforms, particularly in the credit market, which have created a better base for continued medium-term growth, at a time when the growth of fisheries output is slowing. Following several years of boom during the mid-1980s, when fish catches were buoyant and the terms of trade favourable, there is now a need to conserve fish stocks. The cod catch has been reduced by 10 per cent since 1987 and GDP has fallen by 4 per cent over the same period. Because the terms of trade have deteriorated, the decline in national income has been even more severe. The government has accepted the need for a further significant cut in the cod quota in 1990, although not by as much as recommended by the Marine Research Institute. Another year of falling living standards appears probable.

Part of the downturn appears to be cyclical. The over-expansionary policies pursued during the boom resulted in excessive real wages and a current account deficit which have needed to be corrected. However, medium-term growth prospects have been adversely affected because of the need to service the excessive overseas debt which built up during the 1980s. Inflation has also remained much higher than the OECD average. Although the recession has depressed wage claims, monetary policy needs to remain cautious in order to generate greater private saving and prevent a reacceleration of inflation as activity recovers. With the scope for macroeconomic action limited by the need to anchor inflation expectations and repay external debt, consolidation and extension of the structural reforms of the 1980s offer the best prospects for future growth.

Following a discussion of the nature of the recession in Chapter I, the Survey examines macro-policy options and constraints in Chapter II and short- and medium-term growth prospects in Chapter III. Given the limitations on macroeconomic policies, Chapter IV analyses the role of microeconomic policies in ensuring balanced economic growth in the 1990s. Conclusions are presented in Chapter V.

I. Anatomy of the recession

The Icelandic economy moved into recession from the middle of 1988. Although the fish catch for the year was a record in terms of tonnage, export earnings were adversely affected by a marked weakening in fish prices. Moreover, marine export production, agriculture and manufacturing were all depressed by

Table 1. External environment and economic performance

	1983	1984-86	1987	1988	Estimated 1989	Projected 1990
External conditions						
Terms of trade ¹	2.5	0.1	6.1	0.1	-2.8	3.2
Real exchange rate ^{1, 2}	-6.1	-1.3	9.1	5.4	-8.2	-2.0
Average interest rate on foreign debt (%)	—	9.3	7.8	7.8	8.9	8.2
Domestic output growth						
Cod catch ³	294	323	390	376	350	310
Export production ¹	—	5.2	8.1	-0.1	0.6	0.1
Gross domestic product ¹	-4.1	3.4	8.9	0.8	-3.4	0.0
Gross national income ^{1, 4}	-3.3	3.0	10.5	-1.7	-5.1	0.9
Unemployment rate (%)	—	—	0.5	0.6	1.7	2.3
Inflation and the current account						
Cost of living index ¹	84.3	32.4	18.7	25.4	21.1	13.5
Real disposable income growth ¹	-13.8	10.8	23.2	-2.3	-8.0	-3.0
Current account (per cent of GDP)	-1.9	-4.0	-3.5	-3.6	-1.6	-1.5
Foreign interest payments (per cent of GDP)	4.5	4.4	3.4	3.6	4.9	4.8

1. Annual average percentage change.

2. Exchange rates are trade-weighted indices (1980 = 100) of 17 currencies. Real rates calculated from relative consumer prices.

3. Thousand metric tons.

4. Gross national income equals GDP adjusted for terms of trade effects.

Sources: National Economic Institute and OECD Secretariat.

Table 2. Demand and output
Per cent change in volume terms

	1983	1984-86	1987	1988	1989 ¹	1990 ¹
Private consumption	-6.4	5.0	16.4	-4.0	-8.0	-1.0
Public consumption	4.7	6.2	6.1	4.2	1.0	1.0
Gross fixed investment	-12.3	1.0	19.0	-1.3	-10.0	-3.5
Business	-11.3	17.3	20.6	-7.9	-19.0	8.8
Residential	-9.1	-15.3	14.2	10.6	0.0	0.0
Public	-15.6	-8.5	19.0	4.4	-0.4	-1.6
Final domestic demand	-5.9	4.3	15.0	-2.0	-6.8	0.4
Stockbuilding ²	-3.5	-1.3	0.7	1.0	-0.9	0.3
Total domestic demand	-9.0	3.0	15.8	-1.0	-7.6	0.7
Exports of goods and services	10.3	11.0	4.0	-2.7	1.3	0.6
Imports of goods and services	-5.7	9.7	22.9	-3.1	-10.0	2.1
Foreign balance ²	5.5	0.3	-5.6	-4.9	-0.4	-1.0
GDP	-4.1	3.4	8.9	-0.8	-3.4	0.0
GNP	-4.7	3.1	9.0	-1.6	-4.3	0.0
Gross national income ³	-3.3	3.0	10.5	-1.7	-5.1	0.9
<i>Memorandum items:</i>						
Export production	—	5.2	8.1	-0.1	0.6	0.1
Marine products	—	8.0	4.9	-0.2	-3.0	-1.0
Aluminium	—	-6.6	9.7	-1.7	7.8	0.9
Ferrosilicon	—	-9.5	-18.3	14.7	3.8	0.0
Other	—	9.1	44.0	-1.8	13.5	4.9

1. Projection.

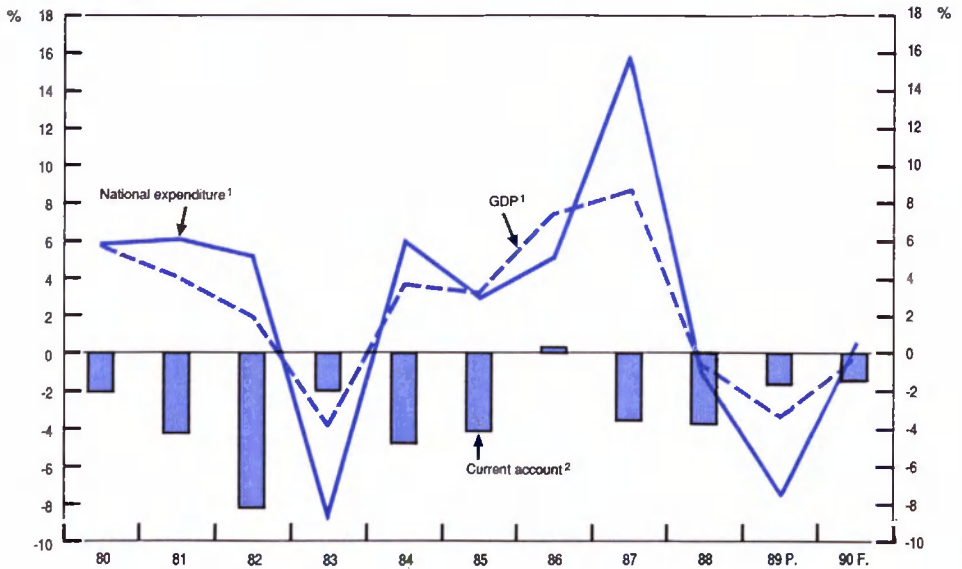
2. Contribution to GNP growth, i.e. changes in aggregates expressed as a percentage of GNP of the previous year.

3. GNP adjusted for effects of changes in the terms of trade.

Source: National Economic Institute.

declining international competitiveness and profitability, stemming from a combination of high real-wage- and credit-costs and a substantial real appreciation of the krona, brought about by the firm exchange-rate policy. Export volumes declined by almost 3 per cent in 1988, helping to reduce GDP by $\frac{3}{4}$ per cent (Tables 1 and 2; Diagram 1). In 1989 the recession deepened, due to a sharp drop in the fish catch and deteriorating terms of trade. Adjusted for inflation, national income fell by 5 per cent, and household disposable income by 8 per cent. Nearly all domestic sectors – manufacturing, construction, trade and catering – are currently in recession.

Diagram 1. **CHANGES IN GDP, NATIONAL EXPENDITURE AND EXPORTS**



Note: P = provisional; F = forecast.

1. Change over previous year.

2. As a per cent of GDP.

Sources: National Economic Institute and OECD, *National Accounts*.

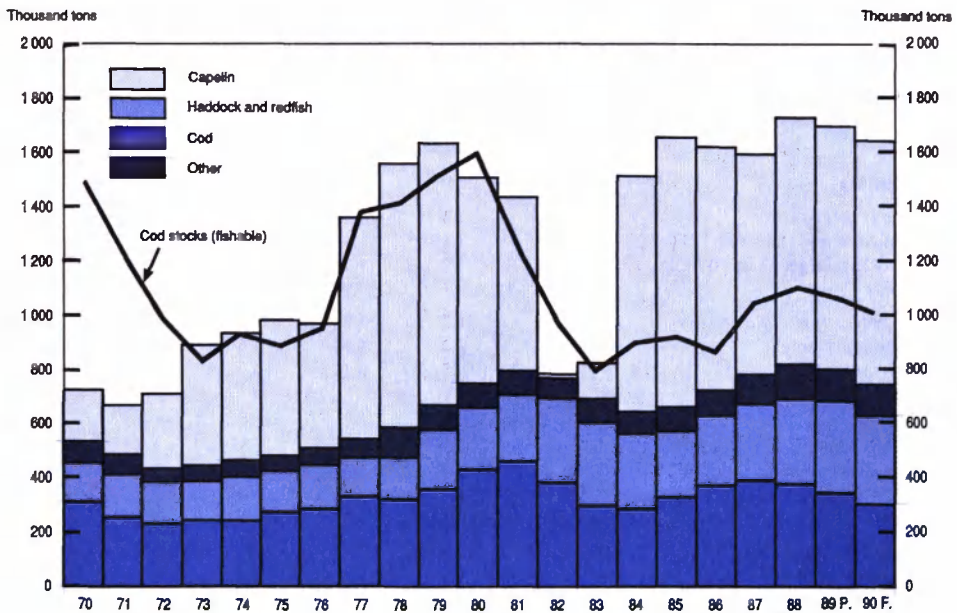
The fish catch and export production

The fishing sector had been a strong source of growth between 1984 and 1987, the cod catch rising from 280 to 390 thousand tonnes. Conditions had been quite favourable in Icelandic waters in the early 1980s. Atlantic water, as opposed to colder, nutrient-poor Arctic water, prevailed well to the north of the island, and plankton densities – the base of the food chain – had increased, supporting “recruitment” to the fishable stock. However, from 1986 environmental conditions deteriorated, leading to the prospect of a decline in fish stocks should cod-fishing

continue at the same rate. After analysing the possible effects of various medium-term exploitation strategies, the Marine Institute proposed that the cod quota for 1988 be set at 300 000 tonnes, compared with a catch of 390 000 in 1987.

The eventual compromise was based on a catch of 350 000 tonnes – a reduction thought sufficient to keep the spawning stock roughly stable, with a decline in the fishable stock of about 10 per cent up to 1990. Because of loopholes in the quota system, the eventual 1988 cod catch was somewhat larger, at 376 000 tonnes (Diagram 2), a rise in the catch of other demersal species¹ (haddock, redfish, saithe and halibut) limiting the fall in the overall fish catch to ½ per cent (excluding capelin, a less-valuable fish used mainly for fish meal). Estimates of the 1989 catch

Diagram 2. THE FISH CATCH



Note: P = provisional; F = forecast.

Sources: National Economic Institute, Marine Institute, *State of Marine Stocks and Environmental Conditions in Icelandic Waters 1988, Fishing Prospects 1990*, Reykjavik, August 1988.

show a decline in the take of cod to 350 000 tonnes (a 10 per cent drop). Despite a continuing increase in other demersal species, the overall catch was 5 per cent lower (again excluding capelin which suffered a very poor autumn season²). Export production of the fisheries sector fell by 3 per cent.

Profitability within the fishing sector was made worse in 1988 because of falling prices on world markets, a strong exchange rate and high real wage costs. A considerable loss was shown on fish processing (Table 3), freezing plants being particularly badly affected. The devaluation of the krona, together with price supplements from the Fisheries Equalisation Fund³, led to better profitability in 1989. Without such assistance the fish-processing sector would still have suffered a further 1 to 2 per cent loss, although freezing plant profits were more healthy (price supplements were discontinued on frozen fish products from the beginning of 1990). Trawlers have continued to operate at a profit. However, operating conditions for the fishing fleet as a whole deteriorated during 1989, as demersal fishing suffered because of the poor performance of smaller vessels⁴.

Table 3. Profitability of the fisheries

Per cent of gross income

	1983	1984-86	1987	1988	1989
Gross profits¹					
<i>Fishing, total</i>	7.3	10.1	13.9	14.4	13.0
Trawlers less than 500 GRT	8.1	11.9	18.4	19.3	18.7
Trawlers larger than 500 GRT	4.7	11.2	17.8	19.6	21.6
Boats	7.1	7.9	8.3	8.5	5.0
<i>Fish processing², total</i>	1.2	6.2	9.4	2.6	9.0
Freezing plants	2.2	5.5	6.6	2.2	12.7
Saltfish processing	-8.3	6.1	14.0	3.1	2.2
Net profits³					
<i>Fishing, total</i>	-9.3	-3.7	1.3	-1.5	-3.8
Trawlers less than 500 GRT	-11.3	-3.4	5.3	3.6	2.7
Trawlers larger than 500 GRT	-11.2	-1.0	7.1	6.1	8.3
Boats	-6.5	-4.5	-4.1	-8.1	-13.4
<i>Fish processing, total</i>	-0.4	-2.0	3.6	-6.7	-1.1
Freezing plants	1.6	-3.2	0.5	-7.8	2.5
Saltfish processing	-6.5	-0.8	8.7	-5.3	-7.6

1. Operating surplus excluding interest payments and depreciation, adjusted for payments into and out of the Price Equalization Fund.

2. Excluding payments into and out of the Price Equalization Fund.

3. Gross profits less imputed interest payments and depreciation.

Source: National Economic Institute.

Table 4. Contributions to GDP growth by industrial origin
Volume change from previous year, per cent

	1983	1984-86	1987	1988	Estimate 1989
Agriculture	-0.1	0.5	0.2	-0.1	-0.2
Fishing and fish processing	-2.2	1.3	0.0	0.2	-0.6
Manufacturing	-0.1	0.5	1.0	-0.2	-0.4
Construction industry	-0.3	0.1	1.0	-0.2	-0.3
Trade and catering	-0.8	0.6	1.8	-0.5	-0.9
Public services and other industries	2.8	2.7	3.7	-0.0	-0.2
Gross domestic product	-0.7	5.7	7.7	-0.9	-2.6

Source: National Economic Institute.

Other sectors of industry (services and other primary domestic-based sectors) also continued to incur losses during 1989. Value-added figures indicate a widespread run-down in production outside the food sector (Table 4). The output of auxiliary manufacturing enterprises and services declined sharply, particularly metalworking, shipbuilding and retailing. The rather bleak competitive environment encouraged several mergers, as companies endeavoured to improve their trading situation, and there was a spate of bankruptcies. Salmon-farming, fur-farming and shipbuilding have all been particularly badly hit. Construction has also been depressed, by both lower industrial investment and residential investment. Indeed, because of high credit costs, capital-intensive production processes have been as badly affected by the recession as those with high labour costs.

The labour market and inflation

The adjustment to changes in the external environment has been all the more difficult because the balance between domestic spending and output had been upset by severe overheating during the boom, allowing an increase in real wages far in excess of productivity gains. Rapid demand growth had been accompanied by a tightening labour market in 1987. The unemployment rate, already below 1 per cent, fell to 1/2 per cent. The number of vacancies – a better measure of labour market pressure in Iceland than the unemployment rate – rose to 3 1/2 per cent of the

labour force (Table 5). Against such a background, wages and salaries rose much faster in 1987 than had been expected at the start of the year. Real hourly earnings grew by 19 per cent and the wage and consumption share of national income reached an historical high (Table 6, Diagram 3). The share accounted for by gross operating surplus fell significantly, from 36 to 29 per cent of gross factor income – an extremely low share compared with the OECD average (Diagram 3); indeed,

Table 5. Labour market conditions

	1983	1984-86	1987	1988	Estimate 1989
Labour vacancies					
Number (in thousands)	—	2.4	3.2	1.7	0.3
Per cent	—	2.6	3.5	1.9	0.4
Insured unemployment rate	1.0	0.9	0.5	0.6	1.7
Workweek of full-time manual workers ¹	49.6	50.0	50.0	47.6	48.0
Work stoppages	0.0	0.4	0.3	—	—
Earnings per worker					
Nominal	56.7	34.5	42.0	24.0	13.0
Real	-15.0	5.4	19.7	-1.1	-6.5

1. More precisely, the workweek of skilled and unskilled workers who work more than 400 hours per quarter.
Source: National Economic Institute.

Table 6. Prices and incomes

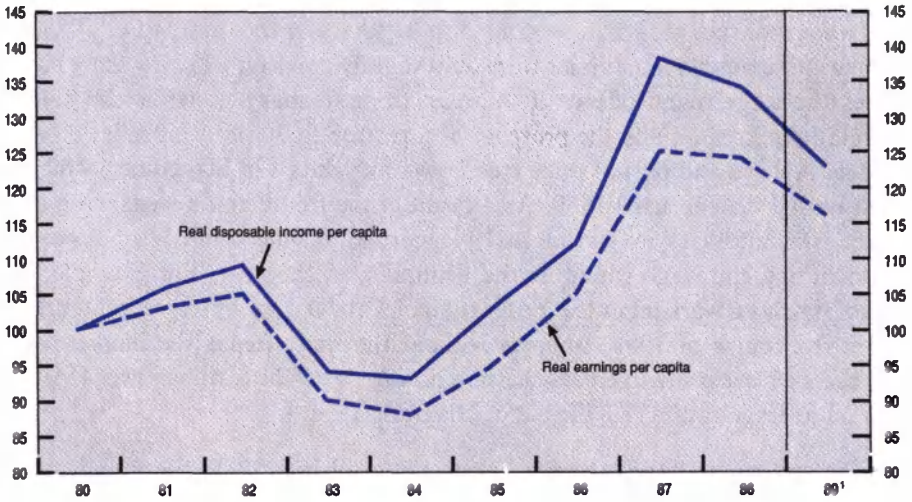
In per capita terms percentage change on previous year

	1983	1984-86	1987	1988	Estimate 1989	Forecast 1990
Disposable income	59.5	35.5	45.8	22.5	11.5	9½
Earnings	56.7	34.5	42.0	24.0	13.0	10.0
Cost of living index	84.3	27.6	18.7	25.4	21.1	13½
Building cost index	70.8	26.3	17.6	17.8	23.1	17.0
Real earnings	-15.0	5.4	19.7	-1.1	-6.5	-2½

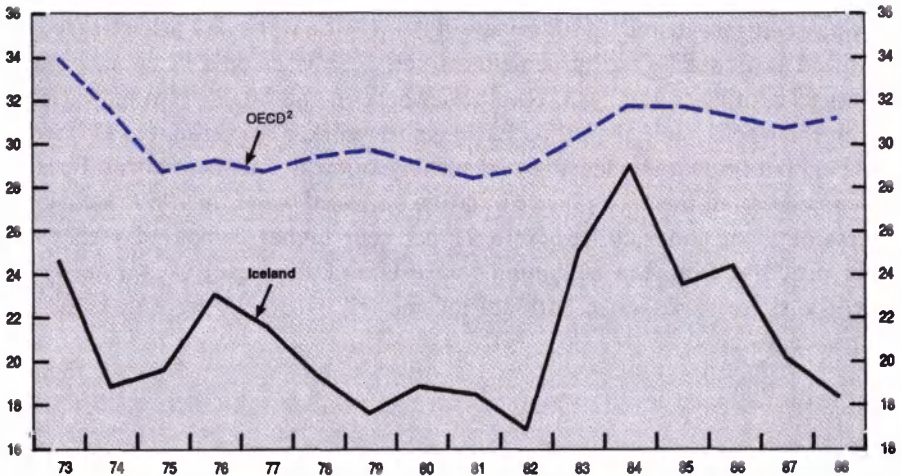
Source: National Economic Institute.

Diagram 3. REAL WAGES AND PROFIT SHARES

A. Real wages
Indices, 1980 = 100



B. Profit shares
Per cent of domestic factor income



1. Estimate.

2. Non-weighted average of all OECD countries except Turkey.

Sources: National Economic Institute and OECD Secretariat estimates.

the aggregate gross operating surplus declined steeply relative to GDP between 1984 and 1987 when that in the OECD at large was increasing. As real interest rates were rising at the same time, industrial profits actually fell further than the gross operating surplus figures imply.

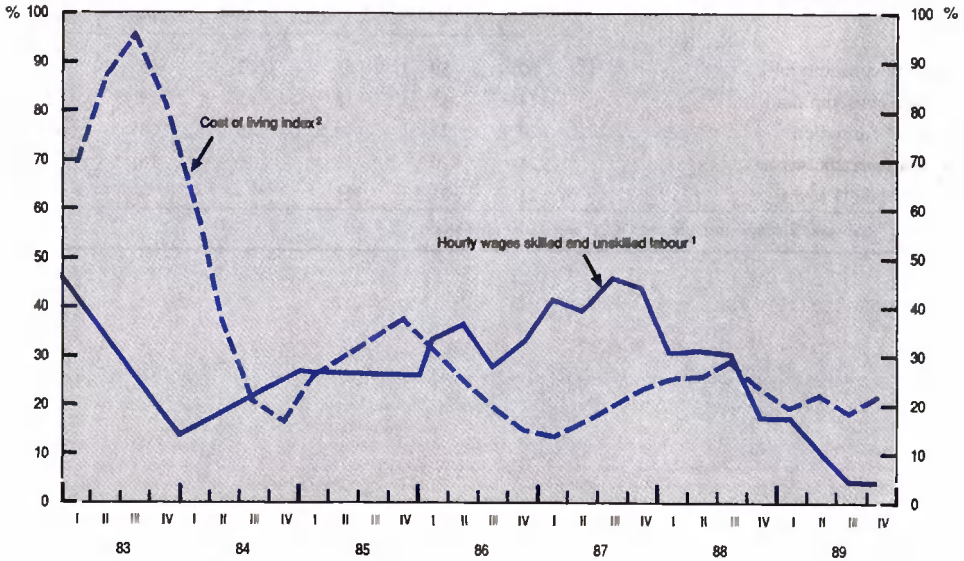
Labour-market pressures continued to be severe in the first half of 1988, with vacancy and unemployment indicators only slightly down on 1987. In these circumstances the wage round offered little relief to profit margins, while the policy of devaluing the krona made the prospect of a relapse to 30 per cent inflation a very real one. A wage and partial price freeze was introduced in September, which was to last until 15th February 1989. As a result of the freeze and a weakening labour market, the increases in contractual wage rates during 1988 were lower than agreed during the wage round at the beginning of the year. For example, wage rates of on-shore workers in the Federation of Labour rose by an estimated 14 per cent in the course of 1988, whereas without the wage freeze the increase would have been 18 per cent. Even so, the purchasing power of earnings was 1 per cent down on average over 1987 (Table 6, Diagram 3).

The softening in the labour market continued into 1989, the unemployment rate rising to $1\frac{3}{4}$ per cent and the "vacancy ratio" falling sharply⁵. Employers became more willing to lay off service and office personnel, particularly in the retail and catering trades, where bankruptcies were substantial. When most private-sector pay contracts came up for review in April – the wage and price freeze having been lifted as planned – the agreements struck were based on a 12 per cent increase in average earnings over 1988. Rises elsewhere in the labour market varied, but were on the whole lower than this. Earnings per worker are estimated to have risen by 13 per cent on average, leaving real earnings some $6\frac{1}{2}$ per cent lower. Because of the depreciation of the krona, price inflation outpaced wages in 1989. Measured by the cost of living index, prices were 21 per cent higher compared with 1988 (a 25 per cent rise from the beginning to the end of the year) (Diagram 4). As a result, the share of wages in national income fell by over 2 percentage points, to $70\frac{1}{2}$ per cent.

Domestic demand, saving and the current account

The 1984-to-1987 boom was more than usually dominated by a surge in consumption spending. Private consumption rose to 63 per cent of GDP in 1987, public consumption rose to 18 per cent and the investment share fell to 20 per cent

Diagram 4. INFLATION PERFORMANCE



1. Per cent change from four quarters earlier.
 2. Quarterly average of monthly change over previous year.
 Source: National Economic Institute.

(Table 7). The average annual increase in investment in the 1980s, though substantial, was slower than the 4 per cent growth rate seen in the 1970s. There was a slowdown in capital spending on hydroelectric construction projects, while the upward trend in real interest rates had a more general effect on investment of all types. This slowdown in investment growth was not necessarily detrimental to the economy, since there is some evidence that negative real interest rates acted as an artificial spur to capital spending in the 1970s, leading to excess investment. Moreover, the pattern of investment shifted from residential and public investment towards industrial investment (Table 8). However, the decline in gross national saving which occurred over the same period, to the rather low level of 16 per cent of GDP, left a large gap to be financed through capital imports.

Table 7. Consumption, saving and investment

Per cent of GDP

	1967-76	1977-86	1987	1988	Estimate 1989	Projection 1990
Private consumption	60	59	63	62	60	59
Public consumption	14	17	18	19	19	18½
Capital formation	29	23	19.5	19	18½	19½
Gross Icelandic saving	24	20	16	16	16½	17½
Gross OECD saving	23	21.5	21	—	—	—

Sources: National Economic Institute and OECD Secretariat estimates.

Table 8. Capital formation

Millions of kronur

	1987	1988	Estimate 1989	Projection 1990
Fixed investment, total, per cent of GDP	19.7	18.9	18.5	19.3
Industrial sector	10.6	9.4	8.4	8.8
Residential construction	3.7	4.0	4.2	4.4
Public investment	5.4	5.5	5.9	6.1
Fixed investment, percentage breakdown	100.0	100.0	100.0	100.0
Industrial sector	54.0	49.9	45.4	45.6
Residential construction	18.9	21.0	22.8	22.6
Public investment	27.1	29.1	31.8	31.8
GDP, volume change on previous year, per cent	8.9	-0.8	-3.4	0.0
Fixed investment, volume change on previous year, per cent	19.0	-1.3	-10.0	3.5
Industrial sector	20.6	-7.9	-19.0	8.8
Residential construction	14.2	10.6	0.0	0.0
Public investment	19.0	4.4	-0.4	-1.6
Per cent of GDP:				
Total investment	19.7	18.9	18.5	19.3
+ Changes in stocks	-0.2	0.7	-0.2	0.0
- Total saving	16.0	15.9	16.7	17.7
= Balance of goods and services	3.5	3.6	1.6	1.5

Sources: Bureau of the Budget and National Economic Institute.

1989 saw a drop of almost 7½ per cent in real total domestic demand, with private consumption, especially on durables, weak. Public consumption, though growing more slowly than the average of previous years, registered a small volume increase. Business fixed investment fell by 19 per cent in volume, a decline which would have been much worse if it had not been for purchases of aircraft by Icelandair.

Because of the weakness in domestic demand, import volumes dropped sharply in 1989, resulting in a marked improvement in the merchandise trade balance (Table 9). Imports of consumer durables were particularly weak, but imports of capital goods and intermediate products also fell off. With export volumes recovering somewhat, there was a substantial merchandise trade surplus. On the other

Table 9. Balance of payments

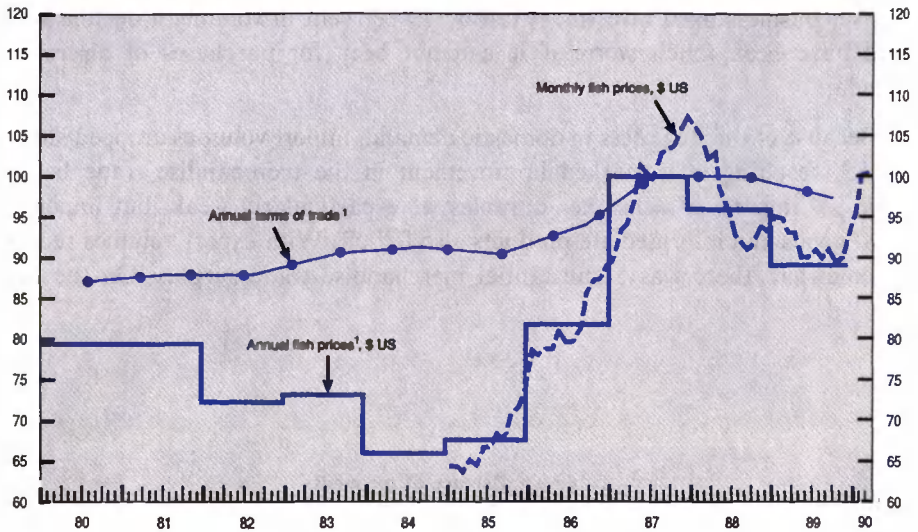
	1986	1987	1988	1989	1990 ¹
	Per cent of GDP				
Trade account	2.1	-0.9	-0.1	2.5	3.0
Exports	23.6	25.5	24.2	27.2	27.8
Imports	-21.5	-26.4	24.3	24.7	24.8
Service account	-1.8	-2.5	-3.5	-4.1	-4.5
Net interest	-3.3	-3.0	-3.2	-4.4	-4.5
Current account	0.3	-3.5	-3.6	-1.6	-1.5
Capital account, net	2.4	4.6	3.5	2.6	—
Overall balance	2.1	-0.3	-0.2	1.3	—

1. Projection.

Sources: National Economic Institute, Central Bank of Iceland and OECD projections.

hand, the terms of trade deteriorated, as fish price increases did not keep pace with those of imported goods (Diagram 5). General merchandise trade prices among Iceland's main trading partners rose steeply, whereas the price of fish appears to have been stable. Although aluminium and ferrosilicon prices increased, this was more than offset by higher oil prices. Altogether, the terms of trade deteriorated by just under 3 per cent between 1988 and 1989.

Diagram 5. FISH PRICES AND THE TERMS OF TRADE
Indices, 1987 = 100



1. 1989 figures are estimated.
Source: National Economic Institute.

A rising service sector deficit also served to mask the improvement in the trade balance. The surplus on the non-factor (i.e. non-interest) services account increased. But by far the most important influence on the service account was the growing burden of interest payments. These rose to 4½ per cent of GDP in 1989 (Table 9). Gross foreign debt also increased considerably as a proportion of GDP, from about 41 per cent in 1988 to over 50 per cent (Table 10), one of the highest ratios in the OECD. About 4 percentage points of this increase was due to the depreciation of the krona. Debt service – interest and amortisation – reached 20 per cent of export revenues.

Table 10. Contributions to changes in the ratio of external debt to GDP

Per cent

	Net external debt										
	1981	1982	1983	1984	1985	1986	1987	1988	Estimated 1989	Sum 1981-90	
Net external debt to GDP ratio	26.8	39.3	47.2	49.6	52.8	45.1	40.6	41.6	48.3	50.8	—
Change in debt ratio	-0.5	12.5	7.9	2.4	3.2	-7.7	-4.5	1.0	6.7	2.5	23.5
<i>Contribution:</i>											
Real growth in debt	0.5	8.2	0.2	4.3	3.5	1.5	4.9	2.8	1.0	1.0	24.9
Real growth of GDP	-1.2	-0.7	1.7	-1.7	-1.7	-3.4	-3.6	0.5	1.3	0.5	-8.1
Real kronur exchange rate	-0.9	3.3	3.5	-2.2	1.1	-1.8	-5.0	-1.8	3.8	1.0	1.0
International exchange rate	1.2	1.8	2.9	2.5	0.9	-0.7	-0.6	-0.1	0.5	0.0	8.3
Foreign inflation	-0.1	-0.2	-0.4	-0.6	-0.6	-0.3	-0.2	-0.3	0.0	0.0	-2.7

Source: Central Bank of Iceland.

II. The policy setting

The limits of stabilisation policy

One of the most important policy debates during the recession has concerned the extent to which macro-policies can be used to cushion the fall in living standards. But the means at the authorities' disposal have been limited. Iceland has found itself in a predicament similar to that faced by the rest of the OECD area at the beginning of the 1980s, in that imbalances built up from the inappropriate use of macroeconomic instruments in the past has limited their use, while the existence of supply-side rigidities has called for greater reliance on market solutions to the country's economic problems. The legacy of interest-rate regulation, for example, was an excessive growth of credit demand up to 1983, accompanied by above-OECD-average inflation and overseas debt. These imbalances though less marked than before, persisted in the 1984 to 1988 period because of the failure of policies to exploit favourable supply-side and terms-of-trade movements. Annual Budgets repeatedly asserted the need to balance the treasury budget, but this objective was not achieved despite buoyant activity; defects in the tax system reduced its revenue-raising capacity and fiscal policy continued to be used to contain wage pressures by making budget concessions. The resulting budget deficit fuelled excessive liquidity creation and foreign borrowing so that external debt continued to push against the outer limits of the acceptable.

The need to bring down government credit demands has been all the more urgent because real interest rates have remained rather high despite the recession, indicating substantial continuing demands for credit. To mitigate domestic interest-rate pressures and avoid "crowding out" the private sector, the government has often turned to the central bank for funding. However, attempts to avoid credit constraints in this way result in excessive money creation, and can only be at the expense of longer-run inflation objectives. In the longer run, the scope for reducing real interest rates depends largely on factors which the central bank does not directly control, such as private saving behaviour, commercial bank margins and

the budget deficit itself. The determinants of real interest rates are complex (and are dealt with more fully in Chapter IV), but the fact that the fiscal deficit and interest rates are closely linked (with causality running in both directions) calls for fiscal policy to be aligned with medium-term monetary and inflation objectives rather than for monetary accommodation to support the budget as a short-term financing device.

Monetary and exchange-rate policies

The background to monetary restraint

To understand the constraints within which monetary policy is currently operating, it is useful to review the system as it has evolved in the 1980s and the defects of the more lax monetary regime which it replaced. Under the monetary system as it existed up to 1983, the central bank was used to raise funds from the deposit money banks (DMBs) and pass these on to industry in the form of soft loans. This was accomplished via the system of reserve requirements (amounting to 28 per cent of deposits), on which the central bank paid a substantially-negative real rate of interest – a form of wealth-transfer from lenders to borrowers sometimes called an “inflation tax”. By the early 1980s this system had generated a number of the classic conditions of impending hyper-inflation: spiralling excess demand for credit, a loss of confidence in monetary assets and a decline in bank deposits. The inflation process, having built up momentum from the demand side because of negative real interest rates, was sustained on the cost side by the wage-indexation and exchange-rate regimes. Wages were linked to the cost of foreign exchange, which was in turn linked to wages, a process aimed at maintaining the relative shares of profits and wages⁶, at the cost of creating a devaluation-inflation spiral.

In effect, monetary policy, the real exchange rate, fiscal policy and incomes policy were all used to redistribute national wealth, the first two via subsidised loans to industry and changes in the krona terms of trade, the second two more directly (budgetary policy being used to support government efforts to achieve wage moderation). The lack of adequate macroeconomic stabilisation resulted in foreign borrowing, which was undertaken to bridge the gap between national income and expenditure: excess demand (consumption and investment) was financed *ex post* by long-term foreign credits, leading to a build-up in overseas debt. However, by 1983, the system had become unstable – and potentially explosive – with inflation and overseas debt increasing rapidly. In these circumstances,

restoring domestic demand to closer conformity with productive potential was an absolute necessity and to do this the standard instruments of macro policy – including the exchange rate interest rate and the budget – needed to be reformed and realigned.

The exchange rate

From late 1983 to late 1987, fixing the trade-weighted value of the krona was seen as an essential “nominal anchor” for the disinflation programme, though with only limited success. Because of the fact that the real exchange rate was set independently of money and credit conditions, it was allowed to depart from levels consistent with economic fundamentals (i.e. credit and budget conditions), encouraging speculative demand for imports (as in late 1984) and generating unsustainable real wage increases, as in 1987. During the 1987 wage negotiations, the

Table 11. The real exchange rate of the krona

	Relative consumer prices		Relative unit labour costs	
	Real exchange rate 1980 = 100	Change from previous period %	Real exchange rate 1980 = 100	Change from previous period %
1981	104.2	4.2	106.7	6.7
1982	95.3	-8.6	101.3	-5.0
1983	89.5	-6.1	84.9	-16.2
1984	94.0	5.1	84.7	-0.3
1985	92.8	-1.3	86.4	2.1
1986	94.0	1.3	87.6	1.3
1987	102.6	9.1	107.6	22.9
1988	108.2	5.4	116.9	8.6
1989	99.3	-8.2	103.1	-11.8
1988 Q1	112.3	2.5	120.5	-0.2
1988 Q2	106.4	-5.3	114.0	-5.4
1988 Q3	108.6	2.0	116.6	2.3
1988 Q4	105.3	-3.0	116.5	-0.1
1989 Q1	101.2	-3.9	109.1	-6.4
1989 Q2	101.9	0.7	107.6	-1.4
1989 Q3 ¹	98.0	-3.8	100.2	-6.8
1989 Q4 ¹	96.0	2.0	95.7	-4.5

1. Preliminary figures.

Note: The calculation is based on quarterly information on relative consumer prices, wages, output and employment in 15 countries. The figures for the latter half of 1989 are preliminary.

Sources: Central Bank of Iceland and OECD Secretariat estimates.

government reaffirmed its commitment to exchange-rate stability, even though in boom conditions wages were already growing rather fast.

This policy led to a large real appreciation of the krona, which amplified the surge in imports. It also created operational problems for export- and import-competing firms who found it impossible to pass higher wage costs into prices. By the autumn of 1987 the strains had become severe and the government abandoned the fixed-exchange-rate policy, devaluing the krona, in stages, by 18 per cent during 1988. Further devaluations, amounting to about 23 per cent, followed in 1989, reducing the real effective exchange rate by 9 per cent from the final quarter of 1988 to the same period in 1989 (Table 11). Relative unit labour costs are estimated to have been reduced by 18 per cent over the same period.

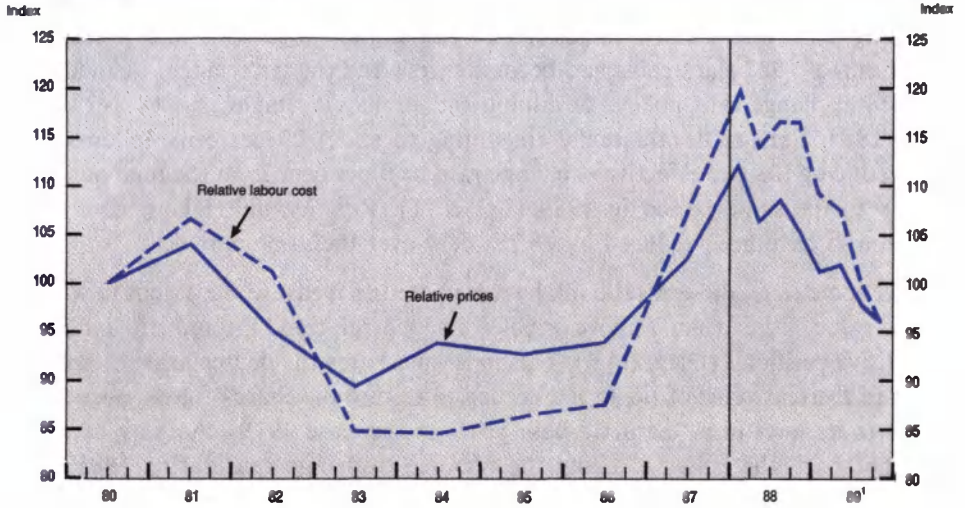
For some time, the central bank has attempted to measure the extent to which the real value of the krona is above or below its long-run trend through an "index of competitive position" (Diagram 6). This index measures the depreciation or appreciation in the real value of the krona needed to restore the share of gross operating surplus to its level in a "normal" base year (in this case 1979). As may be seen from the chart, the policy of fixing the nominal exchange rate during 1986 and 1987 resulted in a substantial negative shift in real profits, which continued into 1988. The devaluations which followed partially corrected the situation, but the manufacturing sector excluding aluminum and ferrosilicon has continued to be uncompetitive. According to the central-bank index, manufacturing exporters required a further 20 per cent depreciation of the real exchange rate in order to restore their profits to "normal" in 1989.

Interest rates

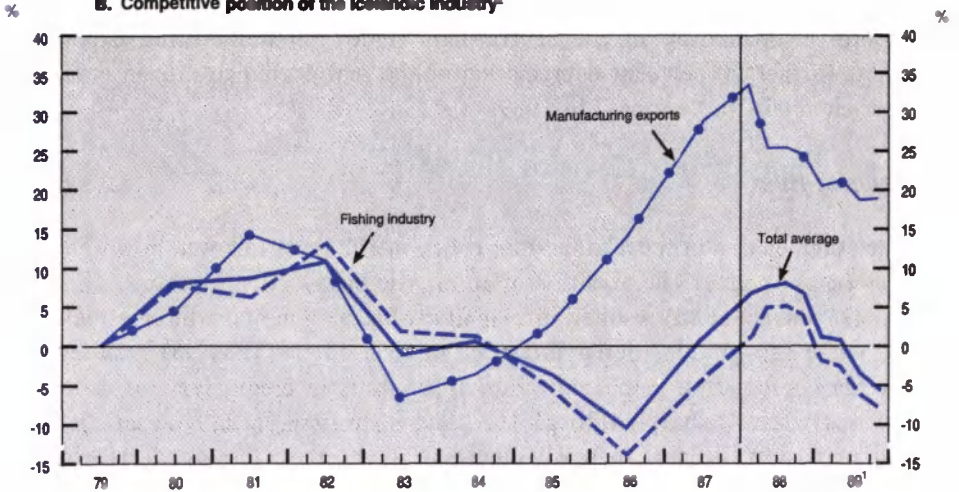
The adoption of a firm exchange-rate policy in 1983 was followed by a tightening of monetary policy. The abolition of automatic produce-loan rediscounting by the central bank (in 1985) resulted in a significant reduction in credit creation (see below), while the gradual deregulation of interest rates (1984-86) resulted in interest rates responding much more rapidly to shifts in credit demand. Interest rates rose particularly sharply through 1987 and early 1988, initially to satisfy new credit demands on the part of newly-emerging financial sectors (such as leasing companies), and later in response to demands from highly-leveraged firms in cash-flow difficulties. Real interest rates on non-indexed bank loans rose from an average of 6 per cent in the last quarter of 1986 to 18½ per cent in the first quarter of 1988 (Table 12). Indexed-loan rates rose from just under 6 to 9½ per cent. Despite the recession, an easing of rates was rather slow to emerge, so that real indexed-loan

Diagram 6. REAL EFFECTIVE EXCHANGE RATE OF THE KRONA
Indices, 1980 = 100

A. Real exchange rate



B. Competitive position of the Icelandic industry



1. Estimate.
2. Real exchange rate change required to restore normal profits.
Source: Central Bank of Iceland.

Table 12. Average interest rates

Rates	Non-indexed secured loans				Indexed secured loans	Treasury bonds		
	Nominal	Yield	Inflation ¹	Real	Real ²	Real ²		
1986								
Average	18.7	19.6	14.7	4.3	5.2	—		
1987								
I	19.1	20.0	21.5	-1.2	6.4	6.5		
II	22.7	24.0	20.4	3.0	6.8	6.5		
III	29.1	31.2	18.9	10.3	8.2	8.5		
IV	33.7	36.5	28.4	6.3	9.3	7.2		
Average	26.2	27.9	22.2	4.7	7.7	7.5		
1988								
I	35.3	38.4	16.9	18.5	9.5	7.2		
II	33.5	36.3	37.5	-0.9	9.5	7.2		
III	36.2	39.5	22.0	14.3	9.3	7.0		
IV	18.3	19.1	2.7	16.0	8.6	7.0		
Average	30.8	33.2	19.1	11.8	9.2	7.1		
1989								
I	15.6	16.2	26.5	-6.4	8.1	6.8		
II	29.1	31.2	32.3	-0.8	7.9	6.8		
III	35.0	38.1	17.6	17.4	7.4	6.0		
IV	30.6	32.9	24.9	6.4	7.7	6.0		
Average	27.6	29.5	25.2	3.4	7.8	6.4		
<i>Memorandum item:</i>								
	1980	1983	1984	1985	1986	1987	1988	1989
Real interest rates on total external debt	0.7	4.0	5.7	4.8	4.7	4.3	4.2	4.2

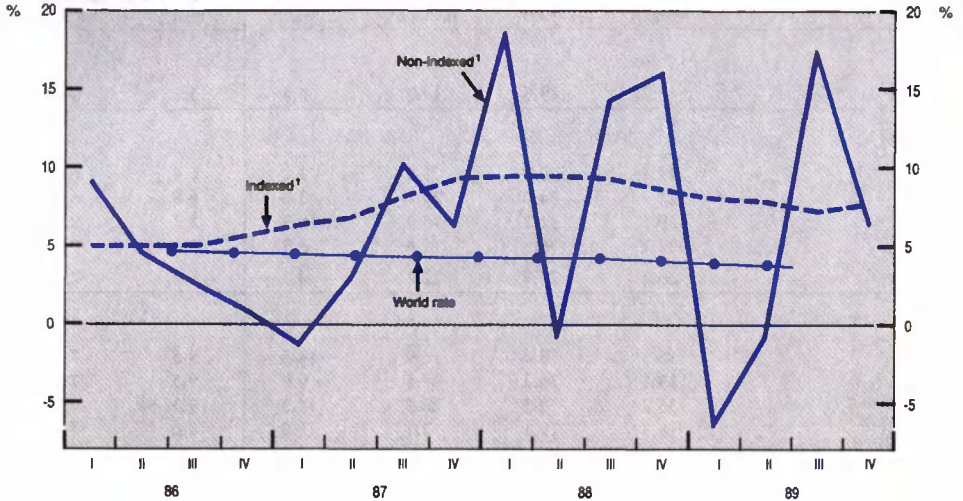
1. Using the cost of living index in 1989 and the credit terms index in previous periods.

2. Using the credit terms index.

Sources: Central Bank of Iceland and National Economic Institute.

rates fell back only slightly through 1988, to 8½ per cent. Indeed, as the recession deepened, distress borrowing increased, while unexpectedly large treasury borrowing also caused credit market pressures, especially given the strict limits on raising new foreign loans. Interest rates remained high throughout the term structure, at a time when the average real interest rate on foreign debt fell from 4.7 per cent to 4.2 per cent (Diagram 7).

Diagram 7. REAL INTEREST RATES



1. Rates of secured loans in commercial and savings banks.
Sources: Central Bank of Iceland and National Economic Institute.

The role played by high interest rates in undermining industrial profitability brought pressures for modifications to the financial liberalisation programme during 1988, especially for more central bank “guidance” over interest rates. In particular, the pressures for industrial restructuring and rationalisation in the heavily-leveraged co-operative and fish-processing industries began to lead to calls for lower interest rates. The new government which took office in September 1988 responded by putting pressure on the banks to reduce interest rates, reforming the indexation of financial assets and imposing stricter limits on capital inflows (see Part IV). The central bank was instructed to begin negotiating with deposit institutions to secure a lowering of real interest rates by 3 per cent. It has continued to impose stricter surveillance on bank interest rates, which fell by nearly 2 percentage points on indexed loans between the second halves of 1988 and 1989. However, the fall in rates is probably best understood as resulting from an easing in credit-market pressures: growth rates of credit and domestic saving were tending towards better balance during 1989⁷.

Money, credit and liquidity

Figures on bank liquidity creation show a substantial degree of central bank monetary "accommodation" in recent years (Table 13)⁸, with little identifiable effect on real interest rates. The two dominant characteristics of monetary policy since the mid-1980s have been, firstly, that central bank liquidity creation has been greatest when credit demand and real interest rates have been highest, and secondly, a general propensity for the central bank to supply as much liquidity to the market as was required to meet bank lending needs. Although monetary stance has been tighter than in the pre-1983 period, it has been difficult for the bank to impose sufficient monetary discipline to control either short-term interest rates or bank lending. Institutional factors have made for a rather pragmatic approach:

- Portfolio demand for deposits has grown as a result of higher real interest rates on deposits and greater confidence in monetary assets. The ratio of monetary assets to GDP had been on an upward trend since the early 1980s, paralleling the rise in real interest rates and increasing bank lending capacity (Diagram 8)⁹;
- There was a need to strengthen DMB liquidity and profitability which had been severely eroded in the period of negative interest rates.

However, as DMB liquidity has improved, problems of monetary control have arisen, both as a result of difficulties in implementing the liquidity ratio (used to

Table 13. **Bank liquidity creation**

	1986	1987	1988	1989
	% of GDP			
Central bank liquidity creation ¹	2.4	1.4	1.2	1.8
of which:				
Lending to the central government ²	-0.3	1.3	1.4	-0.3
	Real % changes ³			
M3	7.7	10.9	4.1	2.5
Bank lending ⁴	3.8	16.3	16.6	0.2

1. Changes in base money less short term lending to deposit money banks.

2. Including investment in transferable government securities.

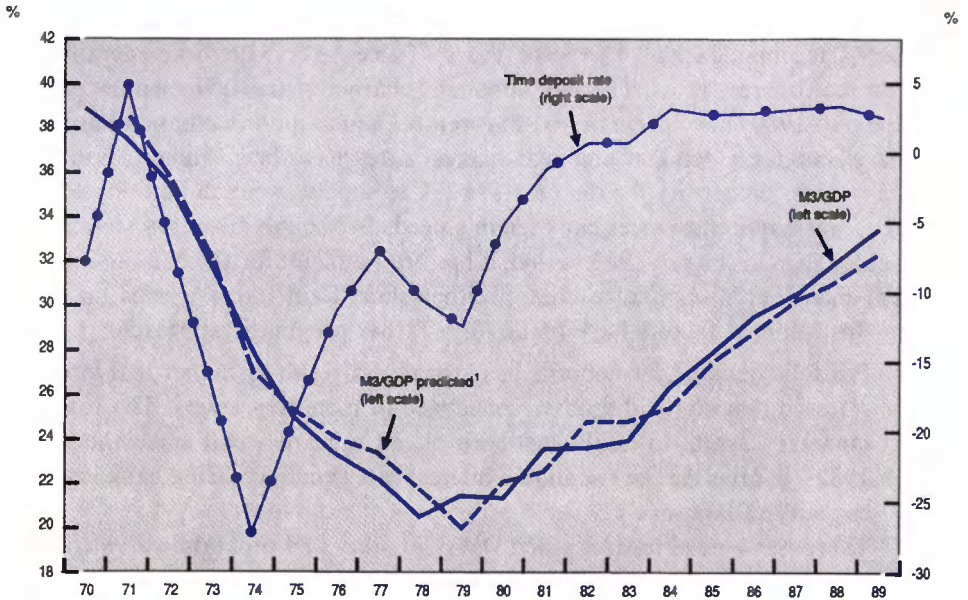
3. According to changes in the credit terms index (1986-1988) and the consumer price index (1989):

1986	1987	1988	1989
14.7	22.2	19.1	23.7

4. Including foreign funds lent.

Source: Central Bank of Iceland.

Diagram 8. MONEY GROWTH AND THE TIME DEPOSIT RATE



1. See equation in text.

Sources: Central Bank of Iceland and OECD estimates.

control bank advances since 1987) and of treasury borrowing from the central bank. The rules governing the liquidity ratio had to be altered several times in 1987 and 1988, with a view to increasing control over bank advances¹⁰ (Table 14).

Attempts to tighten monetary policy were frustrated by large treasury deficits in 1987 and 1988, which had to be financed by the central bank (Table 13). Pressures on the central bank to lend to the treasury actually increased with the recession, as both GDP and the krona fell, pushing foreign currency debt above acceptable levels (Table 10). To avoid an unwanted increase in foreign indebtedness, the treasury had to rely on domestic financing. Initially against the tide of rising real interest rates, the government cut the yields on treasury bills and bonds, reducing the demand for government savings instruments. Retail sales of savings

bonds through the central bank ceased except for refinancing issues and there were net redemptions of Treasury bills. Treasury borrowing from the central bank more than doubled in nominal terms. As measured by the average use of central bank credit during the year (perhaps a more accurate measure of the extent of central bank "accommodation" than the year-end data shown in Table 14) treasury borrowing was particularly large in 1988 – 2¼ per cent of GNP compared with 0.9 per cent in 1987.

To mop up excess liquidity the central bank has tried to divert bank lending into financing the treasury deficit. This was initially unsuccessful. In August 1988 the reserve requirement was reduced by 1 percentage point and the liquidity ratio increased by a similar amount, the central bank having encouraged the purchase of treasury bills by paying low rates on its own deposit accounts (Table 14). Yields on

Table 14. Liquidity ratios and reserve requirements

Bank liquidity	Liquidity ratio (per cent)				
	Outcome		Required		
	Percentage of loanable funds				
1987					
March	8.8		7.0		
June	9.9		7.0		
September	9.1		8.0		
December	6.0		8.0		
1988					
March	5.4		8.0		
June	7.9		8.0		
September	8.9		9.0		
December	8.6		9.0		
1989					
March	11.7		10.0		
June	10.8		9.0		
September	11.7		9.0		
December	10.9		9.0		
	June 1979	April 1985	March 1987	August 1988	March 1989
	Percentage of deposits				
Reserve requirements	28	18	13	12	11

Source: Central Bank of Iceland.

treasury bills had to be increased in 1989, and bank holdings increased as a result. Nevertheless, control over bank liquidity creation has remained tenuous, and will continue to be so while the treasury deficit persists.

Budgetary policy

The 1988 and 1989 Budgets

The Treasury continued to run a deficit between 1985 and 1987 despite favourable cyclical conditions. Its net borrowing requirement reached 2.7 per cent of GDP in 1987, at a time when the unemployment rate was $\frac{1}{2}$ per cent (Table 15). Including borrowing by state financial institutions, the public sector net borrowing requirement reached $5\frac{1}{2}$ per cent, implying a rather high structural (cyclically adjusted) deficit. The 1988 Budget saw the introduction of a tax reform intended to raise the ratio of receipts to GDP. The ratio increased by $1\frac{3}{4}$ percentage points, but a large deficit nevertheless emerged because government spending also increased extremely rapidly. Interest payments and subsidies (partly associated with the elimination of sales tax exemption) were the fastest growing items (Table 16). Agricultural subsidies were increased, as were loans to the State Housing Agency in order to help purchasers of dwellings in difficulties. Further outlays arose out of the need to fund off-budget the Export Industry Restructuring Fund, which was also authorised to borrow abroad. The Price Equalisation Fund for the Fishing Industry also received authorisation to borrow in order to support fish prices up to mid 1989.

In the face of the deteriorating economic outlook, the 1989 Budget aimed at correcting the fiscal imbalance, with only limited success. Its objectives were:

- To achieve a 4 per cent increase in revenues in real terms and cut expenditures by 3 per cent in volume terms, by reducing labour costs, public investment and capital transfers;
- To achieve a surplus on the revenue balance (i.e. the financial balance before allowing for treasury lending operations) amounting to 0.2 per cent of GDP; reduce the volume of government debt, and improve the Treasury position at the Central Bank.

GDP was expected to fall by 1 to 2 per cent in 1989 and a similar development was envisaged with regard to total expenditures. The Budget was based on a forecast slowing of wage inflation and relatively stable exchange rates. On these assumptions treasury finances were expected to be in rough balance in 1989.

Table 15. Treasury finances

	1986	1987	1988	1989 Preliminary	Revised 1990 budget
	Millions of kronur				
Current revenue	38 113	48 957	64 382	81 001	88 945
Current expenditure	40 111	51 688	71 583	86 056	93 277
Revenue balance	-1 998	-2 731	-7 201	-6 055	-4 332
Loans and short-term credit	-731	2 796	-1 106	-1 226	410
Borrowing requirement net (+)	2 729	5 527	8 307	7 281	3 922
<i>of which:</i>					
Domestic borrowing	1 886	2 728	1 526	5 840	3 945
Foreign borrowing	3 756	1 119	3 198	5 181	1 000
Central bank	-2 913	1 680	3 583	-3 740	-1 023
	As a proportion of GDP				
Revenue	24.1	23.6	25.3	27.1	27.1
Expenditure	25.3	24.9	28.1	29.1	28.2
Revenue balance	-1.2	-1.3	-2.8	-2.0	-1.3
Net borrowing requirement	1.7	2.7	3.2	2.5	1.2
<i>of which:</i>					
Domestic borrowing	1.2	1.3	0.6	2.0	1.2
Foreign borrowing	2.4	0.5	1.3	1.8	0.3
Cash and central bank	-1.9	0.8	1.4	-1.3	0.0
Public sector borrowing requirement (net)¹	3.9	5.5	5.4	6.4	3.5

1. Treasury and public financial institutions.

Source: Ministry of Finance.

Table 16. Breakdown of Treasury revenue and expenditure

	1988	1989	1989	1990	1988	1989	1990
	Outcome	Budget	Preliminary outcome	Budget	Outcome	Preliminary outcome	Budget
	Kronur billion				% of GDP		
Revenue	64.4	77.1	80.0	91.5	25.3	27.1	27.1
Direct taxes	9.4	13.4	13.3	16.4	3.7	4.5	4.8
Indirect taxes	51.3	59.6	61.2	68.7	20.2	20.7	20.3
Interest income, etc.	3.7	4.7	5.5	6.4	1.5	1.9	1.9
Expenditure	71.6	76.5	86.1	95.2	28.1	29.1	28.2
Public consumption	29.8	31.5	34.3	37.1	11.7	11.6	11.0
Consumption and current transfers	26.5	28.7	33.6	39.7	10.4	11.4	11.7
Interest payments	6.9	7.5	8.5	9.1	2.7	2.9	2.7
Investments	8.4	8.8	9.6	9.3	3.3	3.2	2.7
Financial balance	-7.2	0.6	-6.1	-3.7	-2.8	-2.0	-1.1

Source: Ministry of Finance.

The outturn was better than in 1988, although worse than planned because of the cyclical downturn in the economy. In the first few months of the year the central government finances behaved more or less as projected. But by mid-year domestic demand had begun to decline more than expected, reducing revenues¹¹. Discretionary measures enacted at the beginning of the year further contributed to weakening the fiscal balance. These included both increased expenditures, such as higher agricultural subsidies, and tax concessions in connection with the wage settlements in the spring. The revenue/GDP ratio increased by $1\frac{3}{4}$ percentage points (Table 14). Total central government spending increased somewhat less, by $1\frac{1}{2}$ per cent in real terms and by $\frac{1}{2}$ percentage point as a ratio of GDP. Debt interest payments and current transfers continued to expand, while other current spending stabilised relative to GDP and investment expenditures fell¹².

As a result, the estimated treasury deficit for 1989 as a whole was cut to 2 per cent of GDP. The wider public sector borrowing requirement proved more difficult to reduce, however, increasing to $6\frac{1}{2}$ per cent of GDP (Table 15). The effect of budgetary restraint would be more evident if the budget accounts were cyclically-corrected. In these terms the public sector borrowing requirement seems to have fallen substantially. Moreover, financing the deficit was easier than in 1988, so that the deficit did not have such an adverse impact on interest rates and the money supply. The treasury borrowing requirement, having been reduced, was "over-funded" by the domestic private sector and foreign borrowing.

The 1990 budget

The 1990 Budget was prepared against the prospect of a third successive year of falling income and output. The expressed aim was not to reduce demand and living standards further, inasmuch as it was assumed that the contraction would not be a permanent one. The Government took the view that it should not seek to balance the budget, except over a two-to-three-year time scale. Any intervening deficit would be due primarily to the temporary impact of the recession upon government revenue and expenditure. The principal goals were thus:

- That treasury finances should contribute to an unchanged current-account deficit in relation to GDP, despite the projected decline in export revenue and lower inflation;
- That taxes as a share of GDP would remain unchanged, implying a decline in treasury revenue in real terms;
- That the Government deficit should be low enough for its financing to take place without increasing foreign debt or raising interest rates in the domestic market.

To achieve these goals government expenditures will have to be cut by more than has proved feasible in recent years. Even so, a treasury deficit of 1.3 per cent of GDP is being projected. This deficit is lower than in 1989 and should be consistent with a moderate current-account deficit, further repayment of central bank debt and a damping of inflationary pressure. The net borrowing requirement set out in the Budget would probably be fully financeable domestically, without putting undue upward pressure on interest rates.

Government debt and the credit budget

Governmental control and responsibility for borrowing extends beyond the treasury definition of the Budget. Parallel with the Budget a credit budget bill is presented to parliament. This covers authorisations for treasury long-term foreign and domestic borrowing, both on its own account and on behalf of state-owned enterprises, as well as borrowing by financial institutions with a statutory guarantee of the government, such as the investment credit funds. The bill is presented along with a "credit programme", which is a comprehensive statement of how the credit market is expected to evolve in the coming year. It incorporates economy-wide objectives for borrowing, since the overall foreign debt/GDP ratio is a matter of national policy concern. However, control over most borrowing is indirect and the initial estimate may often, as in 1987, be wrong by a wide margin, usually in the direction of underestimation. Thus, for example, in 1987 it was a surge in private borrowing associated with a boom in private leasing and investment-credit-fund lending (the latter's borrowing underwritten by state guarantees) which upset the government's calculations (Table 17).

The strong upward trend growth in foreign borrowing during the 1980s, amounting to 2 per cent of GDP a year, is evident from the third row of Table 10 above. This shows the growth of the overseas debt/GDP ratio abstracting from fluctuations in the real cost of foreign exchange. Failure to stem this increase is a reflection of weaknesses in the credit budget system and has severely restricted the treasury's financing options during the current recession – with adverse consequences for interest rates. The fact that foreign debt has continued to rise faster than planned is one reason why the government has had to exploit the domestic credit market more and, where that was insufficient for its needs, the central bank. As may be seen from Table 18, treasury foreign debt has remained rather steady at about 18 per cent of GDP, while domestic debt has risen from 8 to 12½ per cent of GDP since 1984. Again, it should be noted that the treasury debt figures substantially understate public sector debt which, including state enterprises and municipalities, amounts to nearer 50 per cent of GDP.

Table 17. Long-term foreign debt by category of borrower
Millions of kronur at average yearly exchange rates

	1982	1983	1984	1985	1986	1987	1988	Estimate 1989	Forecast 1990
Net borrowing									
Public sector	1 773	2 621	2 565	3 936	3 136	679	2 971	6 729	6 250
Financial institutions	419	557	1 491	1 287	1 503	2 732	3 211	4 282	2 550
Private sector	211	- 275	- 825	253	1 466	3 661	3 927	5 581	6 400
Total	2 403	2 903	3 231	5 476	6 105	7 042	10 109	16 592	15 200
Percentage of GDP	6.2	4.3	3.7	4.6	3.9	3.4	4.0	5.6	4.5
Interest payments									
Public sector	975	2 013	2 894	3 656	4 382	4 258	4 918	7 216	7 700
Financial institutions	132	298	449	692	806	880	1 247	2 370	2 800
Private sector	434	663	834	911	964	1 020	1 429	2 681	3 700
Total	1 541	2 974	4 177	5 259	6 152	6 158	7 593	12 267	14 200
Percentage of GDP	4.0	4.5	4.8	4.4	3.9	3.0	3.0	4.1	4.2
Total debt at end of year									
Public sector	9 847	21 973	29 475	42 293	50 755	52 294	62 813	86 234	103 000
Financial institutions	1 439	3 400	5 693	8 735	11 778	14 943	20 264	30 172	35 600
Private sector	3 618	6 754	7 391	9 829	12 549	16 569	22 469	34 280	45 700
Total	14 904	32 127	42 559	60 857	75 082	83 806	105 546	150 686	184 300
Percentage of GDP	38.9	48.6	48.3	50.8	47.2	40.4	41.5	51.0	54.5
Conversion rate									
SDR = Kronur	13.71	26.60	32.38	42.18	48.18	49.92	57.78	73.12	82.00
Average interest rate¹									
Public sector	11.6	10.1	10.6	9.3	9.1	8.2	8.1	8.9	7.8
Financial institutions	10.8	9.6	9.6	8.9	7.6	6.8	7.0	8.9	8.3
Private sector	12.5	9.6	10.4	9.5	8.4	7.4	7.3	8.9	8.9
Total average	11.8	9.9	10.4	9.3	8.7	7.8	7.8	8.9	8.2

Note: Foreign borrowing by commercial banks is classified by final borrower. The projected 1990 exchange rate is 12 per cent above the average 1989 rate. Floating interest rate (LIBOR-USD) is assumed at 8.5 per cent in 1990.

1. Interest payments in per cent of average debt outstanding at fixed exchange rate.

Source: Central Bank of Iceland.

Table 18. Treasury debt¹
Per cent of GDP

	Gross debt	Domestic	Foreign	Lending as % of debt
1980	15.0	1.4	13.6	—
1984	26.2	7.7	18.5	80.0
1985	28.2	8.7	19.5	79.4
1986	27.3	9.0	18.3	67.1
1987	24.1	9.6	14.5	68.4
1988	25.0	10.3	14.7	69.7
1989	30.4	12.2	18.2	55.9
1990 ²	30.6	12.7	17.9	55.1

1. Deflated to mid-year price level based on average exchange rate and average credit terms index.

2. General Government, plus foreign borrowing of state enterprises.

Source: Bureau of the Budget.

III. Short-term prospects and medium-term policy options

Short-term prospects

The recession seems set to continue into 1990, with the total value of the fish catch, at constant prices, expected to fall further in 1990. Because of the low levels of stocks, the Marine Research Institute (MRI) has recommended a significant reduction in the fish catch, especially of cod. A sustained cod catch of 350 000 tonnes, (the outturn for 1989 and marginally less than the average catch from 1980 to 1988) is thought likely to reduce the exploitable stock from 1 010 000 tonnes at the beginning of 1990 to 820 000 tonnes at the beginning of 1992 (Table 19). The MRI has recommended a cod catch of 250 000 tonnes, which would allow a slight growth in the exploitable cod stock. However, projections of fish stocks are unusually uncertain this year, because of the possible (even probable) immigration of cod from Greenland waters¹³. The 1990 Budget was prepared on the higher assumption of a 300 000-tonne cod quota for 1990. This would imply a fall of 5 per cent in the overall catch, allowing for some slippage, and a likely decline in stocks if there were no inward migration. Fish-export production would fall by somewhat less than the catch because of higher domestic value added in the processing sector. With production of aluminium and ferrosilicon having reached full capacity, no further increase in output is expected from the energy-intensive sector in 1990. Considerable uncertainty surrounds the export production of other sectors, although a significant increase is expected in production of farmed fish for export.

At the same time, domestic trading conditions are likely to remain difficult, with further output falls likely in most sectors (Table 4). The September labour-market survey indicated that employers plan to reduce their present manpower by a little over 2.5 per cent up to April 1990. Planned layoffs are particularly marked among companies in the fisheries, transportation and construction sectors. As a result the 1990 unemployment forecast foresees an increase from 1½ to 2¼ per cent

Table 19. Fish stock projections¹
 Beginning of year stocks, in metric tonnes

Actual			1990		Hypothetical average catch 1990-91	Projection			
1989			Fishable stock ²	Spawning stock ³		1991		1992	
Fishable stock ²	Spawning stock ³	Catch	Fishable stock ²	Spawning stock ³		Fishable stock ²	Spawning stock ³	Fishable stock ²	Spawning stock ³
A. ASSUMING NO IMMIGRATION FROM GREENLAND WATERS									
1070	300	350	1010	340	200	1100	450	1180	530
					250	1040	420	1060	450
					300	980	380	940	380
					350	920	350	820	300
B. ASSUMING IMMIGRATION FROM GREENLAND WATERS⁴									
1070	300	340	1010	340	250	1110	460	1340	670
					300	1050	430	1220	590
					350	990	390	1100	520
					400	930	360	980	450

1. The development of the fish stock from year to year reflects growth under average environmental conditions as well as the catch.
2. The fishable stock consists of codfish of four years of age and older.
3. The spawning stock consists of codfish six years of age and older.
4. Although the size of the immigration is uncertain, it is assumed here to be the same size as the 1980-81 immigration.

Source: Marine Research Institute, *State of Marine Stocks and Environmental Conditions in Icelandic Waters 1989: Fishing Prospects 1990*, Reykjavik, August 1989.

of the workforce. It should be noted that the past periods of economic contraction have all been accompanied by significant net emigration from Iceland, which is not allowed for in this forecast.

The weakening labour-market situation has moderated wage demands. According to the new wage contract (announced on 2nd February), wage rates will increase by about 5½ per cent per year through 1990 and 1991. Assuming wage-drift can be contained, the implied increase in per capita earnings in 1990 will be 10 per cent compared with 1989 (Table 6)¹⁴. Price inflation is expected to fall to 13½ per cent, implying a decline in real earnings of about 3 per cent. The share of wages in gross factor income should thus continue to fall, perhaps by as much as 2 percentage points of GDP. This would take the wage share down to 68½ per cent, which would still be some way above the longer-run average of 66½ per cent over the period 1973-1988.

In these circumstances a further fall in private consumption spending appears unavoidable: the projections given in Table 2 are based on 1 per cent fall in real terms next year, or 3 per cent on a per capita basis, which means that private consumption should fall slightly as a share of GDP (although by less than the wage share). Public consumption is expected to rise by 1 per cent in real terms from its 1989 level. Total investment may recover, following its fall in the last two years. A crucial factor is the renewal of the Icelandair fleet, since if the single item of aircraft purchases were excluded, investment would be projected to contract by nearly 10 per cent. Aircraft purchases in 1990 are expected to cost \$120 million¹⁵, which is over 12 per cent of total annual national investment. Public construction projects, especially investment in hydroelectric generation and distribution projects, are also expected to grow, with the National Power Company scheduling its first generator in the Blanda hydroelectric project to go on line in the autumn of 1991. Residential construction will probably remain at the same level as this year, assuming that the effect of increased funding for new housing will compensate for the influence of falling real disposable income. On the basis of these assumptions, total combined consumption and investment expenditure are projected to contract by 1.2 per cent in real terms, compared with a 5 per cent drop in 1989.

On the basis of provisional forecasts for export production and changes in inventories, total merchandise exports are expected to continue to fall in 1990. However, exports of non-fisheries products (mainly fish-farming) should increase, so that the overall fall in export volumes should be more limited than the catch figures might imply. The contraction in general merchandise imports is expected to continue. The fall in the relative price of fisheries products on foreign markets has

been reversed as supply conditions have tightened; even though aluminium and ferrosilicon prices are likely to soften, there should be a significant improvement in the terms of trade. This should lead to a significant surplus on the merchandise trade account. The service account, on the other hand, will continue in deficit, since foreign interest payments will amount to over 4 per cent of GDP. The current account may thus be slow to improve from its 1989 level.

Medium-term prospects and policy options

Medium-term growth prospects depend crucially on marine conditions, which are unfavourable. As noted, recruitment to the fish stock was below-average between 1986 and 1989, which will lead to a further decline in the already-low stock abundance unless the catch is restricted, or there is immigration from Greenland (Table 19). If the MRI estimates were accepted, the catch would need to be kept at about 250 000 tonnes for some time, but once replenished the fish stock would support a catch of 400 000 tonnes. Calculations of the rebuilding of the fishable stock being subject to considerable uncertainties, an average cod quota of about 300 000 tonnes is most likely in the next five years.

Assuming a fixed 300 000 tonne cod catch, an annual increase in marine export production of 1 per cent a year would be feasible, due principally to higher value added resulting from changes in the disposition of the fish catch. Since the aluminium and ferrosilicon industries are constrained by capacity, significantly increased output in these industries would seem to require further investment. Alusuisse (the Swiss-owned aluminium-smelting concern) has recently announced plans to expand its smelting capacity by nearly 10 per cent by 1994. A significant increase might also be projected in other export production, based on plans for fish farming. Average GDP growth could then be in the region of 1 to 2 per cent from 1991 to 1994. This would be considerably lower than the average from 1970 to 1989 but it would be improvident to count on anything faster.

On the basis of supply-side assumptions similar to those just outlined (but ignoring any increase in smelting capacity or immigration from Greenland waters), it is clear that national expenditure can grow only very slowly for several years. A current-account deficit as high as 3 per cent of GDP would be manageable in the sense of being compatible with a stable external debt/GDP ratio of 50 per cent. However, unless world interest rates decline substantially, the attainment of even this limited objective entails domestic spending constraints. Assuming world real interest rates remain at current levels, debt interest payments abroad would grow

as a proportion of GDP unless the 1989 merchandise trade surplus is sustained, thereby preventing the debt/GDP from rising¹⁶. The objective of stabilising the external debt ratio is, in any case, probably not ambitious enough. The ratio is already much higher than the OECD average and gives little room either for expanding domestic investment or for reducing domestic interest rates.

There is no exact optimal external debt/GDP ratio, particularly in gross terms and no optimal current account balance. Capital inflows needed to finance industrial development could obviously entail a worsening current account and increased gross indebtedness without affecting Icelandic credit ratings. For example, an extension of aluminium-smelting capacity would raise foreign indebtedness, but would also create the domestic assets needed to finance that debt. Problems arise only when external borrowing is used to finance consumption, or capital expenditure which does not yield returns at least equal to the cost of financing. To a significant extent, Icelandic borrowing in the 1980s was associated with "bad" (i.e. consumption-related) deficits, particularly through the Budget. A rough approximation to the "excess" build-up of debt entailed by foreign borrowing in the 1980s is given by the increase in treasury net interest payments. This build-up reflects the extent to which debt is secured by future tax payments rather than enhanced productive potential¹⁷. Treasury debt interest rose by 1 per cent of GDP in the 1980s, having been zero at the start. The present value of this debt interest stream is a negative 12 to 13 per cent of GDP, which suggests that Icelandic gross debt needs to be brought back at least to 1980 levels in the course of the next five years. This would necessitate an average trade surplus of about 3½ per cent of GDP, implying little scope for increasing living standards.

Medium-term projections are subject to wide margins of uncertainty, and it might be argued that, given the rapid swings in Icelandic growth that have occurred in the past, the above scenario is rather pessimistic. In particular, growth could be significantly faster if there were to be an inward migration from Greenland waters or the relative price of fish were to increase substantially. However, there is also a risk on the other side: growth would need to be slower if the MRI's more pessimistic conservation strategy proves to be the one needing to be adopted. Moreover, two sets of constraints are unavoidable:

- National expenditure would still need to grow significantly slower than output, in order to achieve the adjustment towards better external balance, profitability and competitiveness;
- The role of macroeconomic instruments to support living standards is henceforth likely to be extremely limited; indeed, it would appear necessary to use any growth "dividend" for public sector retrenchment and

budget deficit reduction, if only to be in a position to respond to any subsequent cyclical downturn.

Any attempt to achieve sustained faster growth via the budget or monetary policy would be self-defeating. Among other things, it would put Icelandic credit ratings at risk, since the external debt/GDP ratio would rise. Given such a constraint, the emphasis of policy needs increasingly to be on improving the structural balance of the economy. The issues involved are discussed in the next section.

IV. Structural adjustment

Background to structural reforms

The Icelandic economy is exceptional in a number of respects. It is one of the smallest and most isolated of OECD countries, while it is also one of the most resource-rich: GDP per capita is the highest in OECD Europe apart from Norway¹⁸. It is also exceptional because its export resources are concentrated on a single sector, the fisheries, which account for 70 per cent of merchandise exports. Since the marine environment has proved unpredictable, Icelandic GDP has been subject to greater year-to-year fluctuations than most other OECD economies. The characteristics of smallness, isolation and dependence on a rather narrow and fluctuating resource base have made for a highly centralised economy which has historically been subject to a significant degree of state control – in the form of public ownership, regulation and direct intervention in price- and wage-setting. More open industrial policies have been inhibited by political constraints: that the exploitation of energy and fisheries resources be preserved for Icelanders, that the resources be properly conserved, and that the country's wealth be equitably distributed. Taxes and transfers, credit controls, incomes policy and regional policy have all been used to allocate and redistribute national resources.

The 1980s saw a substantial unwinding of state involvement in the economy. There has been a shift towards a greater reliance on the principles of neutrality and non-discrimination in taxation and towards more liberal financial and import-tariff regimes. However, the process of disengagement is far from complete: the fisheries industry is closely regulated; capital imports, investment, and industrial development in general remain controlled, hampering progress towards diversification; and labour market policies have remained similarly interventionist. The government has been involved in the process of the collective bargaining, making fiscal concessions which have helped to undermine budgetary control.

The chapter begins with a description of the Icelandic labour market, which provides perhaps one of the most potent illustrations of the coexistence of institutional rigidities with aspects of economic (in this case real wage) flexibility. The trends towards a more efficient tax system and more liberal financial policy are then described, including the agenda for removing capital controls. The possible impact of the latter proposal is then discussed in the context of trade and industrial policies, with emphasis on progress towards industrial diversification.

The labour market: centralisation and flexibility

Employment characteristics

The Icelandic labour market has always operated at a high degree of resource utilisation. Labour force participation rates are (along with Denmark and Sweden) the highest in the OECD countries¹⁹, both for men and women²⁰, the work week is

Table 20. Measures of the volume of work in OECD countries¹

	Volume of work	Labour force rates			Weekly working-hours		
		Total	Males	Females	Total	Males	Females
Iceland	36.7	80.8	88.2	72.4	45.4	54.0	35.3
Japan	34.5	72.7	88.4	57.2	47.5	50.7	41.6
Canada	31.2	72.9	84.6	61.2	42.8	—	—
Finland	30.5	78.2	82.5	73.8	39.0	40.0	37.0
Sweden	29.1	81.4	85.4	77.2	35.8	39.7	31.4
Denmark	28.4	80.3	86.7	73.8	35.4	39.2	31.4
United States	28.3	73.8	85.0	62.8	38.4	41.3	34.9
United Kingdom	27.2	72.8	87.1	58.5	37.3	43.0	29.9
Norway	26.8	76.6	86.2	66.7	35.0	40.0	28.8
Austria	25.6	66.3	81.7	51.5	38.6	40.4	35.8
France	25.2	66.0	77.4	54.7	38.1	40.1	35.5
Germany	24.8	64.7	79.9	49.7	38.4	40.9	34.3
Luxembourg	24.6	63.4	84.3	42.5	38.8	40.3	35.7
Australia	24.4	69.6	85.9	52.9	35.0	38.3	29.9
Ireland	24.2	62.2	86.6	37.0	38.9	40.7	35.9
Belgium	23.8	64.0	77.6	50.4	37.2	38.8	33.8
Greece	23.7	59.0	78.0	40.4	40.1	41.3	37.4
Italy	23.2	60.0	79.6	41.0	38.7	39.9	36.2
Netherlands	21.7	60.1	78.8	40.8	36.1	39.9	28.6
Spain	20.8	55.4	78.4	32.7	37.5	38.5	35.1

1. 1984.

Notes: Labour force rate: percentage of population in age groups between 15 and 64 in the labour force. Working-hours: average weekly hours of the active population (survey data). Volume of work index: labour-force rate × working hours for the active population/100.

Sources: OECD, *Employment Outlook*, 1986, and S. Alafsson, 1987.

one of the longest and the unemployment rate, which averaged under 1 per cent during the last ten years, one of the lowest²¹ (Table 20). From 1985 to 1988, the number of vacancies consistently exceeded the number of insured unemployed. This rather favourable set of indicators has reflected a number of structural factors, including, perhaps, a relatively low level of unemployment benefit²². The pursuit of full employment as a macroeconomic policy goal has also been important. This pursuit has tended to result in excess demand for labour and an incipient tendency towards accelerating inflation, which the authorities have sought to contain by incomes policies, subsidies (including soft loans) and tax concessions. Microeconomic policies have in this way been used in support of the full-employment objective. However, over time a number of structural imbalances tended to build up, including a degree of "over-employment" due to distortions in the tax system, a general misallocation of labour and capital resources and an excessive degree of real wage (and hence capital share) variation. The result has been a weakening in labour demand, with the insured unemployment rate forecast to rise to between 2 and 2½ per cent in 1990.

An examination of sectoral employment shares (Table 21) and productivity trends (Table 22) shows some continuation of previous trends in the 1980s, but also differences. Employment in the fishing fleet remained relatively stable, despite fluctuations in the fish catch. Employment in fish-processing has continued its relative decline. In both fishing and fish-processing sectors, limits on the catch caused productivity growth to slow in the 1980s, in contrast to the strong advances experienced in the 1970s²³. The manufacturing employment share fell, as was a general feature of OECD economies (Diagram 9), but not enough to prevent a marked slowdown in manufacturing productivity growth – in contrast to the OECD area at large, where manufacturing productivity recovered during the 1980s. Productivity shifts in Iceland have been closely related to the investment in aluminium capacity, which levelled off in the 1980s. Given the small size of the Icelandic manufacturing sector, major advances tend to occur in discrete jumps, as with the start-up of the ferrosilicon plant in 1979. Output per person advanced more briskly in utilities²⁴, transport and communications, and social and personal services, while agricultural-employment share has continued to decline fastest. Agriculture has lost about 0.4 percentage point of its employment a year, a trend that has been rather regular since the beginning of the century.

Wages and collective bargaining

Employment and productivity trends derive in part from the wage bargaining system, which ensures a high degree of real wage flexibility. In the first place, the

Table 21. **Employment by industry**
As a per cent of total labour force

	1963	1970	1980	1981	1982	1983	1984	1985	1986	1987
Agriculture	13.5	12.4	7.9	7.4	7.2	6.8	6.5	6.1	5.9	5.4
Fisheries	6.6	6.4	5.3	5.0	5.0	5.1	4.8	5.0	5.0	5.2
Fish processing	9.7	7.8	9.3	9.1	8.6	8.9	8.8	8.0	7.9	7.5
Other manufacturing	15.6	15.2	15.1	14.7	14.5	14.3	14.6	14.6	14.2	14.0
Electrical and water supply	0.5	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Construction	10.6	10.7	10.1	9.8	10.3	10.2	10.0	9.5	9.1	9.4
Trade	13.7	13.5	13.4	13.1	13.6	13.9	14.5	15.0	15.3	15.7
Transport	9.6	8.5	7.3	7.1	7.0	7.0	6.7	6.8	6.6	6.5
Finance and insurance	2.7	4.0	5.4	5.9	5.6	5.9	6.6	6.9	7.2	7.4
Private services	7.0	6.9	7.2	7.1	7.5	6.6	6.9	7.0	7.1	7.1
Public services	9.5	12.4	15.7	17.1	16.7	17.0	16.4	16.5	16.8	16.9
Other activities	1.0	1.4	2.4	2.8	3.1	3.4	3.3	3.7	4.0	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

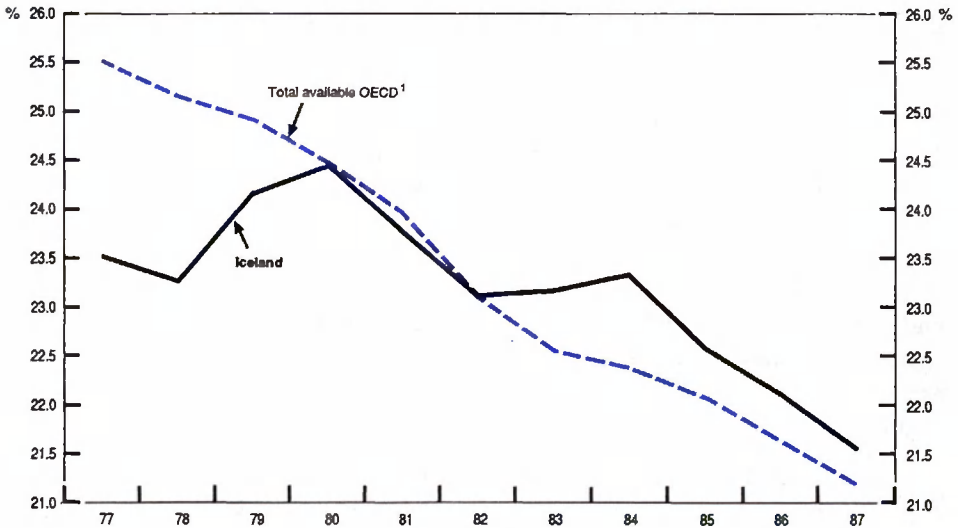
Sources: The National Economic Institute, *Thjotharbúskapurinn* (The National Economy), February 1988, and updates supplied by the National Economic Institute.

Table 22. Productivity trends

	1973-87 (1)	1973-80 (2)	1980-87 (3)	Acceleration (3)-(2)
Agriculture	2.5	1.1	4.0	2.9
Fishing	4.1	8.2	0.3	-7.9
Fish processing	1.1	2.6	-0.4	-3.0
Manufacturing (ex. fish processing)	1.2	1.5	0.8	-0.7
Utilities	0.0	-4.4	4.6	9.0
Construction	0.6	-0.4	1.5	1.9
Wholesale and retail trade	0.1	0.6	-0.4	-1.0
Transport and communications	3.4	3.4	3.4	0.0
Finance, insurance, real estate and business services	0.4	1.1	-0.3	-1.4
Social and personal services	2.2	1.1	3.4	2.3
Total industry	2.0	2.4	1.7	-0.7

Sources: Output and employment data from the National Economic Institute and OECD Secretariat estimates.

Diagram 9. MANUFACTURING SHARE OF TOTAL EMPLOYMENT



1. Total does not include Canada, Austria, Greece, Ireland, New Zealand, Spain, Switzerland and Turkey.
Source: OECD, National Accounts.

fact that the number of fishermen has remained relatively constant has reflected both the terms of their contract and the nature of fishing. Rather than paying hourly wages, the fishing companies contract to employ a fixed number of fishermen. According to the agreement, these fishermen then receive a fixed percentage of the trawler's profit. The agreement serves to share the uncertainty in fishing income between management and labour, thereby stabilising employment. A further reason for the apparent stability in fishing employment is that the size of the catch is not ultimately known until after the fishing expedition is over. By contrast, fish processing stands out as the most volatile industry, reflecting fluctuations in both the fish catch and the spread between prices of raw and processed fish.

A second important feature is the highly collectivised nature of the non-fisheries sectors. Iceland is among the most unionised countries in the world (along with the other Nordic economies). More than 90 per cent of Icelandic workers are members of labour unions, the largest labour organisation being the Icelandic Federation of Labour (ASI), covering most private sector blue collar workers, with 62 000 worker-members (see Annex I). Member unions of the ASI often bargain as a group under the umbrella of the ASI. Labour contract negotiations have usually been highly centralised with negotiations between the ASI and the Confederation of Icelandic Employers (VSI) setting the trend for other labour negotiations. However, there are years that are exceptions to this centralised pattern, as in 1988 when the Federation of General Workers Union (VMSI, an ASI member) was the trend setter.

The Government's role in wage bargaining has varied, but it has often played an important part in wage settlements either as a third party in the negotiation process or through the law. In some negotiations, the government has influenced the outcome through social reforms or fiscal concessions²⁵. There are two cases in recent years of major government intervention, amounting to the imposition of a statutory incomes policy. In May 1983 all existing contracts were extended and their wage indexation clauses invalidated (indexation was made illegal until mid-1985). And in May 1988, the government instituted an incomes policy under which wage growth was limited to 10 per cent, existing labour contracts were extended until April 1989, and the limited indexation in the 1988 contract was invalidated.

Experience with wage indexation dates from 1922. Prior to 1979, indexation clauses were based only on the cost-of-living index. From 1979 to 1983 a correction was added for the terms of trade, as it was realised that in an economy where most goods are imported there was no effective way to protect workers from increases in

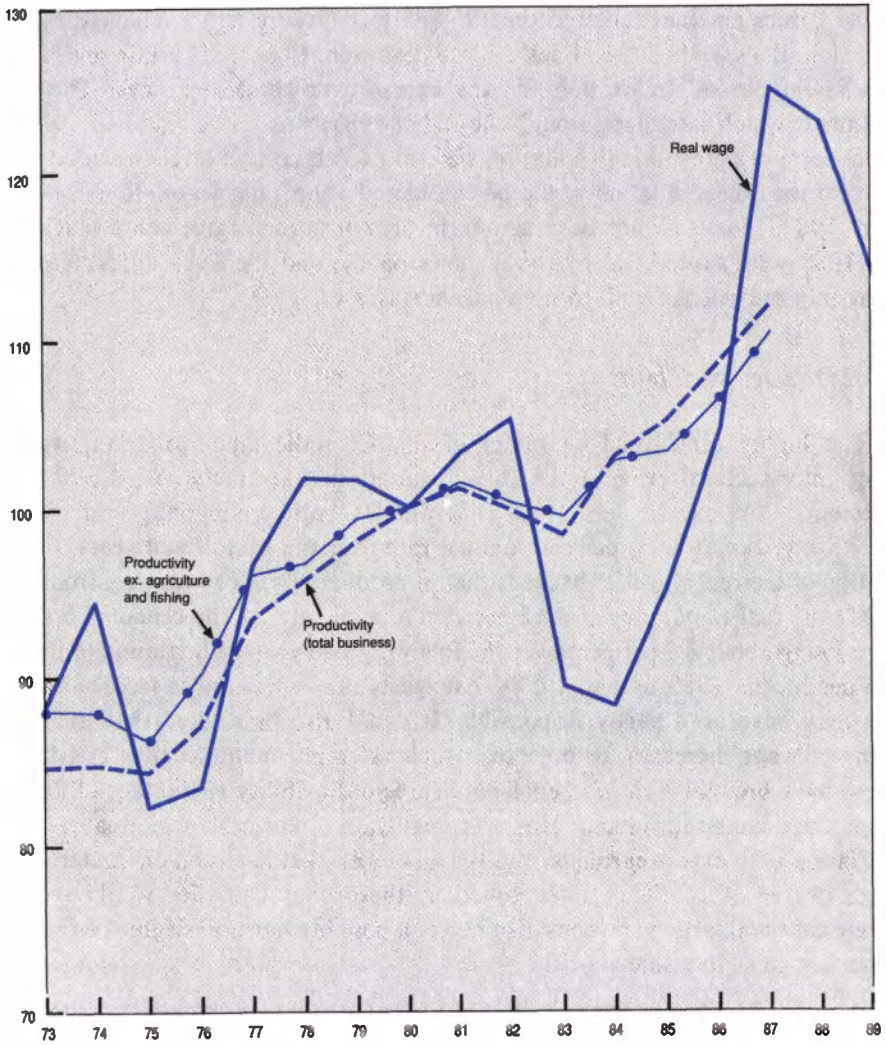
foreign prices. However, the experience with the terms-of-trade corrections was never considered satisfactory, since the correction was always based on provisional data and it was difficult to modify previous adjustments for data revisions. The wage-price spiral which developed in 1983 was blamed in part on wage indexation, and the agreement that followed the 1983-85 wage freeze had a modified form of indexation, the so-called "red lines". If inflation were to exceed certain levels, then there would be full indexation for the excess over these red lines. The 1986 agreement (which extended through the end of 1987) was similar but had a slightly weaker form of indexation: if inflation were to exceed certain levels, then compensation for the excess inflation would be considered a topic for negotiation. Since the end of 1987, there has not been any form of indexation; agreements reached in early 1988 were superseded by the incomes policy, and the 1989 agreement contained only provisions for fixed nominal increases.

Real wage variability

The highly centralised character of the Icelandic labour market, with its strong inter-sectoral wage links, has resulted in extremely large real wage movements²⁶. As can be seen from Diagram 10, both productivity and the real wage have grown at a 1½ per cent annual rate over the past fifteen years, but the variation of the real wage far exceeds that of productivity. For example, from 1984 to 1987 the real wage grew at a 12 per cent annual rate, as the economy boomed, before losing about 4½ per cent over the following two years. The timing of the real wage declines in 1983-84 and 1988-89 suggests that government freezes in those years may have been partly responsible. It could also be argued that the active trading of wage increases for objectives such as employment security and "social wages" have brought a rather beneficial degree of flexibility in the face of fluctuations in the demand for labour. However, real wage changes show a greater degree of variation than export earnings, and the labour market has been characterised by a high degree of conflict. Taken together, these characteristics would seem to indicate that real wage variations also reflect a possibly harmful degree of volatility in response to supply-side shocks.

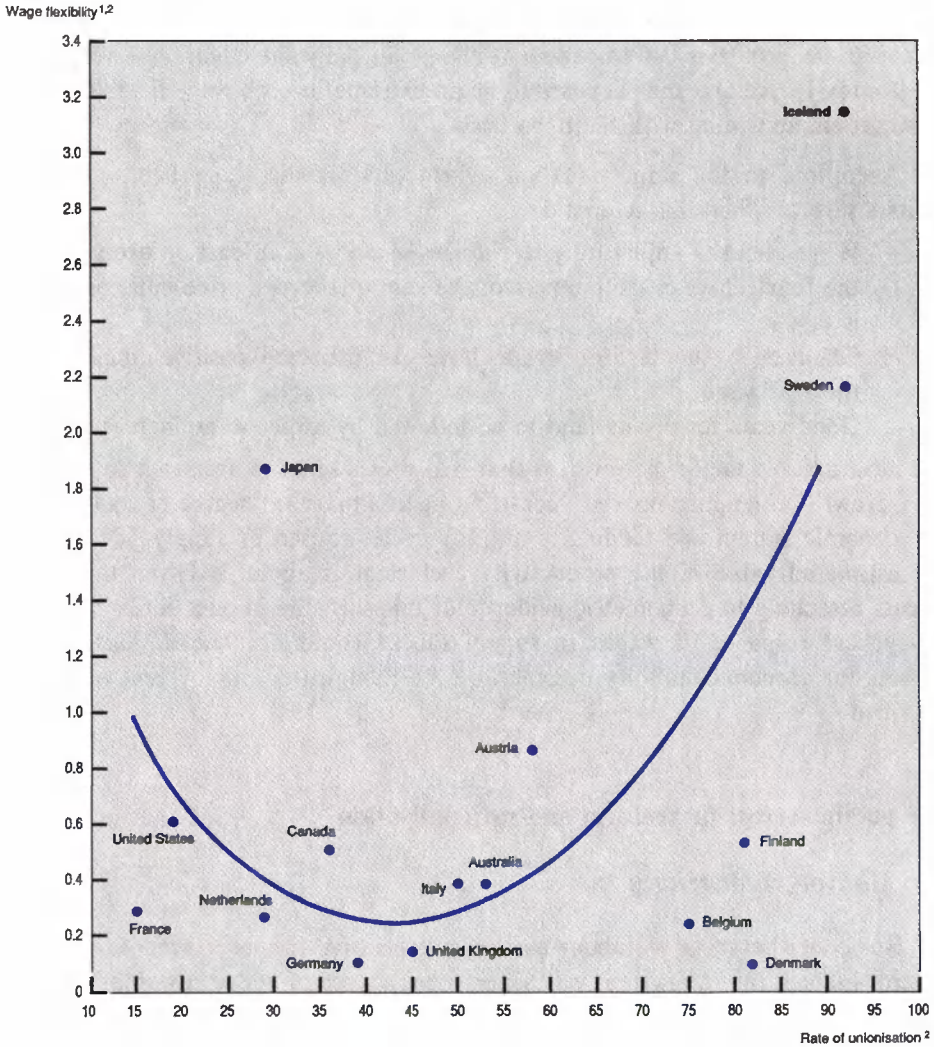
Diagram 11 illustrates the extent of Icelandic real wage *flexibility* within the framework of the so-called "centralisation hypothesis"²⁷. This theory postulates a positive relationship between the responsiveness of real wages to labour demand and either very high or very low centralisation, while intermediate degrees of centralisation seem to be linked with real wage inflexibility. The 90 per cent unionisation rate in Iceland, combined with the nature of the bargaining round and

Diagram 10. PRODUCTIVITY¹ AND THE REAL WAGE
Indices, 1979 = 100



1. Productivity with and without primary sectors.
Source: National Economic Institute.

Diagram 11. REAL WAGE FLEXIBILITY AND LABOUR MARKET CENTRALISATION



Note: The curve is a quadratic in the rate of unionisation.

$$\text{Wage flexibility} = 1.9 - .07 (\text{union share}) + .0007 (\text{union share})^2 \quad \text{with } R^2 = .40.$$

1. The coefficient of labour-market slack (usually the unemployment rate) in the wage equation.

2. Unionisation rates are from an unpublished paper by Jelle Visser, "Annual statistics on union membership and union density," except for Iceland, where the data is from Annex I. The wage flexibility coefficient is from OECD, *Economies in Transition* 1989, p. 44, except for Iceland where the coefficient comes from Annex I.

Sources: International Labour Statistics, Trade Union Membership, R. Price, OECD, *Structural Adjustment and Economic Performance* and Secretariat estimates.

Sources: OECD, *Economies in Transition*, 1989 and *Revenue Statistics of Member Countries, 1965-1988*, 1989.

the participation of government in the round, makes the Icelandic labour market one of the most centralised in the OECD area. Correspondingly, empirical evidence suggests that wage behaviour is exceptionally sensitive to labour-market conditions, insofar as the coefficient of employment change in the wage equation is very high (see Annex I). Iceland thus appears to be an extreme in both wage flexibility and unionisation, according with the hypothesis.

According to the wage equation evidence, Icelandic wage behaviour also exhibits several other characteristics:

- Wages tend to adjust fully to changes in prices – at least on average over the fourteen-year sample period; the sum of the two price-inflation terms is 0.9;
- Changes in the terms-of-trade have the expected positive influence in the real wage;
- Good years for profits tend to be followed by larger wage increases.

The most notable factor, however, is that real wages seem to overreact to productivity growth in the previous year, contributing an important degree of volatility to the economic system and tending to amplify cycles caused by supply-side shocks. The estimated value of the productivity coefficient is about 3. Given the usual caveats attaching to econometric evidence of this sort, the implication is that the pro-cyclical response of wages to supply shocks could have deleterious consequences for economic stability in general, even though full employment has been sustained.

The public sector: tax reform and rationalisation²⁸

Motivation for reform

Some of the roots of labour-market overheating can be traced to the tax system. Indeed, the tax system was a persistent source of added instability:

- Because the income tax was levied on the previous year's income, tax revenues would fall in real terms if wage inflation increased more than expected (creating a deficit as in 1982, 1983 and 1987) and rise if it increased less (as in 1984);
- Although the central government relied on indirect taxes for most of its revenue, the base was rather narrow, with most services being exempted. This meant that indirect tax receipts would rise if imports (of goods) increased – a stabilising response with respect to external imbalances – but

if domestic wage inflation increased and import prices did not, tax receipts would decline relative to GDP, contrary to the required fiscal response.

The cumulative effect of these deficiencies was a tendency to structural budget deficit and government debt accumulation, which caused domestic inflation and interest rate pressures.

Furthermore, the sales and corporation tax systems had become increasingly complex in operation. Exemptions had reduced the sales tax base to 60 per cent of its potential, with consequent distortion of consumption patterns. Saving was channelled overwhelmingly into housing. The consequent shortage of discretionary domestic capital was exacerbated by special rules which allowed accelerated depreciation for tax purposes. Together with state subsidies, state borrowing guarantees, and privileged lending rates, the fiscal system created a bias in favour of borrowing. Investment was subject to an artificially low discount rate which resulted in unrealistic estimates of the present value of investment projects, over-investment and excess borrowing from abroad. Rates of return varied widely (machinery being favoured over industrial building), implying a large potential misallocation of capital.

The nature of the reform

Since 1987 the tax system has been subject to a comprehensive overhaul, involving major changes to the personal income, corporation and indirect tax systems. The first stage of tax reform, just ended, was motivated primarily by the short-term need to introduce a greater degree of built-in stability into revenues, but equity considerations also played a part, especially in the design of the personal income tax. The income tax was simplified by abolishing numerous exemptions and deductions, widening the tax base. The marginal rate was set at a flat 35.2 per cent for 1988, raised to 37.7 per cent in 1989, (made up of a 30.8 per cent central government tax rate and a 6.9 per cent local government rate) and then to 39.8 per cent in the 1990 Budget. However, the effective (i.e. average) tax rate is quite low, since liability is relieved by a personal tax credit, child benefits and mortgage tax credits. The effective income tax rate in 1989 was 16 per cent (of taxable income), the central government take being only 5 per cent (Table 23). The income tax is paid on a pay-as-you-earn basis, with a final assessment at the end of each year.

Reform of the indirect tax system involved a revision to the sales and excise taxes and to import duties.

- The sales-tax system was revised at the beginning of 1988, by abolishing the numerous exemptions which had built up and by extending its coverage to services and food products;

Table 23. The PAYE system

	Outcome 1989	Per cent of tax base
	Million krona	Per cent
Personal income taxes, gross	61 085	37.7
Personal tax credits	- 35 480	- 21.9
Personal income taxes, net	25 605	15.8
Local governments	- 11 235	- 6.9
Church and cemetery charges	- 955	- 0.6
Child tax credits	- 3 715	- 2.3
Mortgage tax credits	- 1 450	- 0.9
Central government, net	8 250	5.1

Source: Ministry of Finance.

- The import-duty and excise-tax systems were rationalised and integrated with the revised sales-tax system.

These reforms cleared the way for the introduction of a single-rate value-added tax, in January 1990, based on a single tax rate of 24.5 per cent. The base is fairly broad, exemptions being allowed for exports, social, educational and cultural activities, banking, insurance and transportation. Reimbursements for dairy products, meat, fish and vegetables result in the effective tax on these products being nearer to 14 per cent.

The corporation tax has also been reformed, the tax base being increased by reducing the tax-free allocation to investment funds. Further changes are being prepared for fiscal year 1991. The objective is to achieve an economically neutral system, both with respect to investment decisions and corporate financing. A remaining gap in the reform programme has been the taxation of capital income and the full integration of income and corporation tax systems. There has been a need to limit discrepancies between various forms of capital income and bring personal interest income and capital gains - currently exempt from income tax - within the personal tax net. A committee has recently submitted a preliminary report, containing the following proposals:

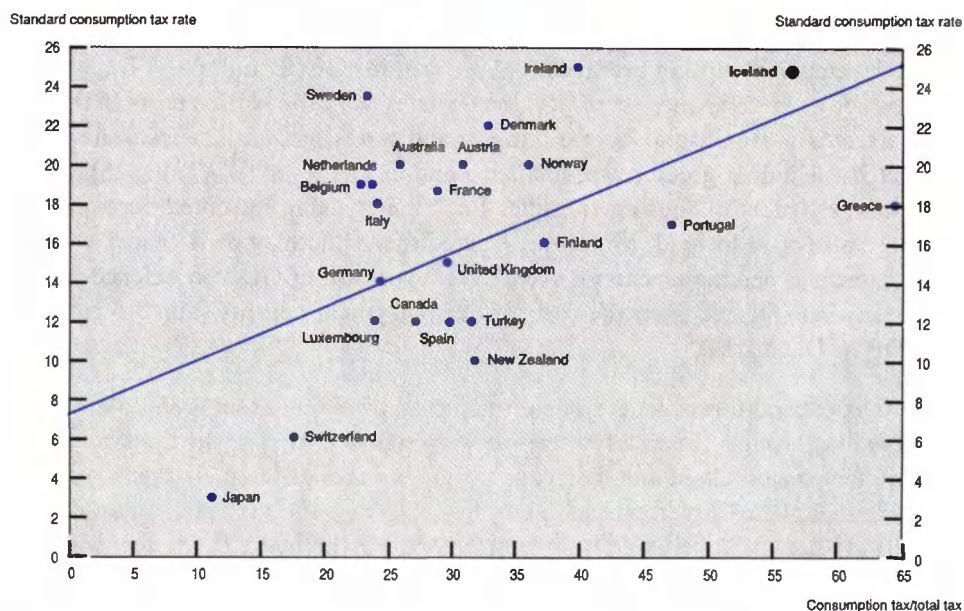
- Real interest, dividend income and real capital gains on bonds and equities should be subject to income tax;
- Dividend payments will be fully tax-deductible for companies, with firms required to withhold tax;
- The net wealth tax will be cut at the same time as interest income becomes taxable.

The corporation tax base is to be further broadened, by curtailing deductions and making firms within the energy sector subject to income tax. The result should be an increase in the scope for reducing the statutory rate of corporation tax, which was raised to 50 per cent in 1989, after being cut to 45 per cent.

Characteristics of the new system

The new tax system is a clear improvement over the old, with respect to both revenue-raising and resource allocation. Positive microeconomic features are the relative absence of allocative distortions to consumer preferences, as a result of the single expenditure tax rate, and potential neutrality with respect to investment and corporate-financing decisions. However, the VAT rate is rather high internationally, even given the extent to which the government depends on expenditure taxation for its receipts (Diagram 12).

Diagram 12. **A COMPARISON OF INDIRECT TAX RATES**
Consumption tax



Sources: OECD, *Economies in Transition*, 1989 and *Revenue Statistics of Member Countries, 1965-1988*, 1989.

A further criticism of the tax system (which may be linked to the rather high rate of VAT) is the inadequate treatment of income from fishing. At present, the allocation of a quota bestows a valuable asset on the recipient, which can be resold, with the trawler. Judging by the prices paid for fishing vessels with such quotas attached, the untaxed economic rents accruing to quota-holders can be substantial. An active debate has developed in Iceland, for and against the imposition of a "resource tax" on fishing which would allow the government to take a share of such rents²⁹. One such tax could be levied by auctioning fish quotas, a course of action which OECD Surveys have recommended on economic grounds in the past. In economic terms the case for the government selling quotas is attractive, since it would lead to a more efficient allocation of resources in the fisheries sector. The adjustment costs, especially regional, of such a move would be severe, and such a tax is considered unlikely while there is a preference for concealed over overt subsidies to support regional communities. Meanwhile, failure to tax some of the national wealth accruing through the fisheries constitutes a significant allocational and budgetary distortion.

Public sector size and efficiency

As a result of the rather high value-added tax rate the benefits of an apparently rather low average tax burden – government revenues amount to 36 per cent of GDP compared with an average of 42 per cent for OECD Europe³⁰ (Table 24) – may not be as large as they seem. Iceland deviates from the Nordic norm in that its public sector is small, and both eligibility and levels of social benefits are more restricted (including greater user-financing and means testing)³¹ (Table 25). Some programmes, such as housing subsidies for families living in rented accommodation, are absent in Iceland. Moreover, Iceland spends nothing on defence, whereas other Nordic economies spend an average of 2 per cent of GDP on defence, and it has been virtually free from the costs of unemployment benefits (about 5 per cent of GDP in Denmark).

"Tax expenditures" – i.e. transfers achieved by giving exemptions, allowances and credits through the tax system – do not significantly add to the size of the government sector. Child and mortgage tax credits administered via the income tax system amount to 1½ per cent of GDP, but otherwise the tax reform has left the income tax base relatively free from interference. Furthermore, the system whereby the central bank used its "seigniorage" powers to raise funds from the banking system (see chapter II) has been reformed³². Required bank reserves are now indexed. A portion of base money, held in fulfilment of bank liquidity obligations

Table 24. Significance of the government sector in the economy
in 1988

	Receipts % of GDP	Expenditures % of GDP	Employment % of total
Iceland	35.5	37.0	18.0
United States	32.0	34.2	15.1
Japan	34.1	32.7	8.3
Germany	43.6	46.4	15.2
France	48.8	50.2	22.9
United Kingdom	39.2	38.2	20.8
Italy	40.3	51.1	17.2
Canada	40.1	44.1	20.3
Australia	35.6	35.5	16.5
Austria	46.8	50.6	20.4
Belgium	44.3	51.4	19.8
Denmark	60.4	61.0	29.8
Finland	40.0	40.2	20.7
Greece	34.9	49.4	10.1
Ireland	51.9	55.3	18.3
Netherlands	50.7	56.4	15.5
Norway	56.0	54.0	29.3
Portugal	36.2	43.5	14.1
Spain	36.6	40.3	13.9
Sweden	62.0	60.3	31.9
Switzerland	43.0	36.4	10.5
Turkey	20.7	24.6	9.1
OECD average	42.3	44.8	18.1

Sources: National Economic Institute and OECD Secretariat.

can still pay a negative real rate of interest, but the amount involved is very small. "Off-Budget" revenue-raising activities have, in general, been reduced to the point where they do not alter the picture of a significantly lighter tax burden than the OECD average.

If the size of government is measured by employment, the Icelandic public sector is similar to the OECD average, at about 18 per cent, although a little below other smaller European economies (Table 24). Some of the advantage of a small government sector may thus be negated by relatively high government employment, which could have implications for public sector productivity. Little information exists on public sector efficiency, but there appears to be scope for improving

Table 25. Social security expenditure

	Percentage of gross domestic product at market prices				
	Denmark	Finland	Iceland	Norway ¹	Sweden
A. Social security expenditure as a percentage of gross domestic product					
1980	27.9	20.8	14.1	21.0	32.5
1981	30.3	21.4	14.5	21.8	34.2
1982	30.7	22.5	15.3	—	33.1
1983	30.3	23.3	15.4	—	34.8
1984	28.8	23.4	14.5	22.6	32.7
1985	27.8	24.6	—	—	33.3
1986	26.8	25.5	—	—	33.7
1987	26.4	—	17.0	—	—
B. Index for social security expenditure per capita aged 15 to 64 in terms of 1980 prices					
1980	100	100	100	100	100
1981	105	104	106	104	113
1982	110	111	114	—	121
1983	111	118	105	—	142
1984	109	124	100	119	149
1985	110	133	—	—	167
1986	110	142	—	—	182
1987	106	—	117	—	—

1. Data for 1982 and 1983 not available.

Sources: Yearbook of Nordic Statistics and Ministry of Finance estimates.

control mechanisms in order to ensure that resources are used more effectively; there is a need for a serious effort to be made to increase public sector productivity, in line with trends in many OECD economies. The expansion of the government labour force in the 1980s has been among the fastest in the OECD area.

Financial market liberalisation

Motivation for reform

Like the tax system, Icelandic financial markets have been in rapid transition in recent years, the objective being to introduce more competition and greater reliance on market forces. The over-involvement of the government in the financial system and the reform process it triggered in the 1980s were described in the 1987

OECD Economic Survey of Iceland. The banking system had grown up under the umbrella of state-ownership, because of the need to channel scarce, cyclically-variable domestic saving to capital-hungry sectors, such as fisheries and agriculture³³. The central bank set commercial-bank interest rates, and long-term credit allocation was wholly under government control, being in the hands of specialised investment funds which lent at preferential rates to particular sectors of the economy.

Doubts about the effectiveness of the credit-allocation system began to accumulate with accelerating inflation and growing foreign indebtedness, which reflected a number of inter-related defects:

- In conjunction with high and variable inflation, regulated interest rates resulted in negative – and often highly negative³⁴ – real interest rates, which encouraged over-borrowing and exacerbated the endemic scarcity of capital by discouraging saving and eroding the value of financial assets;
- Money and inflation control was undermined by the fact that the central bank was used to on-lend credit to industry, via “produce” loans³⁵ (see above);
- The banking system was small, weak and uncompetitive, with little incentive to control costs or compete on prices;
- The system of credit allocation was too inflexible to adapt to the increasing need for industrial diversification and structural change; instead, capital continued to be channelled into investment projects whose present value could be negative if a market-determined discount rate were used, or at best unconstrained by the test of the market;
- Corporate balance sheets were increasingly strained by an overdependence on debt finance, due to the absence of a well-developed equity market.

Reform so far has concentrated on the first three problems (although the fact that the economy has gone into recession has exacerbated the transitional problems associated with financial reform and called some of the progress made into question). More recently, however, one of the main spurs to reform has been the approaching integration of European capital markets, which has focused attention on the issues of credit allocation and capital inflows.

Reform and deregulation

The first stage of reform was the introduction of financial indexation, followed, from 1984 to 1987, by extensive liberalisation of the banking system³⁶. From

August 1984 the commercial banks were allowed to decide most of their interest rates, subject to central bank veto, which was used several times in 1985. Since the Central Bank Act came into operation in November 1986, the banks have been free to set rates, subject to a provision that the central bank can intervene if real interest rates exceed those generally prevailing in Iceland's trading partners, or if there is an "inordinate margin between deposit and lending rates".

The associated aims of strengthening commercial bank operations, while increasing central bank control over money creation, necessitated a tightening of the prudential standards of the commercial banks and a curtailment of borrowing rights – including overdraft facilities – at the central bank (which had formerly been unable to prevent the commercial banks from making up for their failure to attract deposits by borrowing from the central bank and abroad):

- The system of produce loan rediscounting, which was one of the main avenues for channelling cheap funds to industry and one of the main reasons why the central bank had failed to control money creation, was abolished in 1985 ³⁷;
- To improve the liquidity position of the commercial banks, they were relieved of part of the reserve requirement in February 1987 ³⁸.

The latter move has created a market for treasury bills (earlier attempts having been unsuccessful), to make it easier to finance the treasury deficit and eventually to allow for open-market operations. However, as noted above, the rules governing the liquidity ratio were rather lax in many respects and have been altered several times with a view to increasing control over advances.

Heavy credit demands initially enabled the commercial banks to raise lending rates considerably in 1987, particularly at the short end, where rates on discounted paper and inventory financing have tended to exceed long-term indexed rates. As a result, bank profitability increased. However, the recession has brought tighter margins, and annual reports show that banks have been conservative in writing off bad debts. To consolidate the development of private banking, the government has encouraged mergers and privatisation. As a result of a major merger between three private and one public institution (to form Islandsbanki) there now exists a private banking institution with a balance sheet totalling 22 per cent of the total. But the government still controls the major part of the banking system, the share of the two state banks remaining dominant. Moreover, the large number of small banking institutions continues to be a problem. There have been only a few mergers among the savings banks, despite the declared policy to further structural change through amalgamations. Most savings banks are tied to small communities and are too small to be efficient.

Effects of liberalisation

Real interest rates on non-indexed secured loans rose from an average of 4.3 per cent in 1986 to nearly 12 per cent in 1988, while indexed loan rates rose from 5 to 9 per cent (Table 12). Part of this increase was probably due to the release of pent-up credit demands. The initial effect of liberalisation was to provoke a spate of financial innovation, leading to a significant increase in the issue of new bonds and other financial instruments and the emergence of new financial institutions offering new financial services. The most notable have been mutual funds – investing mainly in domestic bonds – and leasing companies (Table 26)³⁹. Nearly all of the new institutions are privately owned, raising finance mainly through bond issues, a trend encouraged by the establishment of a securities exchange by the central bank in 1986. Bond issues by the non-bank financial sector have also grown rapidly, while the commercial banks, having been subject to increasing competition for deposits with non-bank institutions, have also entered the bond market⁴⁰.

Financial innovation and the associated increases in credit demand and real interest rates have generated a rise in voluntary saving compared with the early 1980s (Table 27). Non-contractual saving has increased at an average annual real rate of 15 per cent since 1985, despite the recent fall in real incomes. There has been a corresponding increase in domestic savings as a proportion of national income, amounting to 14 per cent of GDP (an increase of 3½ percentage points a year). Contractual saving (pension contributions mainly) still form the bulk of

Table 26. **Development of financial institutions**
Assets as a per cent of GDP

	Banking system ¹	Investment credit funds (ICFs)	Other state lending funds	Pension and insurance funds	Leasing companies and mutual funds	Total domestic credit ²
1985	41.4	25.9	27.3	19.8	0.4	60.8
1986	38.8	26.6	19.2	20.8	0.8	62.2
1987	39.2	26.9	14.5	25.1	4.0	75.7
1988	45.1	29.8	11.6	25.1	4.0	75.7
1989	50.2	34.8	—	30.2	4.8	82.6

1. Including mortgage departments.

2. Columns do not add to total because of inter-institutional lending.

Source: Central Bank of Iceland.

Table 27. The credit system¹

Position at end of year	Assets				Total % of GDP	Liabilities			Foreign credit
	Lending to					Financial savings			
	Central government	Municipalities	Industries	Households		Voluntary	Institutional	Total	
	Percentage of total					Percentage of total			
1981	18.1	6.8	53.9	21.2	79.1	36.0	29.9	65.9	34.1
1982	18.9	7.5	53.7	19.9	92.6	28.7	26.4	55.2	44.8
1983	22.2	7.1	48.5	22.2	101.5	27.8	27.7	55.5	44.5
1984	22.6	6.5	48.3	22.6	118.2	25.6	26.0	51.6	48.4
1985	22.7	5.6	46.2	25.5	120.5	26.6	29.2	55.8	44.2
1986	22.8	5.5	43.4	28.2	116.4	29.8	31.4	61.2	38.8
1987	20.9	4.5	44.9	29.7	112.2	31.4	34.5	65.9	34.1
1988	21.5	4.1	43.7	30.8	122.6	29.5	36.1	65.6	34.4
1989	—	—	—	—	145.1	27.1	34.9	64.0	38.0

1. Included are the Central Bank, deposit money banks, mortgage departments of banks and saving banks, investment credit funds, other state lending funds, pension funds, insurance companies, leasing companies, mutual funds, foreign sector and private bond issues not included above. Inter-institutional transactions are excluded.

Source: Central Bank of Iceland.

overall saving, restricting the scope for and nature of capital market development (see below). However, financial intermediation has been to an increasing extent based on domestic funds. The real growth of net foreign debt added 1½ per cent a year to the external debt/GDP ratio in 1988 and 1989, compared with 5 per cent in 1986.

Unresolved issues

While, in principle, a liberal financial system is to be preferred to a centrally-regulated one, the transition from the one to the other can create severe adjustment problems, as tax and interest rate subsidies alter the relative value of financial and real assets, affect industrial profits and investment and trigger the need for redeployment and retraining of the labour force. The end result of the process is greater efficiency and higher GDP, but the immediate social costs may be high. The profitability of highly-leveraged firms in all industries has been adversely affected by higher borrowing costs, causing a sharp rise in bankruptcies and higher unemployment. These problems have brought pressures for a reappraisal of the liberalisation programme:

- As noted in Part II, on taking office in September 1988, the new government instructed the central bank to begin negotiating with deposit institutions to secure lower real interest rates. Subsequently, the Central Bank Act was amended, so as to make it easier for the government to set "reasonable" limits on interest rates;
- The system of indexation is being reappraised;
- The explosion of debt associated with leasing demand has also led to some rethinking in that area. The leasing companies have been held responsible for the over-expansion of the economy in 1987, particularly over-investment in machinery and buildings and their development (together with the development of the private securities market) has been restricted;
- New restrictions on capital inflows were introduced in 1987, including a tax on foreign borrowing. This tax has subsequently been phased out⁴¹, but the question of how far capital flows should be liberalised is a matter of some debate.

a) "Excessive" real interest rates

Whether real interest rates have been excessive in an economic sense (i.e. whether they had "overshot" their equilibrium value) depends on economic fundamentals. Perhaps the main reason why such a divergence could occur is the

failure of private agents to adapt their inflation expectations quickly enough; i.e. such expectations are extremely difficult to form accurately, causing nominal interest rates to be excessive *ex post*. Such a case may have arisen as a result of the wage freeze, where difficulties in setting nominal rates called for some central direction as to where they should eventually settle. However, the expectations argument cannot apply to indexed bonds, real rates on which must be due to economic fundamentals. These fundamentals are a matter of controversy. Such international evidence as there is suggests that the budget deficit relative to private saving, external indebtedness, tax rates and longer-term growth prospects (which determine the real productivity of capital) should be factors. Monetary policy should not affect real long-term interest rates: although central bank purchases of government debt could temporarily relieve portfolio pressures, the longer-run effect is inflationary.

Iceland has a higher public sector deficit and lower saving than the OECD average, while it also has a relatively large external debt, limits on which have generated a relatively high "elasticity" of demand for domestic financing in recent years⁴². Although monetary policy has been tightened considerably compared with the pre-1983 period, it has remained basically "accommodating" and cannot explain why Icelandic bond yields exceed the world average (see Part II). Moreover, attempts to push rates down by further monetary accommodation would be unlikely to be successful. In the first place, the demand for deposits is highly positively correlated with real deposit rates, which probably implies that aggregate savings levels are also sensitive to interest rates (see above⁴³). The net effect of monetary easing is more likely to be a steepening in the yield curve than an across-the-board reduction in rates, as savers switch from financial to real assets. Secondly, to the extent that greater central bank accommodation implies faster inflation, it would mean increasing the "tax" on commercial bank liquid assets (noted above); this would erode commercial bank profits and push up their interest rate margins. A lower treasury deficit (and a steadier inflation rate) would be a more effective route to lower real interest rates than monetary easing, together with greater competition and efficiency in the banking sector.

Inadequate competition in banking, partly related to restrictions on foreign banks, makes real interest rates higher than they need be. There remain significant unexploited gains to banking efficiency from a broadening of banking operations and a strengthening of their equity position. Moreover, private banks are not confronted by a level playing field. State banks have the advantage of being able to get assistance in writing off bad debts, while their deposits carry a state guarantee. Together with the absence of foreign competition, these factors serve to reduce

efficiency and increase deposit rates and spreads for the private institutions. According to the new banking legislation, foreign banks are not allowed to own shares in Icelandic banks, although foreign participation in non-bank financial institutions is allowed. Also, foreign exchange rules currently restrict the extent to which companies can deal with foreign banks. However, following the partial liberalisation of exchange controls in November 1989, further steps towards a freer individual access to foreign banks are expected, creating the prospect of greater competitive pressure on domestic financial institutions.

b) Reform of financial indexation

Financial indexation has contributed to the growing stability of the financial system. However, protecting against the effects of inflation is second best to a low-inflation regime. The indexation of shorter-term assets is the more difficult because of differences in price and wage movements. In particular, real rates measured according to the cost of living index tended to understate the pressures on household budgets during 1988, when household incomes were growing more slowly than prices. As a result, financial indexation procedures have been modified, in two ways:

- The credit-terms index was changed to give a one-third weight to wages, the effect being to reduce real borrowing costs as measured by price changes⁴⁴;
- The minimum maturity for indexation of bank credit became two years.

These moves appear to be the beginning of a radical overhaul of the indexation system.

How far the dismantling of the indexation procedures should go depends on progress towards disinflation. To the extent that indexation is associated with a high-inflation mentality, it has allocational costs, since planning horizons are shortened by accelerating repayments of principal. However, in the absence of a monetary and fiscal policy designed to reduce inflation to average OECD rates, the removal of indexation on deposits might be interpreted as an attempt to re-impose a tax on bank depositors. The existence of this tax was the main factor behind the flight from monetary assets in the 1970s. The development of indexed- and switching-term deposits in the 1980s was a vital factor in the re-establishment of monetary confidence and the ability of the commercial banks to re-attract savings. As and when competition in banking increases and depositors become free to bank with foreign institutions, the need for an indexation system will decline. However, Icelandic inflation still appears to be rather volatile, so that premature dismantling is liable to result in arbitrary fluctuations in real rates, with a consequent increase

in risk premia. An obvious solution would be to let markets decide when and how to dismantle financial indexation.

c) Reforming corporate finance

A further factor driving up free-market interest rates is the preferential status enjoyed by some investment credit funds (ICFs). There are two aspects to this:

- Soft loans are offered for regional and social purposes (the Regional Development Fund offering 5 per cent real; Agricultural Loan Fund offering 2 per cent, etc.), with the State Building Fund giving 3½ per cent terms in 1989, raised to 4½ per cent in 1989;
- The ICF's have maintained their privileged access to domestic and to overseas funds.

Although the ICFs now operate on market principles, some have continued to have privileged access to funds (compulsory deposits), and they can all borrow under government guarantee and enjoy privileged tax treatment *vis-à-vis* the commercial banks. They have no minimum capital requirements. Not only does this artificially lower credit costs for some sectors, encouraging over-investment (i.e. spending on projects with an artificially low present value), it acts to raise costs in sectors deprived of preferential access. An important case in point relates to the pension funds, through which most contractual financial savings are channelled. They are basically used as conduits for housing finance. 60 per cent of their loan portfolio is allocated to housing.

As a result, the market for domestic long-term capital is thinner than it need be, the equity market is under-developed and the commercial banks have found it difficult to break into investment banking. Most Icelandic companies are family-controlled or are owned by a narrow group of shareholders. Shares are subject to a less favourable tax regime than debt instruments (although it is proposed to change this). The corporate sector has continued to rely on bank credit and the bond market so that the debt/equity ratio is rather high. There is a need for greater equity finance to provide a cushion for cyclically-sensitive industries and to this end greater institutional investment needs to be encouraged. The implicit subsidy to housing is of dubious benefit in comparison with its costs in terms of capital misallocation.

d) Liberalising capital flows

The development of new financial institutions, though desirable, has tended to outpace the abilities of the authorities to create and apply the necessary prudential

control, with the result that ad hoc and distortionary remedies have been employed to control their growth⁴⁵. In particular, the expansion of financial services took place at a time of rapid economic growth, the easing of restrictions on foreign borrowing helping to expand liquidity and consumer credit. Subsequently, capital controls were tightened – a short-term response to a substantially overvalued exchange rate. In the longer run, however, greater foreign involvement and freer movement of capital are a prerequisite for increasing both the efficiency and the range of services offered in the rather small Icelandic credit market.

To this end, controls on financial dealings with foreign countries have begun to be liberalised, but regulations covering capital flows remain very strict. Iceland remains the only country to maintain a general derogation with respect to OECD Code of liberalisation of Capital Movements. Raising long-term loans requires official permission and is usually carried out through the state-owned banks and investment funds, thereby carrying a government guarantee. Both the purchase of foreign bonds by Icelanders and Icelandic securities by foreigners require permission. While foreigners are allowed to purchase Icelandic securities denominated in krona, there is no right to convert the proceeds back to foreign exchange on maturity.

The government has declared its intention of strengthening the links between foreign and domestic capital markets. The proposal is to follow a similar path to other Nordic economies, and to adapt regulations governing capital movements to those that will prevail in the EC after July 1990. The first changes involve the easing of the rules on foreign financing of imports and the purchase of foreign securities and foreign real estate. If followed through, this strategy should result in a better balance between capital inflows and outflows and lead to higher domestic saving. Since it should also result in higher foreign investment in Iceland by non-residents, the net effect on the external balance would be uncertain. If capital inflows were more closely related to capital spending, external debt commitments would be more sustainable than at present. However, for this to be the case attitudes towards industrial development and diversification also have to be reappraised.

Industrial diversification

As noted in the introduction, Iceland is exceptional because of its extremely high dependence on one sector. This dependence has resulted in Icelandic GDP

Table 28. Economic performance and variability

A. GROWTH AND INFLATION 1965 TO 1988

	Annual GDP growth			Annual inflation rate ¹		
	Mean	Standard deviation	Coefficient of variation ²	Mean	Standard deviation	Coefficient of variation ²
Iceland	4.8	4.2	0.88	30.5	20.0	0.66
OECD excluding Iceland ³						
Total	3.5	2.5	0.71	9.1	5.3	0.58
Small countries	3.4	2.6	0.76	9.6	6.0	0.63

B. SOURCES OF VARIABILITY 1970-89

Performance variable:	Growth in:			
	Fish catch	Real exports ⁴	Real wages	Real imports ⁴
	Coefficient of variation ²			
	4.24	2.41	4.56	2.78

1. As measured by the change in consumer prices.

2. Standard deviation/mean.

3. Total is the average of the individual country figures.

4. Deflated by the GDP deflator, to incorporate terms of trade effects.

Source: OECD Secretariat estimates.

being subject to greater year-to-year fluctuations than most other OECD economies, amplified by the volatility of the real wage and pro-cyclical budgetary policies (Table 28). Although better fisheries management, closer links between real wages and productivity and a more stable medium-term fiscal policy can all play an important part in smoothing future fluctuations, the part of the volatility traceable to sudden changes in the marine environment is unavoidable. A larger, more diversified, non-marine sector would help reduce the country's vulnerability to such shocks.

However, the need for diversification stems principally from two further concerns. First, prospects for further expansion in fisheries output are limited. As a result, the long-term outlook for the economy depends heavily on employment and output growth in other sectors. Second, resources in the fishing sector are currently being under-utilised, implying untapped productivity gains. The government aims to exploit this potential by allowing quotas to be more freely traded⁴⁶. The effectiveness of such a policy would be enhanced by the creation of employment opportunities in other sectors. Labour productivity and competitiveness in the fish-processing

industry might be similarly improved. The fish-processing sector is currently protected through regulations governing the export of fresh fish. If a firm exports fresh fish, its quota is reduced by 15 per cent of the volume exported⁴⁷. The fact that fish-processing in Europe is protected artificially raises fresh fish prices, and the quota restraint is designed to counteract this. However, average auction prices in Iceland have been around half of those fetched in Europe; although the gap is smaller once transportation costs are taken into account, reducing the remaining difference would seem to depend on higher productivity in the fish processing sector.

Energy-intensive industries

The diversification issue has traditionally focused on the development of energy-intensive industries. The country has inexpensive and abundant hydroelectric and geothermal power potential, and industrial policies in the 1960s and 1970s concentrated on developing this sector. These policies met with some early success with the establishment of an aluminium smelter (1969), a diatomite plant (1968), and a ferrosilicon plant (1979)⁴⁸. Exports from these two industries amounted to about 3½ per cent of GDP in 1988 (Table 29). However, the contribution to national income is much less than the gross export figures imply. Other raw materials are imported (roughly 45 per cent in the case of aluminium), and the processes are capital- rather than labour-intensive. Moreover, following these early successes, there was little further progress towards diversification in the 1980s. The growth of energy consumption has been slower than expected, and there soon will be a surplus of generating capacity so that new electric projects have been shelved⁴⁹. However, there is still abundant unused capacity for power generation – both from hydroelectric and geothermal sources. Only 4.4 TWh/year of a technically and environmentally feasible 30 TWh/year of hydroelectric resources have been developed (Table 30), and electricity prices are very competitive.

The rather slow development of the energy sector in the 1980s has to be attributed in part to the legal impediments and political opposition to establishing new industry with foreign ownership. Up to 1983 the government insisted on a majority share in any enterprise (the aluminium smelter was an exception). With excess energy-producing capacity permitting rather favourable energy-price terms, a recovery in aluminium prices and a more liberal regime vis-à-vis foreign ownership and risk, Iceland is favourably placed to attract new foreign investment in the energy-intensive sector⁵⁰. Efforts have centred on the Atlantal project – proposals by a consortium of foreign companies to build new aluminium smelting capacity. The original proposal was to extend the existing Alusuisse plant. However,

Table 29. Manufacturing exports
As a per cent of GDP in current prices

	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988
Manufacturing total	5.54	4.29	6.42	5.33	5.14	8.67	7.90	6.67	5.84	5.29	5.64
Aluminum	3.93	2.53	3.60	2.69	2.32	5.20	4.12	2.94	2.71	2.52	2.69
Ferro-silicon	0.00	0.00	0.54	0.52	0.66	0.97	1.22	1.07	0.88	0.73	0.98
Diatomite	0.23	0.30	0.15	0.14	0.19	0.22	0.22	0.24	0.20	0.15	0.15
Tanned skins and hides	0.46	0.35	0.48	0.39	0.27	0.24	0.30	0.32	0.34	0.30	0.18
Woolen products	0.46	0.71	1.02	1.00	0.99	1.04	1.05	0.97	0.66	0.53	0.38
Canned products	0.23	0.25	0.33	0.27	0.43	0.60	0.61	0.63	0.55	0.55	0.54
Other manufactures	0.23	0.20	0.31	0.31	0.28	0.39	0.38	0.50	0.49	0.51	0.70

Source: Central Bank of Iceland: *Economic Statistics*.

Table 30. **Hydro and geothermal power**

Hydro electric power:	
Technically exploitable	64.0 TWh/year
Economically and environmentally exploitable ¹	45.0 TWh/year
Effectively exploitable ²	30.0 TWh/year
Exploited	4.4 TWh/year
Geothermal power:	
Technically exploitable	1 000 EJ
Geothermal energy use in 1986	33 PJ
Share of population enjoying geothermal heating in 1986	80 per cent

Key: A Terawatt-hour equals a billion (10^9) kilowatt-hours.

EJ = Exajoule = 10^{18} joules; PJ = Petajoule = 10^{15} joules, where 1 watt = 1 joule/second.

1. Harnessable at a cost lower than or equal to that of power from conventional steam power plants.
2. Sufficiently economical to be of interest in connection with power-intensive industries.

Source: *The Icelandic Electric Power Sector, An Overview*, Lansvirkjun, 1989.

Alusuisse withdrew, in favour of its own proposals, when its partners came out in favour of building an independent plant. A new 185 000-ton smelter would increase GDP by 5 to 6 per cent, and export earnings by 19 per cent, according to one study. While foreign power-intensive investments still require parliamentary consent, there appears to be a consensus that majority Icelandic ownership is no longer a prerequisite to the development of such a project. Energy production itself, however, is likely to remain – with the fisheries – wholly under Icelandic control.

Strategies for future growth

With excess capacity in the fishing sector and the long lead times and heavy capital expenditure involved in developing the energy sector, the focus of industrial development will need to be more broadly based if Icelandic growth is to match that in the rest of the OECD during the 1990s. Most categories of manufacturing exports stagnated or declined in the 1980s. Two traditional Icelandic industries, woollen textiles and tanned hides and skins were particularly badly hit. The most successful area of small manufacturing, firms classified as “other manufactures”, has grown rapidly (although it amounts to less than 1 per cent of GDP) (Table 29). The non-traditional manufacturing sectors, together with services offer considerable prospects for growth in the 1990s, depending on the extent of deregulation and capital-flow liberalisation which occurs.

Unlike its Nordic counterparts, foreign-owned industrial enterprises are virtually non-existent in Iceland (Table 31). Apart from its impact on energy and fisheries exploitation, which are generally considered "off-limits" to foreigners, the legal structure governing business establishment (about 70 separate laws, differing according to industry) generally discourages majority foreign ownership, but leaves some room for discretion. In general, these laws require that the majority of shares be held by Icelanders, that Icelanders constitute a majority on the board of directors, and that the managing director be an Icelandic domiciled in Iceland. Under legislation passed in 1987, the Ministers of Industry and Commerce are empowered to waive some of these rules, but major exceptions require an act of parliament⁵¹. Apart from promoting greater financial-market coherence, a more liberal foreign direct investment regime would help to create the employment opportunities needed to facilitate structural adjustment in the fisheries sector.

The development of aquaculture and tourism, which has been relatively rapid, would seem to have further potential. However, the service sector in general – which as noted is rather small at just over a half of total employment, compared

Table 31. Foreign-owned industrial enterprises¹

ISIC (1968)	Denmark	Finland	Iceland	Norway	Sweden
All industry					
Enterprises	269	—	1	191	572
Persons engaged	45 289	—	634	25 906	90 893
Turnover (mill. of ncu)	36 588	—	4 288	24 316	79 465
Establishments	—	165	1	233	—
Persons engaged	—	14 943	634	23 850	—
% of all ISIC 2-3 establishments	—	2.9	2.3	7.4	—
Valued added (mill. of ncu)	—	2 568	858	6 621	—
% of all ISIC 2-3 establishments	—	3.0	3.3	9.3	—
Manufacturing					
Enterprises	269	—	1	184	360
Persons engaged	45 289	—	634	25 805	90 148
Turnover (mill. of ncu)	36 588	—	4 288	24 228	79 211
Establishments	—	165	1	227	—
Persons engaged	—	14 943	634	23 736	—
% of all ISIC 2-3 establishments	—	3.1	2.3	7.5	—
Value added (mill. of ncu)	—	2 588	858	6 586	—
% of all ISIC 2-3 establishments	—	3.4	3.3	9.3	—

1. Fully-owned companies in 1986.

Source: Yearbook of Nordic Statistics.

with two-thirds in the other Nordic economies – also seems set for expansion, both as a result of greater exchange-rate stability and the expansion of leisure activities⁵². As a result of the higher taxation of services resulting from the VAT, there will be some redeployment, but the overall trend in service-sector employment will probably be upward. More generally, however, speculation as to which sectors will provide the best opportunities for employment in the next decade is much less valuable than creating the conditions for sustained economic growth and efficient resource allocation.

V. Conclusions

The past decade was one of considerable economic success for Iceland, with respect to the maintenance of a lower rate of unemployment and a more rapid growth in living standards than other OECD economies. However, the new decade has opened on a more pessimistic note, as appeared likely when the last *Survey* of the Icelandic economy was published in September 1988. At that time, the boom which had lasted since 1985 seemed in danger of turning into a recession. In the event, GDP began to fall from mid-1988 and the downturn is projected to continue into 1990, making the current contraction the deepest since the early 1950s. Moreover, although the economy should begin to recover in 1991, revenues from the fisheries may well rise rather slowly in the medium term. Growth prospects in the 1990s, generally thought to be in the 1½ to 2 per cent a year range, thus seem to be less good than in the previous decade. Compounding this supply-side pessimism is the fact that domestic demand has had to grow, and still needs to grow, more slowly than output so as to reduce both the high level of foreign indebtedness and inflation, the latter being at present not especially high by Icelandic standards but still far above the OECD average.

Many of these problems can be substantially attributed to past macro-economic policy mistakes, which have resulted in much larger fluctuations in Icelandic demand and output than would have occurred as a result of changes in the marine environment alone. It is clear that the economic upsurge which occurred in the 1985 to 1987 period was inadequately managed. In particular, national saving continued to decline and external debt to rise at a time when supply conditions were very favourable. A persistent treasury deficit was the chief cause. This directly increased dissaving. It also indirectly undermined the strategy of using monetary policy tightness and exchange rate firmness to achieve a better balance between domestic demand and supply and contain inflation. Because of the controls on capital movements it was possible to keep the krona at an artificially high level while treasury borrowing from the central bank inflated domestic credit demand,

leading to overheating and excessive real wage increases. The combination of real wage increases, an over-valued krona and soaring real interest rates in turn caused mounting business-sector losses. Whereas past Icelandic practice suggests that the government would normally lower taxes and increase foreign borrowing in order to cushion industry from the full impact of recession, the imbalances inherited from past policy errors have now necessitated a cautious fiscal stance. Fiscal policy manoeuvre has been restricted to temporary assistance to the more hard-hit sectors of industry.

The room for monetary policy manoeuvre too is restricted by the need to reduce inflation. Monetary tightening, by preventing inflation from accelerating, was an important factor behind the switch from negative to positive real interest rates which occurred in the 1980s. But inflation remains high and anything more than an endogenous easing of interest rates would risk a build-up of liquidity which would push it even higher as the economy recovers. The move to high real interest rates has caused severe adjustment costs in some sectors, and has led to pressure for them to be reduced. In certain circumstances, central bank guidance may be justified, notably where inflation expectations are slow to adapt to changing circumstances, such as the imposition of incomes policy. In general, however, real interest rates are not within the control of the central bank, except on a very temporary basis. A policy of imposing low or negative real interest rates on deposits cannot be sustained, since it requires persistently accelerating money supply growth and inflation, as was the case prior to 1983. Icelandic experience shows that deposits are highly sensitive to real interest rates, and any attempt to keep short-term interest rates artificially low would result in a flight from monetary assets and lower saving. Since lower saving raises real interest rates in the economy generally, the result is counterproductive. Market determination of interest rates should thus remain the general rule. Insofar as the budget deficit is a source of deficient domestic saving, one way to put downward pressure on interest rates would be a reduction of the public sector borrowing requirement.

As a result of reforms to the tax system, Iceland is now in a better position to generate a budget surplus if and when growth recovers, while progress made so far will have substantially improved the allocative efficiency of the tax system. Part of the budgetary problem in the 1980s derived from an inadequate tax structure. Deductions and exemptions eroded the tax base and undermined the stabilising properties of the system. The new income tax system has only a limited number of exemptions from the tax base, as does the new value-added tax which became operative from the beginning of 1990. The first steps have also been taken towards reform of the corporate tax structure, as part of a move to limit discrepancies

between various forms of capital income, curtail deductions, remove the discrimination against equity finance and generally move towards a more economically-neutral system. However, the value-added tax rate is rather high by international standards, and questions of public sector efficiency remain to be tackled: the economic benefits of a small government sector and a streamlined tax system would be enhanced by further rationalisation in these areas.

Financial reforms have also made monetary and credit policies more effective. Central bank control over money creation has improved and financial markets are now in much better balance. Deregulated interest rates have resulted in greater private-sector saving and the creation of new credit institutions. A combination of indexation and deregulation has led to a recovery of confidence in monetary assets. Indexation provisions are currently being narrowed in scope. Indeed, an unindexed, low-inflation system is preferable to an indexed, high-inflation one. However, a dismantling of financial indexation procedures risks undermining financial market confidence unless accompanied by a clearly anti-inflationary monetary policy and would be premature until inflation is brought down to durably low rates. Meanwhile the choice of financial instruments should be left to market participants.

It is also important that the process of financial reform be completed, by further reducing state controls over the banking system and credit institutions. Private ownership and competition in the banking system should be encouraged and a review undertaken into the effectiveness of the Investment Credit System. As presently constituted, these controls are a serious impediment to the efficient allocation of capital, to the development of banking operations and to the growth of Icelandic productive potential. Capital movements remain highly regulated. Raising long-term loans requires official permission and is usually done through the state-owned banks and investment funds, thereby acquiring a government guarantee. Both the purchase of foreign bonds by Icelanders and Icelandic securities by foreigners require permission. The government has expressed its intention of adapting the regulations governing capital movements to those that will prevail in the EC after July 1990. If carried through, a better balance between capital inflows and outflows would be achieved, making for a more efficient banking system and higher domestic saving. Freer capital inflows should also lead over time to a better allocation of capital and more balanced industrial development.

Industrial policies in Iceland, including those towards foreign direct investment, have been subject to a relatively high degree of state interference and control, which need to be reappraised at the same time as capital controls. The restriction of the exploitation of energy and fishery resources to Icelanders is

perhaps a special case politically. Of greater importance for Icelandic growth potential are the restrictive rules covering foreign participation in other sectors, which need to be reappraised. Such rules are complex, covered by a multiplicity of laws, which means that they can only be waived by an Act of Parliament. This apparatus of control has actively discouraged foreign direct investment. Rationalisation and liberalisation would put Iceland in a stronger position to diversify, which is essential if the country is to maximise its growth potential in manufacturing and services during a decade of what is likely to be slow growth in fisheries output and declining growth in fisheries employment. Greater reliance on market forces should facilitate the adjustment process and help create the conditions for steadier and more balanced economic growth.

Icelandic labour market institutions have been a source of both strength and weakness. On the one hand, the centralised, collectivised wage bargaining system makes for a high degree of real wage flexibility, which helps ensure a high level of employment. On the other hand, the system also helps to generate unnecessarily large swings in the real wage, since it over-reacts to productivity changes. One of the principal reasons for this has been government involvement in the wage round, characterised by a bargaining of social-wage concessions for pay restraint. Since this strategy has resulted in higher budget deficits, their monetisation, excess demand and wage-drift, there is no evidence that a quasi-incomes policy of this type can be effective in the longer run. And it may well have been destabilising.

The Icelandic economy is faced with the prospect of slower growth during the first half of the 1990s, with no room to boost living standards through traditional macro-economic policies. External debt and inflation are high by OECD standards, and the need to reduce both effectively rules out reflationary demand policies as a means of sustaining domestic income growth. Indeed, even if more favourable external conditions should result in faster growth than expected, it is important that any growth "dividend" be used to repay external debt and reduce imbalances. In such circumstances a pre-emptive tightening of macro-economic policies would be appropriate. At the same time, there is further need to improve the functioning of the economy. Structural reform already completed has put the economy in a much stronger position to adapt and diversify and to reduce the excessive volatility which characterised the past decade. Liberalising capital flows, long-term credit allocation and direct investment are now the most pressing items on the agenda. A combination of firm macroeconomic policy and more market-oriented and less interventionist microeconomic policies offers the best prospects for enhancing Icelandic living standards in the decade ahead.

Notes and references

1. The demersal species are found in coastal waters; pelagic species (herring and capelin) are found in the open ocean.
2. The autumn catch of 55 000 tons compared with 131 000 tons during the same season of 1988.
3. The supplements amounted to 5 per cent during the latter half of 1988, reduced stepwise to zero by the end of 1989. The fund, which was set up to smooth price volatility, taxes its participants in good years and supplements income in bad.
4. Some uncertainty also attaches to the profitability of the capelin fishery, since prices were falling during 1989.
5. This ratio measures the desired change in employment in the 12 months ahead.
6. As is noted below, attempts to eliminate the effects of terms-of-trade changes from the wage-indexation process were unsuccessful.
7. Central Bank of Iceland, *Economic Statistics Quarterly*, November 1989.
8. "Accommodation" is here defined as central bank lending to the central government and investment credit funds and deposit money bank liquidity created via central bank rediscounts, bond purchases and SDR quotas.
9. The M3/GDP ratio (L)% is significantly related to the real time deposit rate (r)x100%:

$$L = 4.5 + 14.8 \ln(1+r) + .85L_{-1} \qquad R^2 = 0.97; \text{ DWS} = 2.0$$

(3.9)
(6.5)
(20.8)
(T statistic)

Estimation period 1971-88, using annual data.

The long-run effect of a per cent change in the real interest rate is to change the ratio of M3 to GDP by 1 percentage point. The increased demand for money may here be attributed both to substitution between monetary and longer-term financial assets (mainly indexed), due to the less unfavourable interest rate on deposits, and to greater financial saving in general as a result of the higher cost of present consumption.

10. For example, in 1988 exchange-rate-linked liabilities were excluded from the liquidity ratio base, when the Bank ruled such liabilities should be matched one-for-one by short-term foreign assets.
11. Price increases exceeded Budget assumptions in the course of the year, largely due to the depreciation of the krona. Nominal wages have also increased more than assumed

in the Budget, but the deviation from the Budget assumptions is not as large as that of prices. Hence, real wages fell more than assumed in the Budget and as a result, the fall in domestic demand has been greater than expected.

12. When faced with the turnaround in the Treasury finances in mid-year the Government took some additional measures to cut investment and capital transfers by about IKr 800 million in order to counter the growing deficit.
13. This possibility is considered to be significant by the MRI. In this case, a 300 000 tonne cod catch could be consistent with a 20 per cent growth in the exploitable stock in 1991 and 1992 (see Table 19). An unusual current swept much of the 1984 year class towards Greenland waters. But because cod, like salmon, usually return to their birthplace to spawn, they are expected to return to Icelandic waters during the next two years. The quantity of fish involved is highly uncertain, however, and includes a substantial chance that the migration may be negligible. On the other hand, the last time this happened (in 1980-81 with the 1973 year class) a 240 000 tonne inward migration occurred. Consequences of both of these scenarios are shown in Table 19.
14. The government was once more a major partner to this agreement, promising,
 - a) Not to increase agricultural prices for ten months;
 - b) Not to lower the exchange rate until 1st December;
 - c) To provide more generous social security payments to poor pensioners;
 - d) To lower public utility charges; and
 - e) To increase payments to a fund that supports workers laid off from bankrupt firms.

There also was an agreement between the unions and the deposit money banks (the largest of which are state owned) to lower nominal loan rates from 29.3 to 22.3 per cent. Although there will be no formal indexation, the parties have agreed to discuss compensation if the cost of living rises above certain limits.

15. Icelandair intends renewing its entire international fleet over a period of two to three years, for a total of \$170 million. The net cost, after sales of older aircraft, will be \$130 million.
16. The average interest rate on Icelandic foreign debt is currently 8 per cent, composed of 4 per cent inflation rate and a 4 per cent real rate. If GDP grows at 2 per cent a year, the real interest rate will be double the growth rate, causing the debt/GDP ratio (d) to explode unless existing debt is paid off at $(dx(r-g))$ per cent a year, or $50\% \times (.02) = 1\%$ of GDP in Iceland's case at present.
17. Net interest payments reflect increased treasury current expenditures (i.e. consumption). To the extent that the treasury receives interest on its loans to state enterprises etc., borrowing can be treated as secured by returns on investment.
18. In purchasing power parity terms GDP per capita is 82 per cent of U.S. GDP per capita, while Germany, for example, is 72 per cent.
19. Like most other OECD countries, the trend in the participation rate has been dominated by the rapid entry of women into the labour market. Women now make up 50 per cent of the workforce. The fact that social security pensions are not collectable

- until age 67, and most private pensions do not 'begin until age 70 probably explains much of the comparatively high participation rates among the elderly.
20. Under Icelandic law, men and women should receive equal pay for equal work, but in practice women's earnings are only 50 per cent of men's. According to a recent study, about half of this apparent discrepancy is explained by the combination of a shorter working period and segregation of women into lower paying industries and occupations. The remaining discrepancy is probably explained by work experience, and a survey is being conducted into this.
 21. Measures of the workweek and the unemployment rate in Iceland are not directly comparable to those of other countries. See the discussion below.
 22. See S. Olafsson, "Work and work incentives in the welfare state", Social Science Research Institute, *Greinasafn Reprint Series*, No. 5 1989.
 23. Analysing this slowdown by sector is fraught with difficulties because of the difficulties of allocating value added by sector.
 24. Of course output per person in the utility industry is not a very interesting concept because capital rather than labour is the most important input.
 25. Examples of these government actions in recent years are the reform package in February 1984 and tax reductions in February 1986. The 1984 package included boosts for the income guarantees for the elderly and the disabled and several measures to aid single parents. The 1986 package included reductions in duties on automobiles and several durable goods and also a commitment to change the housing loan system.
 26. Iceland has experienced one of the highest levels of industrial conflict in the Western world for most of the post-war period – surpassed only by Italy. See S. Olafsson, *op. cit.*, p. 22.
 27. See, Calmfors and Driffill (April 1988), "Centralisation of Wage Bargaining", *Economic Policy*, or chapter 2 of *Economies in Transition*, OECD (1989).
 28. The nature of the Icelandic tax system and its reform were discussed at length in the previous *Survey of Iceland*.
 29. It has been estimated that approximately \$US165 million (about 10 per cent of government receipts) could, in theory, be raised in this way.
 30. Revenues include non-tax receipts. However, the difference between Iceland and the OECD average may be less than it appears from the national accounts. Countries relying on indirect taxes tend to have smaller government expenditure/GDP ratios merely by virtue of the fact that expenditure taxes directly raise nominal GDP.
 31. See S. Olafsson, "The making of the Icelandic welfare state", Social Science Research Council, *Greinasafn Reprint Series*, No. 12 1989, pp. 14 et seq.
 32. The implicit tax on commercial bank reserves, resulting from the failure to revalue them for inflation, reached 3½ per cent of GDP in the early 1980s. For a fuller discussion of this "seigniorage" (i.e. the profit made by the central bank from controlling the issue of base money) see *OECD Economic Survey of Iceland* 1988, pp. 65-66.
 33. Johannes Nordal, "The Development of Financial Markets in Iceland", Central Bank of Iceland, 26th October 1988.

34. Until the early 1970s real interest rate swings were purely passive. Nominal rates varied little, leading to sharp swings in real rates. However, the inflation of the mid-1970s resulted in negative real rates of up to 30 per cent.
35. Under this system, the central bank "borrowed" from the commercial banks via the reserve requirement and relented to industry by rediscounting commercial bank produce loans; i.e. loans linked to inventories.
36. In April 1979 a comprehensive Economic Management Act provided for a gradual move towards a system of full-indexation of savings. The May 1983 stabilisation package, which abolished wage indexation, maintained financial indexation, which was thought necessary to assure the achievement of positive real interest rates and higher domestic saving during the subsequent period of financial liberalisation.
37. This was accompanied by a cut in required reserves and has been followed by the development of an interbank market. Interbank borrowing has largely replaced accommodation by the central bank.
38. The base for this secondary reserve requirement included deposits, while eligible assets were to have maturities of three months or less. A 7 per cent liquidity ratio was introduced in exchange for a cut in the reserve requirement from 18 to 13 per cent.
39. At the end of 1988 there were four leasing companies, two with foreign ownership in a joint venture, and 16 mutual funds.
40. Following the example of the mutual funds, the banks themselves have started issuing bonds (so-called "bank bonds") which are index-linked and redeemable after three to five years. They have also become involved in both leasing and mutual fund companies.
41. Leasing companies were prohibited from offering 100 per cent financing in foreign currency, the limit being reduced to 60 per cent.
42. If there is a ceiling on the external debt/GDP ratio, any increase in the government's debt/GDP ratio has to be financed domestically. Thus, from Table 18 it can be seen that the treasury's long-term debt increased by 17½ per cent while domestic debt increased by 65 per cent between 1984 and 1989 – a "leverage" of over 4.
43. A negative real deposit rate can be looked upon as equivalent to a tax rate on depositors. Since deposits are perfectly elastic with respect to real interest rates in the longer run (although the adjustment is relatively slow), the implication is that the monetary authorities can only sustain such a tax via accelerating inflation.
44. An added reason for the change was to help control wage demands, due to the fact that wage increases now automatically increase mortgage costs. The change has thus had a mixed reception.
45. See Johannes Nordal, *op. cit.*
46. As pointed out in the previous *Survey of Iceland*, a market in quota rights would lead to efficiency gains, probably resulting in a reduction in the number of boats and workers employed in the industry, increasing productivity and freeing resources for other activities. However, many smaller communities might lose their economic base as a result, a consideration which has prevented rationalisation.

47. The Fisheries Association of Iceland, which collects all statistics on catches of fish by Icelandic vessels, estimates that fresh fish which is sold in Iceland weighs 10 per cent more than fish which is exported fresh. The main reasons for this difference are thought to be:
 - a) That the fish lose fluid during transportation and
 - b) Different weighing practices.The result is that the levy in the export of fresh fish is less than 15 per cent of the initial catch.
48. Interest and dividend payments abroad are substantial. The Aluminium plant is owned entirely by the Swiss firm, Alusuisse, while the Icelandic government has a 55 per cent stake in the ferrosilicon plant.
49. Some electricity comes from geothermal sources, but geothermal power is thought to be most productively exploited in a "dual generation" plant where most of the steam and hot water can be used for direct heating. In this regard, all of the hot water and most of the space-heating in the largest cities comes from geothermal sources.
50. The National Power Company is pricing electricity for new smelters at 18 mills (thousandths of a U.S. dollar per kilowatt-hour) compared with prices of 20 to 30 mills being offered for new smelting capacity in competitor countries.
51. Examples include the aluminium smelter (started in 1969 and owned entirely by the Swiss Aluminium company, Alusuisse), and IBM's Icelandic subsidiary.
52. In the previous *Survey* it was pointed out that the pre-1988 tax system discriminated against leisure and in favour of work. This is less the case under the current system.

Annex I
Wage determination in Iceland

The collective bargaining system

An important feature of the Icelandic labour market is the highly collectivised nature of the non-fisheries sectors. About 92 per cent of workers are members of labour unions.

Table A1. Union membership in 1989

Icelandic Federation of Labour (ASI)	62 390
Icelandic Federation of Merchant Navy and Fishing Vessel officers (FFSI)	4 300
Printers Union	922
Engineers Union	700
Federation of Apprentices	1 800
Federation of State and Municipal Employees (BSBR)	17 055
Association of University Graduates (BHM)	7 823
Icelandic Federation of Teachers	3 553
Union of Icelandic Bank Employees (SIB)	3 590
Reporters Union	400
Airline Pilots' Union	200
Total Union Membership	102 733
<i>Memorandum items:</i>	
Total dependent employment	111 615
Union membership as a share of total dependent employment	92.0% ¹

1. This figure may overstate the union share because some retirees are included in the tally of membership.

Source: National Economic Institute.

Real wage variability

The 90 per cent unionisation rate in Iceland, combined with the nature of the bargaining round and the participation of government in the round means that wage behaviour is exceptionally sensitive to labour-market conditions, insofar as the coefficient of employment change in the wage equation is very high. The estimated equation (where %X = percentage change in X; t-statistics in parentheses) is¹:

$$\begin{aligned}
\% \text{ wage} = & -29.5 + 2.9 (\% \text{ employment}) + 3.3 (\% \text{ productivity } [-1]) \\
& (- 2.2) \quad (3.5) \quad (3.2) \\
& + 0.8 (\text{capital share } [-1]) + 0.7 (\% \text{ prices}) + 0.2 (\% \text{ prices } [-1]) \\
& (1.5) \quad (6.7) \quad (1.8) \\
& + 0.4 (\% \text{ terms of trade}) + 0.3 (\% \text{ terms of trade } [-1]) \\
& (1.8) \quad (1.3)
\end{aligned}$$

Estimation period: 1975-88, R^2 (adj) = .82, S.E. = 5.2, D.W. = 1.1

The main departure from the normal wage-equation is that the usual measure of labour-market slack, the unemployment rate, was not significant. First, the Icelandic unemployment rate only measures insured unemployment – thereby omitting the unemployment of those who have exhausted their benefits (after 9 months) as well as new entrants and re-entrants to the labour market. Second, according to an agreement among the Nordic countries, there is free labour mobility. For a small country, this clearly impairs the ability of the unemployment rate to measure labour-market slack because the unemployed can move away, or in tight conditions, labour can be imported. As an alternative measure of labour-market slack, the two-year change in employment was found to work quite well.

Because the government is always a major player in the bargaining process, it is not necessary to incorporate a dummy variable for wage freezes. When dummies are added for the 1983 and 1988 freezes, they turn out not to be significant. This implies that the other variables in the equation do a satisfactory job of predicting when freezes occur.

Other features of the Icelandic wage equation discussed in the text are:

- Wages tend to adjust fully to changes in prices – at least on average over the fourteen year sample period; the sum of the two price-inflation terms is close to one;
- Real wages overreact to productivity growth;
- Changes in the terms-of-trade have an influence on the real wage (as would be expected);
- Good years for profits tend to be followed by larger wage increases.

Note

1. Definitions and Data sources for the wage equation are as follows: *Wages*: wages per employee (in the private economy excluding fishing and agriculture); 1973 to 1980 from table 5.6 in *Thodarbuskapurinn* (The National Economy) National Economic Institute; updates to 1988 supplied by the National Economic Institute. *Employment*: total private employment from table 3.2 in *Thodarbuskapurinn* and updates to 1987 supplied by the National Economic Institute. The employment growth used as a regressor is the two-year percentage change. *Productivity*: measured in the private sector excluding fishing and agriculture by dividing gross factor income by employment. Gross factor income by sector is from table 2.4 of *A Brief on the Icelandic Economy*, published by the National Economic Institute, July 1989. *Capital share*: computed as the ratio of the operating surplus to gross domestic factor income. The data is from table 1.9 in *Thodarbuskapurinn* and table 2.2 of *A Brief on the Icelandic Economy*. *Prices*: measured by the cost-of-living index, in *Economic Statistics: Quarterly* by the Central Bank of Iceland. *Terms of trade*: in *Economic Statistics: Quarterly* by the Central Bank of Iceland.

Annex II
Chronology of economic developments

1989

January

The Krona was devalued by 4.88 per cent.

The Ministry of Trade issued a provisional act introducing a change to the composition of the Credit Term Index (CTI). As of 1st February 1989 the CTI was composed of three indices, the Consumer Price Index, the Building Cost Index and the Wage Index in equal proportions.

February

The Krona was devalued by 2.5 per cent.

The Althing rewrote Act. nr. 13/1979 concerning economic policy, lengthening the minimum lending-period of CTI-indexed obligations.

March

The second paragraph of the 9th Article of the Central Bank Act, concerning interest rates was rewritten to read: "The Central Bank may upon the approval of the Minister impose limits to the determination of interest rates by deposit money banks in order to ensure that real interest rates of deposit money are *moderate and* not higher than those generally prevailing in the major trading countries of Iceland as well as to reduce any inordinate margin between deposit and lending rates of interest *while including other earnings of deposit money banks.*"

A further addition to Article 9 of the Central Bank Act permits the Bank to determine the required rate of return in transactions by Leasing companies, management companies and securities investment funds.

April

A new Act came into effect governing the operation of leasing companies. The Act states the requirement of an operating licence, granted by the Ministry of Commerce, a leasing company being a joint stock company with part share capital accounting to 10 million Kronur, the equity ratio being 10 per cent minimum, and that a leasing company may not conduct operations other than leasing and related activities.

May

The Krona was devalued by 1.5 per cent.

An Act governing Housing Bonds, i.e. bonds issued by the State Building Fund to be exchanged for mortgage bonds in association with investment in housing, was signed. The Act went into effect on 15th November 1989.

June

The Ministry of Trade and representatives from the Industrial Bank, The Bank of Commerce and the Union Bank reached an agreement on the banks' purchase of the Government-owned shares in the Fisheries Bank of Iceland. On 29th June the contract was signed with the condition that the four banks merge into one by 1st July 1990.

On 23rd June the Central Bank announced new terms on the indexation of deposits. The announcement states that the indexation of switching-terms accounts only applies to six month time-deposits.

August

A general meeting of stockholders in the Fisheries Bank voted to change the banks' name to Bank of Iceland to be in effect on 1st January 1990. The three commercial banks that bought the shares in The Fisheries Bank will merge on the same day.

October

On 1st October the privately held banks and savings banks raised their interest rates by 2 to 5 per cent in view of unexpected increases in the CTI. The Central Bank responded by requesting a decrease based on the observation that the increase in the CTI did not constitute a long term increase in the rate of inflation. On the 11th there was a further interest rate hike. Subsequently, the Central Bank came to an agreement with the deposit money banks to confer monthly on inflation rate developments.

The Minister of Commerce announced that, effective as of 1st November, the rules on suppliers' credits and foreign borrowing for the import, domestic production or leasing of listed machinery and equipment for industrial purposes, and repair of ships either domestically or abroad, would be further liberalized. After the change, importers can freely obtain suppliers' credits for up to one year for industrial shipments from the date of arrival in an Icelandic port. The maturity must conform to general practices in international trade for respective goods. If, however, a domestic financial institution acts as guarantor, the credit must not exceed a period of six months. The rules on foreign borrowing for the import, domestic production or leasing of listed machinery and equipment for industrial purposes, and repair of ships were changed so that foreign borrowing can be used to finance up to 80 per cent of the value if the transaction is not guaranteed by a domestic financial institution or if the funds are relented by such an institution. Otherwise, the ratio is 70 per cent.

December

The Ministry of Fisheries announced a 300 000 tonne cod quota for 1990, representing a 10 per cent cutback over 1989. The Greenland halibut quota was set at 45 000 tonnes, down from 60 000 in 1989. The haddock quota is unchanged and the saithe quota slightly increased.

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STATISTICAL ANNEX

Table A. Supply and use of resources

Kr. million, current prices

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Private consumption	5 501	8 846	14 327	22 939	39 418	53 886	74 705	96 933	131 712	158 200
Public consumption	1 638	2 546	4 039	6 644	11 559	14 056	20 136	27 291	36 791	47 468
Gross fixed asset formation	2 248	3 927	5 929	9 251	14 127	18 356	24 460	29 684	41 042	48 032
Expenditure on final domestic use	9 387	15 319	24 295	38 834	65 104	86 298	119 301	153 908	209 545	253 700
Change in stocks of export products	51	80	253	913	-1 070	786	-978	-2 094	-298	2 759
National expenditure	9 438	15 399	24 548	39 747	64 034	87 084	118 323	151 814	209 247	256 459
Exports of goods and services	3 810	5 746	8 724	12 714	27 078	34 295	49 819	63 125	73 466	84 138
Imports of goods and services	3 631	5 648	8 936	14 329	25 275	33 871	49 051	56 342	74 496	85 280
Gross domestic product (market prices)	9 616	15 497	24 336	38 132	65 837	87 508	119 091	158 597	208 217	255 317
Net income from abroad	-244	-411	-811	-1 495	-3 066	-4 554	-5 584	-6 229	-6 203	-8 333
Gross national product	9 372	15 086	23 525	36 637	62 771	82 954	113 507	152 368	202 014	246 984
Depreciation	1 138	1 810	2 870	4 723	8 712	10 645	14 500	18 418	22 010	26 500
Net national product (market prices)	8 234	13 276	20 655	31 914	54 059	72 309	99 007	133 950	180 004	220 484
Indirect taxes	2 172	3 520	5 778	9 202	14 486	20 062	26 341	33 964	46 314	58 875
Subsidies	373	490	762	1 392	2 204	2 389	3 491	4 228	4 782	7 808
Net national income	6 435	10 246	15 639	24 104	41 777	54 636	76 157	104 214	138 472	169 417

Source: National Economic Institute.

Table B. Supply and use of resources

Kr. million, constant prices

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
	1980 prices									
Private consumption	8 557	8 846	9 470	9 972	9 364	9 660	10 099	10 904	12 691	12 183
Public consumption	2 493	2 546	2 733	2 902	3 039	3 045	3 234	3 455	3 665	3 818
Gross fixed asset formation	3 440	3 927	3 965	3 945	3 461	3 778	3 854	3 808	4 531	4 471
Expenditure on final domestic use	14 490	15 319	16 168	16 819	15 864	16 483	17 187	18 167	20 887	20 472
Change in stocks of export products	60	80	170	357	- 207	122	- 85	- 201	- 62	215
National expenditure	14 550	15 399	16 338	17 176	15 657	16 605	17 102	17 966	20 825	20 687
Exports of goods and services	5 595	5 746	5 819	5 261	5 802	5 976	6 631	7 043	7 328	7 019
Imports of goods and services	5 484	5 648	6 024	5 988	5 649	6 174	6 775	6 792	8 345	8 084
Gross domestic product (market prices)	14 661	15 497	16 133	16 449	15 810	16 407	16 958	18 217	19 808	19 623
Net income from abroad	- 368	- 411	- 523	- 580	- 656	- 766	- 836	- 889	- 965	- 1 120
Gross national product (market prices)	14 293	15 086	15 610	15 869	15 154	15 641	16 122	17 328	18 843	18 502
Effect of changes in terms of trade	157	0	60	21	238	262	238	547	877	962
Gross national income¹	14 450	15 086	15 670	15 890	15 392	15 903	16 360	17 875	19 720	19 464

Note: Estimates of real income coincide with output in real terms on the assumption of unchanged terms of trade. Due to particularly strong fluctuations in Icelandic terms of trade national expenditure in real terms may deviate substantially from real gross national product without adverse effects on the balance of payments. This is explicitly introduced in the Icelandic national accounts, as shown above. The item "Effect of changes in the terms of trade" equals the external purchasing power of export earnings (nominal exports deflated by a price index for imports) minus the volume of exports of goods and services.

1. Gross national product + effect of changes in terms of trade.

Source: National Economic Institute.

Table C. Production and employment

		1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 ³
Fisheries and fish processing												
Export production:												
Value, current prices	Kr. mill.	2 115	3 404	5 262	7 137	12 564	16 562	23 937	32 576	40 189	45 730	55 649
Volume, constant prices	1980 = 100	90.0	100.0	101.0	85.7	77.6	88.3	95.4	105.1	110.2	110.0	104.6
Fishing fleet ¹ , end of year:												
Trawlers	GRT	40 269	42 265	45 258	47 944	48 478	50 801	50 844	50 569	51 380	54 086	52 830
Motor boats	GRT	63 891	64 222	63 313	63 904	63 294	62 046	61 750	61 822	66 072	65 521	63 181
Total	GRT	104 160	106 487	108 571	111 848	111 772	112 847	112 594	112 391	117 452	119 607	116 011
Employment in fish processing	1980 = 100	90.3	100.0	102.9	99.9	103.9	103.8	97.9	99.6	101.0	96.0	90.2
Agriculture												
Production: Volume, 1980 prices	Kr. mill.	108.8	100.0	99.3	98.8	97.7	101.6	105.1	103.2	102.4	100.4	95.4
Capacity ² : Cultivated grassland	1 000 hect.	125.7	127.2	129.0	130.1	131.1	132.1	133.4	134.1	134.5	—	—
Sheep	1 000 heads	769.8	827.9	794.6	747.7	711.9	714.4	709.3	675.5	624.3	586.9	—
Cattle	1 000 heads	57.2	59.9	60.4	64.4	68.5	72.7	72.9	71.4	69.0	70.8	—
Manufacturing (excl. fish processing)												
Production, volume	1980 = 100	96.5	100.0	99.8	105.1	105.1	109.9	111.5	113.6	118.3	116.5	112.4
Employment	1980 = 100	99.4	100.0	101.2	102.7	102.2	105.6	111.7	110.5	114.9	105.5	100.0
Dwelling construction												
Started	Number	1 932	1 758	1 648	1 829	1 631	1 748	1 382	1 087	1 419	1 358	—
Completed	Number	2 045	2 237	1 623	1 924	1 711	1 601	1 601	1 515	1 541	1 728	—
Under construction, end of year	Number	4 970	4 491	4 516	4 421	4 341	4 488	4 270	3 842	3 720	3 350	—

1. Including whale catchers, excluding open boat.

2. At the end of year.

3. Provisional.

Sources: Central Bank of Iceland and Direct Communications to the OECD.

Table D. **Gross fixed asset formation**

Kr. million, current prices

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Gross fixed asset formation, total	2 248	3 927	5 929	9 521	14 127	18 356	24 460	29 684	41 042	48 032
Classification by end-use:										
Industrial asset formation	926	1 567	2 396	3 775	5 888	7 961	12 230	16 090	22 148	23 959
Agriculture	79	183	212	409	621	978	1 609	2 226	2 367	2 560
Fishing	167	217	376	518	781	839	910	2 648	4 192	5 835
Fish processing	105	148	222	360	521	785	1 137	1 358	1 440	1 509
Manufacturing other than fish processing	297	407	568	798	1 264	2 020	3 023	3 457	4 251	4 671
Transport equipment	99	283	470	593	832	790	1 734	1 403	1 774	1 387
Commercial buildings, hotels, etc.	108	176	308	613	1 084	1 269	1 933	2 626	4 770	4 190
Various machinery and equipment	71	153	240	484	785	1 280	1 884	2 372	3 344	3 807
Residential construction	588	964	1 317	2 251	3 495	4 714	5 380	5 770	7 752	10 106
Public works and buildings	734	1 396	2 216	3 225	4 744	5 681	6 850	7 824	11 142	13 967
Electric power, generation and distribution	236	507	797	1 159	1 510	1 550	981	899	1 177	1 882
Geothermal heating and water supply	140	267	370	330	375	570	871	840	930	1 650
Communications	227	403	649	1 061	1 764	2 229	3 062	3 625	5 634	5 409
Public buildings	131	219	400	675	1 095	1 332	1 926	2 460	3 401	5 026
Classification by type of assets:										
Machinery and equipment	579	1 017	1 618	2 274	3 418	4 734	7 522	9 690	13 386	15 086
Machinery and other equipment	480	734	1 148	1 681	2 586	3 944	5 788	8 287	11 612	13 699
Transport equipment	99	283	470	593	832	790	1 734	1 403	1 774	1 387
Buildings and other construction	1 669	2 910	4 311	6 977	10 709	13 622	16 938	19 994	27 656	32 946
Residential buildings	588	964	1 317	2 251	3 495	4 714	5 380	5 770	7 752	10 106
Non-residential buildings	478	683	1 119	2 035	3 337	4 391	6 217	8 283	12 534	12 590
Other construction	603	1 263	1 875	2 691	3 877	4 517	5 341	5 941	7 370	10 250

Source: National Economic Institute.

Table E. **Gross fixed asset formation**

Kr. million, constant prices

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
	1980 prices									
Gross fixed asset formation, total	3 440	3 927	3 965	3 945	3 461	3 778	3 854	3 808	4 531	4 471
Classification by end-use:										
Industrial asset formation	1 390	1 567	1 617	1 627	1 443	1 653	1 961	2 091	2 522	2 323
Agriculture	116	183	142	174	149	207	266	305	283	255
Fishing	246	217	256	226	196	173	147	330	461	542
Fish processing	158	148	152	157	131	161	177	168	158	139
Manufacturing other than fish processing	447	407	386	344	308	402	460	418	456	424
Transport equipment	148	283	312	254	191	150	246	179	207	142
Commercial buildings, hotels, etc.	169	176	204	260	269	257	296	323	499	372
Various machinery and equipment	106	153	165	212	199	303	369	368	458	449
Residential construction	915	964	870	952	865	955	825	711	812	898
Public works and buildings	1 135	1 396	1 478	1 366	1 153	1 170	1 068	1 006	1 197	1 250
Electric power, generation and distribution	361	507	537	497	366	311	152	111	124	168
Geothermal heating and water supply	218	267	245	140	93	115	133	104	97	146
Communications	354	403	432	444	423	474	488	488	620	489
Public buildings	202	219	264	285	271	270	295	303	356	447
Classification by type of assets:										
Machinery and equipment	855	1 017	1 104	993	835	888	1 227	1 280	1 582	1 517
Machinery and other equipment	707	734	792	739	644	848	981	1 101	1 385	1 375
Transport equipment	148	283	312	254	191	150	246	179	207	142
Buildings and other construction	2 585	2 910	2 861	2 952	2 626	2 780	2 627	2 528	2 939	2 954
Residential buildings	915	964	870	952	865	955	825	711	812	898
Non-residential buildings	741	683	739	858	823	889	952	1 019	1 311	1 118
Other construction	929	1 263	1 252	1 142	938	936	850	798	816	938

Source: National Economic Institute.

Table F. Balance of payments, OECD basis

US \$ million

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Current balance	-48	19	-21	-79	-148	-263	-57	-131	-115	17	-191	-228
Long term (excl. spec. trans.)	112	78	95	153	191	214	94	113	155	157	178	209
a) Private	71	21	27	76	100	50	-29	-18	32	47	95	66
b) Official	41	57	68	77	91	164	122	131	123	109	83	143
Basic balance	63	97	74	74	43	-49	37	-18	40	174	-13	-19
Non-monetary short-term capital	-15	-15	-28	16	22	-10	-47	25	128	-43	76	15
Errors and omissions	-20	-32	-36	-44	-14	-47	2	-28	-53	-18	-59	1
Balance on non-monetary transactions	17	52	15	39	69	-90	-5	1	56	108	-12	19
Private monetary institutions short-term capital	-1	-1	21	-5	3	-6	16	-16	8	-9	-6	-17
Balance on official settlements	-3	51	36	34	72	-96	11	-15	64	99	-18	2
Use of IMF credit	—	-11	-16	-25	-11	18	-1	—	—	-13	-14	—
Special transactions	—	—	—	—	—	—	—	—	—	—	—	—
Miscellaneous official accounts	—	12	12	21	8	-18	1	—	—	13	14	—
Allocations of SDRs	—	—	4	4	4	—	—	—	—	—	—	—
Change in reserves (+ = increase)	16	51	37	34	72	-95	11	-15	64	99	-18	1
a) Gold	—	—	—	—	—	—	—	—	—	—	—	—
b) Currency assets	15	41	20	7	62	-66	8	-15	64	87	-34	2
c) Reserve position in IMF	—	—	7	5	—	-10	4	—	—	—	—	—
d) Special Drawing Rights	1	-1	-6	-2	-2	-2	-2	—	—	—	2	-1

Source: OECD Secretariat.

Table G. Central government income and expenditure

	Accruals basis										
	Kr. million										
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Current revenue	1 640	2 489	4 115	6 570	10 863	17 558	23 368	30 591	40 245	52 580	71 617
Direct taxes	329	541	766	1 152	2 054	3 054	3 976	4 616	7 630	8 273	16 071
Indirect taxes ¹	1 281	1 892	3 079	5 057	8 009	12 500	17 115	22 850	29 334	40 462	51 011
Other	30	56	270	361	800	2 004	2 277	3 126	3 281	3 845	4 535
Current expenditure	1 332	2 051	3 248	5 178	8 569	15 099	18 372	26 593	34 663	45 574	61 986
Purchase of goods and services ²	627	924	1 535	2 474	4 058	7 813	9 603	14 010	18 251	26 254	35 186
Current transfers and subsidies	705	1 127	1 713	2 704	4 511	7 286	8 769	12 583	16 412	19 320	26 800
Gross saving	309	438	867	1 392	2 294	2 459	4 996	3 999	5 582	7 006	9 631
Gross fixed asset formation	269	357	249	376	602	965	1 279	1 888	1 871	3 065	3 961
Surplus on current and fixed investment account	40	81	617	1 016	1 692	1 494	3 717	2 110	3 711	3 941	5 670
Lending, net ³	- 122	- 387	200	523	1 710	969	3 153	3 653	- 3 092	4 057	6 811
Net capital transfers to other sectors	233	314	435	707	927	2 656	2 280	3 861	9 922	5 229	7 795
Overall balance⁴	- 71	154	- 18	- 214	- 945	- 2 131	- 1 716	- 5 404	- 3 119	- 5 345	- 8 936

1. Including employers' social security contributions.

2. Including interest.

3. "-" = net lending.

4. Net change in floating debts and cash balances.

Source: Central Bank of Iceland.

Table H. Fish catch, wages and prices

	Fish catch (thous. metric tons)					Wages and prices (1980 = 100)								
	Total	White fish, etc	Herring	Capelin	Shrimp, lobster, shell-fish	Hourly wage rates, unskilled workers ¹	Cost of living index			Building cost	Export price of fish products ²			
							Total	Food and beverages	Home-ownership		Fresh and iced fish	Frozen products	Salted products	Fish meal and oil
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1978	1566	478	37	967	18	44.5	43.4	45.6	45.3	44	50.0	46.3	42.1	53.0
1979	1649	578	45	964	18	63.7	59.7	60.5	65.2	64	68.5	74.4	64.2	64.5
1980	1514	659	53	760	21	100.0	100.0	100.0	100.0	100	100.0	100.0	100.0	100.0
1981	1441	715	40	642	21	152.0	151.0	156.2	153.4	152	124.2	144.8	173.3	152.3
1982	788	690	56	13	24	237.0	232.0	227.4	231.4	237	220.4	242.9	263.5	192.5
1983	839	605	59	133	31	362.0	420.0	440.1	388.1	405	360.0	500.7	448.4	511.6
1984	1536	565	50	867	40	443.0	541.0	576.5	463.8	495	486.2	593.5	519.5	550.1
1985	1680	586	49	993	44	590.0	717.0	792.4	597.9	654	805.0	821.4	726.8	597.4
1986	1656	632	66	898	55	788.0	870.0	965.9	768.4	814	1048.2	985.0	1013.8	627.9
1987	1632	684	75	810	54	1082.0	1037.0	1128.7	900.0	957	1180.0	1163.6	1295.5	695.1
1988	1758	701	93	911	42	1363.0	1301.5	1502.4	1063.4	1114	1317.4	1302.6	1389.4	873.9
1989	1492	644	88	658	34	1533.0	1571.8	1797.7	1192.6	1363	1661.3	1642.6	1752.0	1102.0

1. Weighted averages.

2. The index shows the development of export prices (fob) in terms of Icelandic kronur.

Sources: National Economic Institute and Central Bank of Iceland, *Economic Statistics*.

Table I. Foreign trade, total and by area

US \$ million, monthly rates

	Total imports cif	Imports by area							Total exports fob	Exports by area					
		OECD countries					Non-OECD countries			OECD countries				Non-OECD countries	
		Total	Europe		USA	Eastern Europe	Developing countries	Total		Europe		USA	Eastern Europe	Developing countries	
			EEC	Others						EEC	Others				
1976	39.2	32.3	17.0	7.6	4.1	5.4	1.5	33.6	29.1	10.9	7.9	9.7	3.4	1.1	
1977	50.7	41.5	24.0	10.7	3.3	6.2	3.0	42.7	34.5	13.4	7.3	12.9	5.2	3.0	
1978	56.7	47.6	26.7	12.9	4.0	5.8	3.2	54.2	43.6	17.9	8.6	15.9	4.2	6.4	
1979	68.8	57.3	32.0	16.0	4.5	8.7	2.9	65.8	58.1	26.4	11.1	18.4	5.3	2.4	
1980	83.4	70.8	36.7	18.6	7.8	9.3	3.3	77.5	62.7	30.0	14.4	16.7	6.9	7.8	
1981	86.3	74.3	38.4	21.6	6.7	8.1	4.0	75.4	57.3	23.6	16.2	15.7	6.0	12.1	
1982	78.6	66.8	36.1	18.2	6.6	8.1	3.7	57.2	48.9	18.7	13.3	14.8	4.8	3.5	
1983	69.1	59.2	31.1	16.4	5.4	7.8	2.0	62.5	52.8	21.7	11.4	17.7	5.0	4.7	
1984	70.3	60.4	36.0	13.1	4.8	7.7	2.2	61.9	54.6	29.2	5.3	17.6	5.9	1.6	
1985	75.5	66.5	39.8	14.9	5.1	6.6	2.4	67.8	60.9	33.1	5.9	18.3	5.3	1.7	
1986	93.1	83.7	49.3	19.2	6.5	6.1	3.4	91.2	83.1	49.4	9.2	19.8	5.0	4.6	
1987	131.9	119.2	68.7	27.3	9.4	7.6	5.2	114.3	105.3	65.6	9.6	20.9	5.4	3.5	
1988	133.4	120.7	68.7	29.6	10.0	7.4	5.3	119.3	109.3	70.3	12.0	16.2	6.5	3.5	

Sources: OECD Foreign Trade Statistics, Series A; Central Bank of Iceland.

Table J. Foreign trade by commodity group

US \$ million

	Imports by commodity group							Exports by commodity group							
	Total	Transport equipment	Other imports					Total	Fish products, total	Frozen fish filets	Herring salted	Herring and capelin meal	Agricultural products	Aluminium products	Other manufactured products
			Total	Food and live animals	Manufactured goods	Machinery and apparatus	Other goods								
SITC No	78-79	0	6	71-77											
1977	606.6	90.6	516.0	53.2	120.5	109.4	232.9	512.6	377.8	168.3	10.1	47.7	12.1	74.6	37.2
1978	673.4	66.6	606.8	57.7	141.4	137.1	270.6	649.4	496.2	216.6	15.5	63.4	15.1	87.3	40.8
1979	825.0	74.0	751.0	68.7	159.0	143.7	379.6	789.1	589.3	258.4	22.1	60.9	20.1	106.2	64.3
1980	1000.1	102.7	897.4	82.3	194.1	172.6	448.4	931.2	697.1	266.4	21.7	61.6	16.1	113.2	88.7
1981	1021.0	107.8	913.2	81.3	189.4	183.8	458.7	902.5	706.4	237.1	22.1	45.3	12.3	87.5	86.2
1982	941.5	87.5	854.0	76.1	182.3	169.1	426.5	677.0	507.9	220.0	17.7	8.5	8.5	68.0	82.7
1983	815.2	58.3	756.9	72.9	156.7	139.0	388.3	745.0	506.7	245.9	18.3	1.9	8.3	130.9	87.4
1984	821.3	65.4	755.9	69.5	149.8	155.9	380.7	744.2	500.2	222.3	24.5	42.3	12.8	108.2	100.4
1985	904.0	60.7	843.3	72.0	163.1	185.0	423.2	813.9	625.5	261.5	21.2	44.4	11.5	80.5	84.9
1986	1115.3	135.4	979.9	85.2	211.1	233.3	450.3	1095.8	843.8	320.7	18.0	57.0	14.2	100.5	115.7
1987	1581.3	268.4	1312.9	99.8	275.6	337.9	599.6	1374.3	1044.5	381.8	21.7	50.9	18.5	131.6	144.4
1988	1594.9	267.6	1327.3	107.0	283.9	320.0	616.4	1431.3	1017.1	367.1	24.6	75.1	24.8	153.8	167.0

Sources: Central Bank of Iceland and OECD Foreign Statistics, Series C.

Table K. Money and credit

End of period

	Central Bank		Non-bank sector			Deposit money banks			Credits granted by DMB					Foreign exchange	
	Interest rate on bank over-drafts	Net position of government	Money supply		M3 ³	Required reserves	Redis-counted bills	Net foreign position ⁴	Total	of which to:				Official gold and foreign exchange ⁵	Commercial banks' short-term foreign assets
			M1 ¹	M2 ²						Agriculture	Fishery and fish processing	Manufacturing and commerce	Dwellings		
% ⁶	Kr. millions													Millions SDR's	Kr.
1976	3.00	129	208	548	750	159	160	12	709	96	161	210	77	6	—
1977	3.00	149	306	783	1079	225	265	17	1011	153	264	267	105	13	18
1978	3.00	279	429	1 122	1 606	338	397	34	1 421	240	333	376	156	47	29
1979	3.00	283	625	1 677	2 503	556	587	47	2 235	378	501	617	273	90	-104
1980	4.75	312	1 010	2 773	4 137	1 001	992	78	3 533	532	817	978	456	123	-323
1981	5.00	196	1 620	4 841	7 056	1 900	1 392	69	6 165	800	1 421	1 645	781	193	-447
1982	4.50	115	2 089	7 133	11 149	3 039	2 935	198	11 592	1 273	3 111	3 291	1 197	111	-1 217
1983	3.75	813	3 700	12 372	19 902	5 582	4 915	-45	20 627	2 191	5 567	5 599	2 174	123	-3 088
1984	2.50	1 122	5 299	18 666	26 575	7 142	6 809	-1 007	30 132	2 860	8 854	8 447	2 820	110	-5 710
1985	3.00	3 128	6 662	30 126	39 135	6 956	447	-3 725	39 604	4 028	8 531	12 172	3 651	168	-10 022
1986	2.25	2 605	9 682	41 368	52 940	9 176	322	-2 140	48 652	4 972	7 602	15 782	4 651	224	-7 860
1987	4.10	5 321	12 925	57 078	71 777	9 877	158	-4 346	71 698	6 367	11 669	22 596	6 171	221	-11 105
1988	3.74	8 900	15 211	69 988	88 887	10 259	—	6 610	95 504	7 681	17 161	28 738	8 064	219	-15 399
1989	2.79	8 056	19 679	91 959	112 611	13 928	—	-5 287	116 514	8 954	19 353	34 975	11 015	302	-11 758

1. Notes and coins, demand deposits.

2. Broad money, i.e. M1 plus general savings deposits.

3. M2 plus time deposits.

4. From 1983 foreign financing of export produce loans is included. Other foreign loans relet are excluded.

5. Excluding IMF position.

6. Monthly rate.

Source: Central Bank of Iceland, Annual Reports.

Table L. Public sector

	1960	1970	1980	1986	1987	1988	
Budget indicators: general government accounts (% GDP)							
Current receipts	28.2	30.2	31.3	30.0	30.1	33.9	
Non-interest expenditures	25.6	29.3	29.9	33.3	30.3	33.5	
Primary budget balance	2.6	0.9	1.4	-3.2	-0.2	0.4	
Net interest	0.2	0.6	0.3	-0.7	-0.4	-1.3	
General government budget balance	2.8	1.5	1.7	-3.9	-0.6	-0.9	
<i>of which:</i>							
Central government	2.7	1.4	1.2	-3.9	-0.6	-0.8	
Social security	0.1	0.1	0.4	0.1	0.1	0.1	
The structure of expenditure and taxation (% GNP)							
Government expenditure	26.2	30.3	32.3	28.7	28.5	31.4	
Transfers	—	—	7.2	10.9	7.3	8.2	
Subsidies	—	—	3.2	2.7	2.3	3.1	
General expenditures:							
Education	—	—	3.6	3.6	3.8	3.9	
Transportation	—	—	1.3	1.2	1.1	1.1	
Health	—	—	5.4	6.4	6.6	7.1	
				Iceland		OECD average	
				1986	1987	1986	1987
Tax receipts							
Income tax		6.4	5.8	7.5		12.0	12.0
Social security tax		1.3	1.3	1.2		10.2	9.4
Consumption tax		16.9	17.9	17.9		11.0	11.2
Specific taxes/consumption		6.9	7.0	5.4		5.5	5.4
	1988					1980	1988
Tax rates (%)		Government debt					
Average rate of income tax	8.1	General government gross debt/GNP		27.7		27.9	
Top rate	11.0	Net debt/GNP		9.3		15.7	
Lower rate	0.0						
Average marginal rate	13.5						
Income tax elasticity	1.7						

Sources: Direct Icelandic communications and OECD Secretariat.

BASIC STATISTICS :
INTERNATIONAL COMPARISONS

BASIC STATISTICS: INTERNATIONAL COMPARISONS

	Units	Reference period ¹	Australia	Austria	Belgium	Canada	Denmark	Finland	France	Germany	Greece	Iceland	Ireland	Italy	Japan	Luxembourg	Netherlands	New Zealand	Norway	Portugal	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Yugoslavia	
Population																												
Total	Thousands	1987	16 249	7 575	9 868	25 803	5 130	4 932	55 627	61 149	9 998	245	3 542	57 331	122 091	372	14 671	3 284	4 184	10 280	38 830	8 399	6 610	52 010	56 890	243 915	23 410	
Inhabitants per sq.km	Number		2	90	324	3	119	15	102	246	76	2	50	190	328	143	432	12	13	112	77	19	160	67	232	26	90	
Net average annual increase over previous 10 years	%		1.4	0.0	0.0	1.0	0.1	0.4	0.4	0.0	0.7	1.0	0.8	0.3	0.3	0.6	0.5	0.3	0.5	0.7	0.2	0.5	2.2	0.1	1.0	0.8		
Employment																												
Total civilian employment (TCE) ²	Thousands	1987	7 079	32 997	3 645 (86)	11 954	2 630 (86)	2 414	20 988	25 456	3 601 (86)	117 (86)	1 068 (86)	20 584	59 110	164 (86)	5 135 (86)	1 517 (86)	2 090	4 156	11 370	4 337	3 219 (86)	15 632 (86)	24 987	112 440	..	
of which: Agriculture	% of TCE		5.8	8.6	2.9	4.9	5.9	10.4	7.1	5.2	28.5	10.3	15.7	10.5	8.3	3.7	4.9	10.5	6.7	21.9	16.1	4.2	6.5	55.7	2.4	3.0	..	
Industry	% of TCE		26.6	37.7	29.7	25.3	28.2	31.2	30.8	40.5	28.1	36.8	28.7	32.6	33.8	32.9	25.5	28.9	27.0	35.8	32.0	30.2	37.7	18.1	29.8	27.1	..	
Services	% of TCE		67.6	53.7	67.4	69.8	65.9	58.4	62.1	54.3	43.4	53.0	55.5	56.8	57.9	63.4	69.6	60.6	66.3	42.3	51.8	65.6	55.8	26.2	67.8	69.9	..	
Gross domestic product (GDP)																												
At current prices and current exchange rates	Billion US\$	1987	193.7	117.2	138.9	410.9	101.3	89.5	879.9	1 117.8	47.2	5.3	29.4	758.1	2 376.5	6.0	213.2	35.1	82.7	36.7	289.2	158.5	171.1	67.4	669.8	4 472.9	61.7 (86)	
Per capita	US\$		11 919	15 470	14 071	16 019	19 750	18 151	15 818	18 280	4 719	21 813	8 297	13 224	19 465	16 138	14 530	10 620	19 756	3 761	7 449	18 876	25 848	1 296	11 765	18 338	2 652 (86)	
At current prices using current PPP's ³	Billion US\$	1987	204.9	88.4	116.5	444.5	68.4	63.3	712.2	814.7	63.6	3.8	26.7	702.5	1 609.4	5.5	179.7	35.3	64.5	61.4	337.1	115.7	104.9	220.9	702.5	4 472.9	..	
Per capita	US\$		12 612	11 664	11 802	17 211	13 329	12 838	12 803	13 323	6 363	15 508	7 541	12 254	13 182	14 705	12 252	10 680	15 405	6 297	8 681	13 771	15 842	4 247	12 340	18 338	..	
Average annual volume growth over previous 5 years	%	1987	3.7	1.8	1.5	4.2	2.7	3.2	1.6	2.1	1.4	3.1	1.8	2.6	3.9	4.0	2.1	2.1	4.1	2.1	2.9	2.4	2.3	6.0	3.2	4.3	..	
Gross fixed capital formation (GFCF)	% of GDP	1987	23.8	22.6	16.3	21.0	18.8	23.5	19.4	19.4	17.4	18.8	17.4	19.9	28.9	22.6	20.3	21.2	28.0	25.3	20.7	19.0	25.2	24.5	17.3	17.3	21.6 (86)	
of which: Machinery and equipment	% of GDP		11.5 (86)	9.7	7.0 (86)	6.9 (86)	7.8	9.7	8.3	8.4	7.1	6.5	9.4 (86)	10.0	10.5 (86)	9.0 (82)	10.0	13.1 (85)	7.9 (86)	14.7 (81)	6.4 (86)	8.5 (86)	8.8	8.6 (84)	8.1 (86)	7.6	..	
Residential construction	% of GDP		4.7 (86)	4.6 (86)	3.4	6.4 (86)	4.4	5.5	5.2	5.2	4.6	3.5	4.6 (86)	5.2	5.0 (86)	4.7 (82)	5.2	4.6 (85)	5.0 (86)	6.4 (81)	4.0 (86)	3.8 (86)	16.4 (9)	2.7 (84)	3.8 (86)	5.0	..	
Average annual volume growth over previous 5 years	%	1987	1.7	2.3	2.0	4.8	6.5	1.9	0.6	1.8	-2.2	1.8	-3.7	2.8	5.3	0.8	4.8	2.0	4.1	-0.7	3.8	3.6	6.0	7.3	4.7	7.0	..	
Gross saving ratio⁴	% of GDP	1987	20.3	24.1	17.6	18.8	15.5	22.5	19.6	23.9	14.7	15.2	18.6	20.9	32.3	56.5	21.8	20.3	23.4	27.5	21.9	18.0	31.7	24.1	17.2	14.7	..	
General government																												
Current expenditure on goods and services	% of GDP	1987	18.2	19.0	16.3	19.5	25.4	20.7	19.1	19.8	19.5	17.7	18.0	16.7	9.6	16.7	16.1	17.6	20.9	14.4	14.4	26.7	12.8	9.1	20.9	18.6	14.3 (86)	
Current disbursements ⁵	% of GDP	1987	35.0 (86)	46.6 (86)	51.6 (86)	43.3 (86)	53.4 (86)	38.2	48.4	43.0 (86)	42.9 (86)	27.3 (86)	49.2 (84)	45.2	27.4 (86)	45.3 (84)	54.0 (86)	..	47.8 (86)	37.6 (81)	36.1 (86)	60.0 (86)	30.1	..	42.9 (86)	35.5 (86)	..	
Current receipts	% of GDP	1987	34.7 (86)	47.9 (86)	45.0 (86)	39.4 (86)	58.0 (86)	39.6	49.4	44.9 (86)	36.6 (86)	32.1 (86)	43.3 (84)	39.3 (86)	31.3 (86)	54.1 (84)	52.8 (86)	..	56.5 (86)	33.3 (81)	35.0 (86)	61.6 (86)	34.5	..	41.6 (86)	31.2 (86)	..	
Net official development assistance	% of GNP	1987	0.33	0.17	0.49	0.47	0.88	0.50	0.74	0.39	..	0.05	0.20	0.35	0.31	0.10	0.98	0.26	1.09	0.08	0.06	0.88	0.31	..	0.28	0.20	..	
Indicators of living standards																												
Private consumption per capita using current PPP's ³	US\$	1987	7 389	6 535	7 593	10 059	7 236	6 966	7 796	7 374	4 273	9 930 *	4 378	7 543	7 623	8 694	7 461	6 236	8 155	4 167	5 521	7 273	9 349 *	2 844	7 731	12 232	1 335 (86) *	
Passenger cars, per 1 000 inhabitants	Number	1985	..	306 (81)	335 (84)	421 (82)	293	329 (86)	369 (86)	441 (86)	127	431	206 (83)	355 (84)	221 (83)	439 (87)	341	455	382 (86)	135 (82)	252	377	402	18 (82)	312 (83)	473 (84)	121 (83)	
Telephones, per 1 000 inhabitants	Number	1985	540 (83)	460 (83)	414 (83)	664 (83)	783	615	614 (86)	641 (86)	373	525 (83)	235 (83)	448 (84)	535 (83)	425 (86)	410 (86)	646	622 (84)	166 (83)	381 (86)	890 (83)	1 334	55 (83)	521 (84)	650 (84)	122 (83)	
Television sets, per 1 000 inhabitants	Number	1985	..	300 (81)	303 (84)	471 (80)	392	370 (86)	394 (86)	377 (86)	158 (80)	303	181 (80)	244 (84)	250 (80)	336 (83)	317 (86)	291	346 (86)	140 (80)	256 (82)	390	337	76 (79)	336 (84)	621 (80)	175 (83)	
Doctors, per 1 000 inhabitants	Number	1985	..	1.7 (82)	2.8 (84)	1.8 (82)	2.5 (84)	2.3 (86)	2.3 (86)	2.5 (84)	2.8 (83)	2.4 (84)	1.3 (82)	3.6 (82)	1.3 (82)	1.9 (86)	2.4	2.2	2.2	1.8 (82)	3.4 (86)	2.5	1.4 (84)	1.5 (83)	0.5 (83)	2.0 (85)	1.6 (82)	
Infant mortality per 1 000 live births	Number	1985	9.2 (84)	11.0	9.4	9.1 (83)	7.9	5.8 (86)	7.0 (86)	9.1	14.1	5.7	8.9	10.9	5.9 (84)	9.0	9.6 (86)	10.8	8.5 (86)	17.8	7.0 (84)	6.8	6.9	..	9.4	10.4 (86)	31.7 (83)	
Wages and prices (average annual increase over previous 5 years)																												
Wages (earnings or rates according to availability)	%	1987	5.7	4.9	3.4	3.6	6.1	8.5	6.4	3.6	17.4	..	8.8	10.5	2.6	..	2.3	7.4	10.2	17.9	10.3	7.6	8.5	3.1	..	
Consumer prices	%	1987	7.0	3.0	3.5	4.2	4.7	5.0	4.7	1.1	19.3	25.7	5.2	7.6	1.1	2.2	1.3	12.6	7.0	17.2	8.5	5.9	2.1	41.6	4.7	3.3	56.3	
Foreign trade																												
Exports of goods, fob*	Million US\$	1987	26 484	27 084	82 824 ⁷	94 320	25 632	19 404	147 936	293 424	6 516	1 368	15 948	116 004	230 220	.. ⁸	92 592	7 164	21 804	9 144	33 972	44 388	45 312	10 344	130 632	254 124	11 425	
as % of GDP	%		13.6	23.0	59.8	22.8	25.3	22.1	16.8	26.2	13.9	25.8	54.8	15.4	9.7	..	43.1	20.1	26.2	25.3	11.8	27.9	26.6	15.7	19.7	5.7	16.3	
average annual increase over previous 5 years	%		4.4	11.6	9.6	6.5	11.1	8.2	9.0	10.7	8.7	13.7	14.6	9.6	12.1	..	6.9	3.4	4.4	17.0	10.4	10.6	11.8	12.1	7.7	3.7	2.2	
Imports of goods, cif*	Million US\$	1987	26 964	32 580	82 992 ⁷	87 528	25 452	18 828	153 204	227 916	13 116	1 584	13 620	124 596	150 300	..	91 068	7 224	22 428	13 248	48 816	40 596	50 424	14 460	153 768	424 440	12 603	
as % of GDP	%		13.9	27.7	59.9	21.1	25.1	21.4	17.4	20.4	27.9	29.9	46.8	16.6	6.3	..	42.4	20.2	27.0	36.7	17.0	25.5	29.6	21.9	23.2	9.6	18.5	
average annual increase over previous 5 years	%		2.8	10.8	7.4	9.7	8.8	7.0	6.7	6.5	5.6	10.8	5.9	7.7	7.2	4.6	7.8	6.9	9.1	8.0	12.0	9.7	9.1	11.7	-3.1	
Total official reserves⁶	Million SDR's	1987	6 441	6 049	7 958 ⁷	5 778	7 153	4 592	26 161	58 846	2 007	221	3 393	23 631	57 925	..	12 818	2 298	10 105	3 047	22 035	5 974	22 283	1 254	30 070	33 657	557	
As ratio of average monthly imports of goods	Ratio		3.4	2.6	1.4	0.9	4.0	3.5	2.4	3.7	2.2	2.0	3.5	2.7	..	2.0	4.5	6.4	3.3	6.4	2.1	6.3	1.2	2.8	1.1	0.6		

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The Economics and Statistics Department of the OECD offers challenging and rewarding opportunities to economists interested in applied policy analysis in an international environment. The Department's concerns extend across the entire field of economic policy analysis, both macroeconomic and microeconomic, and it is also responsible for the collection, processing and dissemination of a wide range of internationally consistent statistics. On the economic side, its main task is to provide, for discussion by committees of senior officials from Member countries, documents and papers dealing with current policy concerns. Within this programme of work, three major responsibilities are:

- To prepare regular surveys of the economies of individual Member countries;
- To issue full twice-yearly reviews of the economic situation and prospects of the OECD countries in the context of world economic trends;
- To analyse specific policy issues in a medium-term context for the OECD as a whole, and to a lesser extent for the non-OECD countries.

The documents prepared for these purposes, together with much of the Department's other economic work and its statistical output, appear in published form in the *OECD Economic Outlook*, *OECD Economic Surveys*, *OECD Economic Studies*, the Department's Working Paper series, and an extensive list of statistical publications.

The Department maintains a world econometric model, INTERLINK, which plays an important role in the preparation of the policy analyses and twice-yearly projections. The availability of extensive cross-country data bases and good computer resources facilitates comparative empirical analysis, much of which is incorporated into the model.

The Department is made up of about 90 professional economists and statisticians from a variety of backgrounds from all Member countries. Most projects are done by small teams and last from four to eighteen months. Within the Department, ideas and points of view are widely discussed; there is a lively professional interchange; and all professional staff have the opportunity to contribute actively to the programme of work.

Skills ESD is looking for

- a) Solid competence in using the tools of both microeconomic and macroeconomic theory to answer policy questions. In our experience this requires the equivalent of a PhD in economics or substantial relevant professional experience to compensate for a lower degree.
- b) Solid knowledge of economic statistics and quantitative methods; this includes how to identify data, estimate structural relationships, apply and interpret basic techniques of time series analysis, and test hypotheses. It is essential to be able to interpret results sensibly in an economic policy context.
- c) A keen interest in and knowledge of policy issues, economic developments and their political/social contexts.

- d) Interest and experience in analysing questions posed by policy-makers and presenting the results to them effectively and judiciously. Thus, work experience in government agencies or policy research institutions is an advantage.
- e) The ability to write clearly, effectively, and to the point. The OECD is a bilingual organisation with French and English as the official languages. Candidates must have excellent knowledge of one of these languages, and some knowledge of the other. Knowledge of other languages might also be an advantage for certain posts.
- f) For some posts, expertise in a particular area may be important, but a successful candidate can expect to be asked to contribute in a broader range of topics relevant to the work of the Department. Thus, except in rare cases, the Department does not recruit narrow specialists.
- g) The Department works on a tight time schedule and strict deadlines. Moreover, much of the work in the Department is carried out in small groups of economists. Thus, the ability to work with other economists from a variety of professional backgrounds, and to produce work on time is important.

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