1990/1991

1961
1991
OECD THIRTIETH ANNIVERSARY

OECD ECONOMIC SURVEYS

ICELAND

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ICELAND

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

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— to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
— to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

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Publié également en français.

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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, 1st December 1989	253 482	Occupational distribution, 1988 (per cent):	
Net increase 1981-89, annual average (per cent)	1.1	Agriculture	5.1
		Fishing and fish processing	11.9
		Other manufacturing	13.3
		Construction, total	9.2
		Commerce	16.0
		Communications	6.6
		Services and other	37.9
			100.0

GOVERNMENT AND PARLIAMENT

	1987	1991
Parliament, number of seats:		
Independence Party (Lib. Cons.)	18	26
Progressive Party (Agrarians)	13	13
Peoples' Alliance (Socialists, Communists)	8	9
Social Democratic Party	10	10
Citizen's Party	5	-
Women's Alliance	6	5
Other	3	-
	63	63

Last general election: April 1991

PRODUCTION AND CAPITAL FORMATION

Gross national product in 1989:		Gross fixed capital formation in 1989:	
IKr million	280 701	IKr million	54 500
Per head, US dollars	19 329	Per cent of GNP	19.4

FOREIGN TRADE

Exports of goods and services in 1989, per cent of GNP	38.8	Imports of goods and services in 1989, per cent of GNP	35.8
Main exports in 1989 (per cent):		Imports in 1989, by use (per cent):	
Fish products	70.9	Consumer goods	32.1
Aluminium	12.9	Investment goods	31.4
Other manufacturing products	11.7	Intermediate goods (excl. fuels)	27.8
Agricultural products	1.7	Fuels and lubricants	8.7
Miscellaneous	2.7		

THE CURRENCY

Monetary unit: Krona	Currency units per US dollar, averages of daily figures:	
	Year 1990	58.4
	April 1991	59.96

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 18th March 1991.

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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 April 1991.

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The previous Survey of Iceland was issued in May 1990.

Introduction

The most striking economic development in Iceland since the previous Survey has been the dramatic reduction in the inflation rate: consumer prices rose by less than 10 per cent in 1990 for the first time since the early 1970s, despite surging world oil prices. While the tripartite agreement negotiated early in the year was central to this disinflation, macroeconomic policies were also supportive. Despite weak economic activity the budget deficit was nearly halved from 1988 to 1990, and real interest rates have remained at high levels. Whether the new phase of low inflation will be long-lasting will become clearer as Iceland recovers from over two years of recession. The economic reform process has continued. Restrictions on international capital transactions have begun to be lifted, a process that will continue through 1992, increasing access to international capital markets. Two important fisheries reforms were introduced, a quota reform which will help control the fish catch better and encourage the shrinkage of the fishing fleet, and a programme to help damp the impact of fluctuations in world fish prices on aggregate demand.

Iceland's ongoing reform process has been building on one of the economy's underlying strengths – its well-functioning labour market. Iceland has been able to achieve relatively high and stable employment despite being subject to large shifts in economic policy and exogenous factors. Workers move readily between both regions and sectors, and Iceland appears to have avoided the compression of wage differentials that has caused problems in other Nordic countries. Indeed, Iceland's unique labour market structure played an important role in last year's marked drop in inflation, and will probably make Iceland's adjustment in the process of structural reform less disruptive.

Iceland's recent economic performance and short-term prospects are discussed in Chapter I of this survey. Chapter II then examines progress in the economic reform process as well as developments in macroeconomic policies. Chapter III reviews the performance and institutions of Iceland's labour market, and Chapter IV presents conclusions.

I. Recent economic developments and prospects

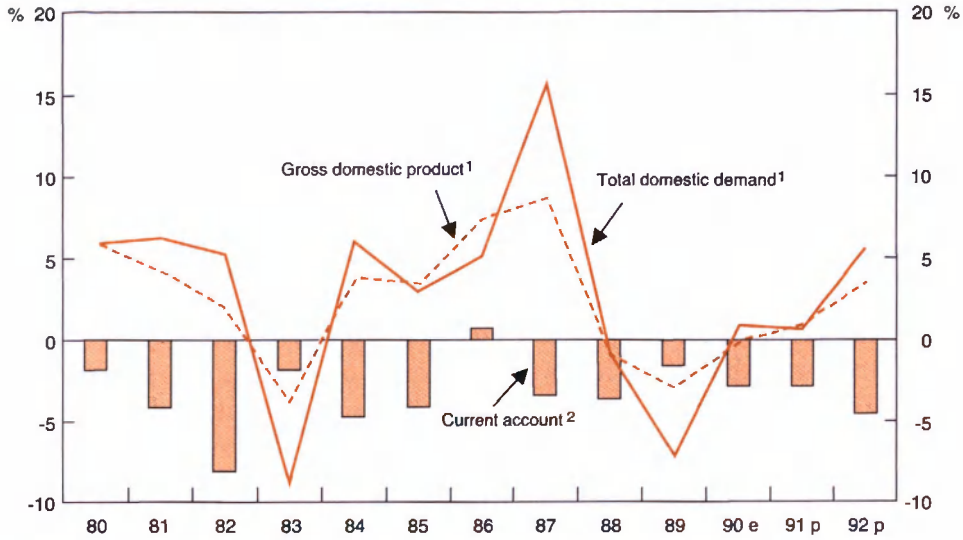
Recent developments

The Icelandic economy seemed to be on the way to recovery in 1990 as real GNP was about flat, following two years of decline, and inflation fell dramatically. Many of the factors that led to the recession have been unwound. The fish catch declined in both 1988 and 1989, as quotas were cut to protect stocks. Although the catch declined again in 1990, the prices of marine products rose strongly, boosting the terms of trade and export earnings. The boom in 1985-87 had raised real wages to unsustainable levels, reducing competitiveness and profitability. Real interest rates had risen from very low levels – often negative – in the early 1980s, owing to financial deregulation and, more recently, a tightening of monetary policy in an effort to come to grips with chronic inflation. Both factors led to a collapse in private-sector investment. However, real wages fell significantly during the recession, labour's share in national income returned to near its longer-term average and real interest rates stabilised, although at fairly high levels.

Reflecting low stocks, the cod catch again fell in 1990 to 328 thousand tons, from 354 thousand tons the year before. The longer-term cause of the declining catch has been the influx of cooler water into Iceland's fishing grounds, reducing the population of plankton which forms the base of the food chain. After a disastrous winter fishing season, the capelin catch fell for the third consecutive year and is now at its lowest level in eight years. By contrast, the catch of most other species was off only slightly from 1989, which was a banner year.

However, the prices of most fish products were strong in 1990, with export prices higher by about 12 per cent in terms of SDR from a year earlier. This was in part due to increased demand, but also because other Atlantic

Diagram 1. **AGGREGATE ECONOMIC PERFORMANCE**



Note: e = estimate; p = projection.

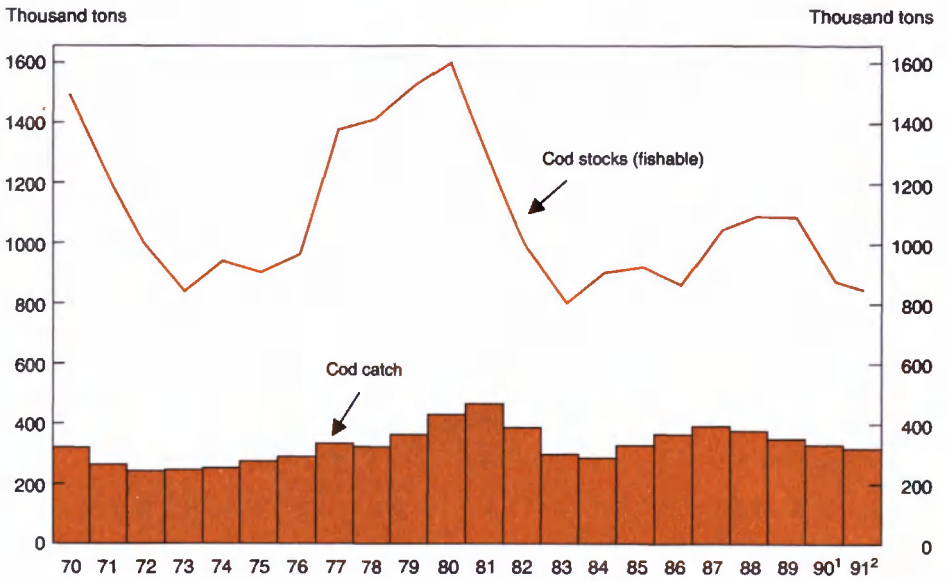
1. Constant prices. Percentage change from previous year.
2. As a per cent of nominal GDP.

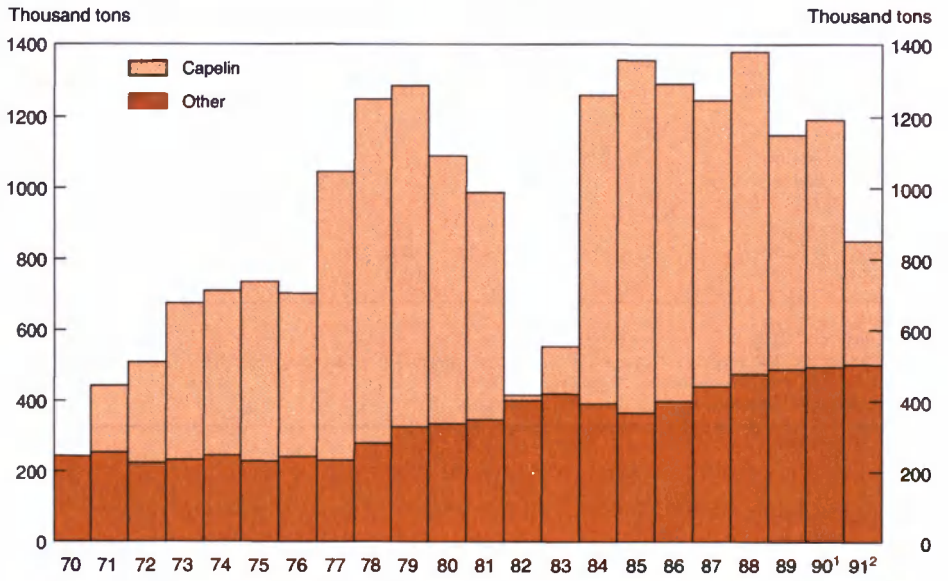
Sources: National Economic Institute and OECD, *National Accounts.*

fisheries have been suffering from supply problems. The improvement in prices for the year as a whole offset the drop in volumes, raising incomes and profits. The higher prices also boosted Iceland's terms of trade, although by the end of 1990 higher oil prices had wiped out some of the gain.

Aluminium demand was subdued somewhat by weakening economic growth world-wide and the prospect of outright recession in some OECD countries. As a result, prices have been drifting down since mid-1988 and bottomed out below $1 400 (per ton on the London Metal Exchange) in February 1990. By early 1991 prices had recovered to about $1 500. Iceland's aluminium output contracted only slightly in 1990 and the smelter should break even for the year. Prices for ferro-silicon, an additive in steelmaking,

Diagram 2. **THE FISH CATCH**





Note: 1 = provisional; 2 = projection.

Sources: National Economic Institute and Marine Institute, *State of Marine Stocks and Environmental Conditions in Icelandic Waters 1990, Fishing prospects 1991*, Reykjavik July 1990.

have also been weak, reflecting increased exports from China and Eastern Europe. In contrast to aluminium, however, profitability fell sharply and production volumes were cut.

Table 1. **Demand and output**

Percentage change in volume terms

	1983	1984-86	1987	1988	1989	1990[1]	1991[2]	1992[2]
Private consumption	–6.1	5.2	16.4	–4.0	–8.0	0.0	1.5	2.6
Public consumption	4.7	4.4	6.1	4.2	2.4	1.0	2.0	2.0
Gross fixed investment	–12.3	3.3	19.0	–1.3	–8.5	4.5	0.3	17.5
Business	–11.3	13.1	21.9	–7.9	–20.1	12.0	0.0	31.4
Residential	–9.1	–5.7	14.2	10.6	2.3	0.0	0.4	6.3
Public	–15.6	–4.0	16.3	4.4	5.3	–3.0	0.7	2.4
Final domestic demand	–5.7	4.6	15.0	–2.0	–6.5	1.2	1.0	5.7
Stockbuilding[3]	–3.4	0.0	0.8	1.0	–1.0	–0.2	0.5	0.1
Total domestic demand	–8.8	4.7	15.9	–1.0	–7.3	1.0	0.7	5.7
Exports of goods and services	10.3	6.7	4.0	–2.8	1.3	–1.0	–2.7	1.2
Imports of goods and services	–5.7	6.4	22.9	–3.1	–9.9	1.3	–0.5	6.7
Foreign balance[3]	5.4	0.1	–7.0	0.3	4.5	–0.5	0.2	–2.2
GDP	–3.9	4.9	8.7	–0.8	–2.9	0.0	1.0	3.7
GNP	–4.6	4.4	9.1	–1.2	–3.2	0.2	..	..
Gross national income[4]	–3.2	4.9	10.6	–1.2	–3.9	–0.6	..	..
Memorandum items:								
Export production	..	5.2	8.1	–0.1	0.6	–1.9	1.9	..
Marine products	..	8.0	4.9	–0.2	–3.0	–3.5	1.0	..
Aluminium	..	–6.6	9.7	–1.7	7.8	–1.0	3.7	..
Ferrosilicon	..	–9.5	–18.3	14.7	3.8	0.0	0.0	..
Other	..	9.1	44.0	–1.8	13.5	4.5	4.8	..
Cost of living index	84.2	27.6	18.7	25.4	21.1	14.8	7.0	9.0

1. Provisional.
2. Projection.
3. Contribution to GNP growth, i.e. changes in aggregates expressed as a percentage of GNP of the previous year.
4. GNP adjusted for effects of changes in the terms of trade.

Sources : National Economic Institute and OECD estimates.

Real disposable income fell for the third consecutive year in 1990 while private consumption was flat, following the sharp drop the year before. Total fixed investment was 4½ per cent higher in 1990, largely due to aircraft

Table 2. **Gross fixed asset formation, 1986-90**

	Kr million, current prices	Volume changes on previous year, per cent[1]				
	1989	1986	1987	1988	1989	1990 Preliminary
Gross fixed asset formation, total	55 510	–1.6	19.0	–1.3	–8.5	4.5
Industrial asset formation	24 696	5.9	20.6	–7.9	–20.1	12.0
Agriculture[2]	2 448	8.2	7.2	–9.9	–25.5	–28.9
Fishing	3 360	124.5	39.7	17.6	–55.0	–48.4
Fish processing	1 265	–5.1	–6.0	–12.0	–33.1	39.8
The aluminium smelter	430	33.3	31.3	–42.9	158.3	87.1
The ferrosilicon plant	230	–57.1	33.3	0.0	325.0	–64.7
Manufacturing other than fish processing	5 205	–9.5	8.0	–5.3	–8.8	–8.1
Transport equipment	3 846	–27.2	15.6	–31.4	97.9	113.5
Commercial and office building, hotels, etc.	4 700	9.7	54.5	–25.5	–8.9	–10.0
Various machinery and equipment	3 212	–0.3	24.5	–2.0	–35.9	30.2
Residential construction	12 740	–15.0	14.2	10.6	2.3	0.0
Public works and buildings	18 074	–4.9	19.0	4.4	5.3	–3.0
Electric power, generation and distribution	3 103	–26.3	11.7	35.5	34.5	36.7
Geothermal heating and water supply	2 340	–21.8	–6.7	50.5	15.8	–34.9
Communications	6 288	0.0	27.0	–21.1	–5.1	–6.0
Public buildings	6 343	8.0	17.5	25.6	2.2	–7.7

1. Volume changes in 1986-90 are based on 1980 prices.
2. Including aquaculture.
Source : National Economic Institute.

purchases by Icelandair. Reflecting the general tightness of monetary policy, investment in a number of categories that rely on domestic finance was weak: residential construction was flat, while investments in small manufacturing, agriculture, fishing, and commercial building were all down sharply.

The current account deficit, after rising during the boom that ended in 1988, fell sharply in 1989 as the decline in disposable income cut into domestic demand. In 1990, exports rose slightly as higher prices for marine products

were largely offset by lower metal prices and a decline in manufactured exports. The fall in disposable income again reduced imports of consumer goods, but this was more than offset by Icelandair's purchase of aircraft and higher oil prices, leaving import values higher. As a result, the current account deteriorated significantly to 2.7 per cent of GDP in 1990. Nevertheless, net external debt was not much changed, due to a favourable shift in the exchange rates of the currencies in which the debt is denominated. This, and the stability of the króna during the year (as part of the wage-price agreement the government undertook not to devalue the króna), left net interest payments to non-residents also little changed from a year earlier.

Table 3. **Current account and net external debt**

As a percentage of GNP

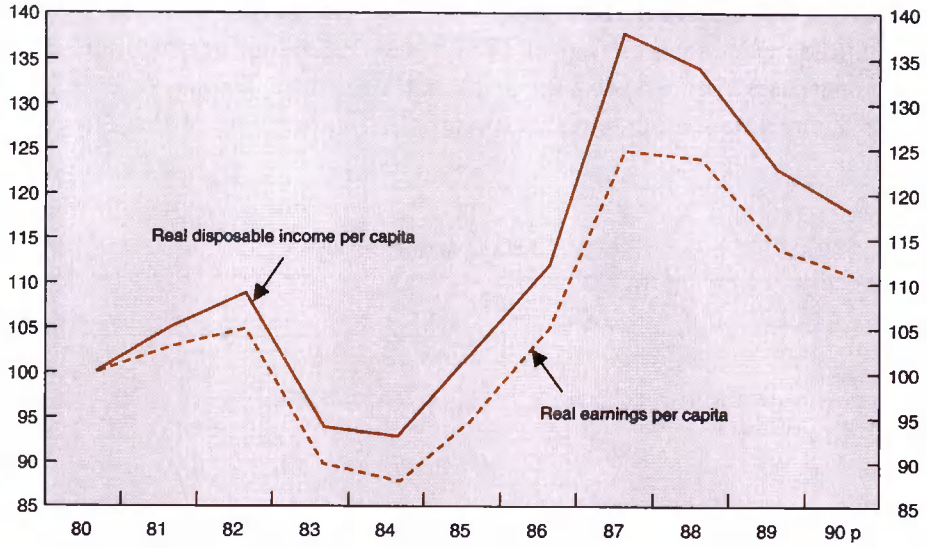
	1985	1986	1987	1988	1989	1990[1]
Capital formation	20.7	18.1	20.1	20.3	18.8	17.7
Private investment	14.6	13.1	14.7	14.6	12.7	13.4
Public investment	6.1	5.0	5.5	5.7	6.1	6.3
National saving	16.4	18.5	16.6	16.5	17.2	15.0
Current account	–4.2	0.4	–3.6	–3.6	–1.6	–2.7
Net external debt to GDP ratio	52.8	45.0	40.4	41.8	48.1	48.1

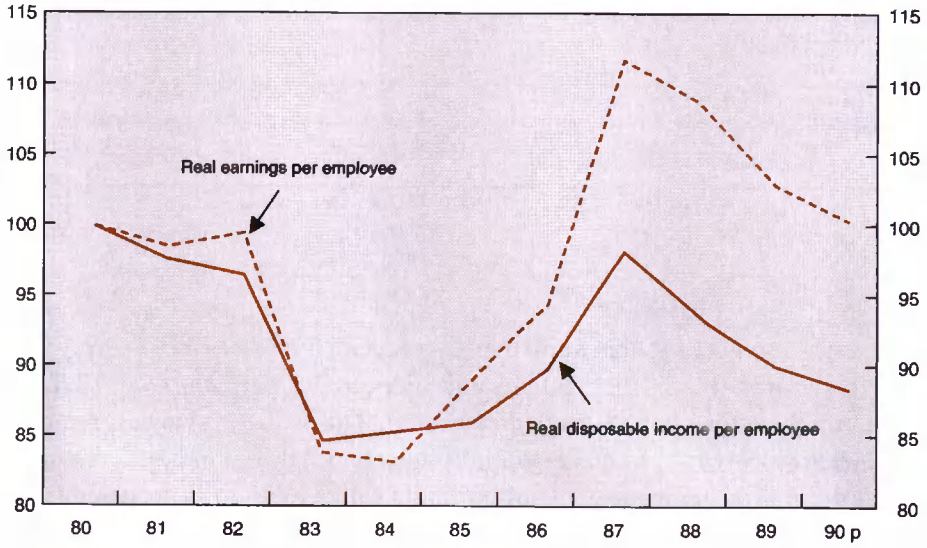
Note: Data may not add due to rounding.
1. Preliminary data.
Sources : Central Bank of Iceland, National Economic Institute and OECD estimates.

Three years of recession have driven up the unemployment rate, which was 1.7 per cent in 1990, as high as it has been in two decades[1]. Employment, the employment-population ratio and vacancy rates have also fallen, confirming the weakness in the labour market. Responding in part to these deteriorating labour market conditions, the labour federations and the major employers' association agreed to a package of moderate wage increases in February 1990, which is scheduled to last until September 1991. It allowed for wage increases of about 5 to 6 per cent in the course of 1990, as well as some adjustment for price inflation, if it exceeded certain limits, in May, September and

Diagram 3. **REAL WAGES AND DISPOSABLE INCOME**

Deflated by cost of living index
Indices, 1980 = 100





Note: p = provisional.

Sources: National Economic Institute and OECD estimates.

November. These adjustments proved to be small, amounting to about 1 per cent in total. The agreement appears to be working well, with individual unions sticking closely to the negotiated overall settlement, and wages rising by about 8 per cent over the course of the year. This is in contrast to earlier wage agreements, such as that of 1987, when individual unions often gained larger increases than allowed for in the national deal, leading to inflation in excess of the anticipated rate and the eventual unravelling of the agreement.

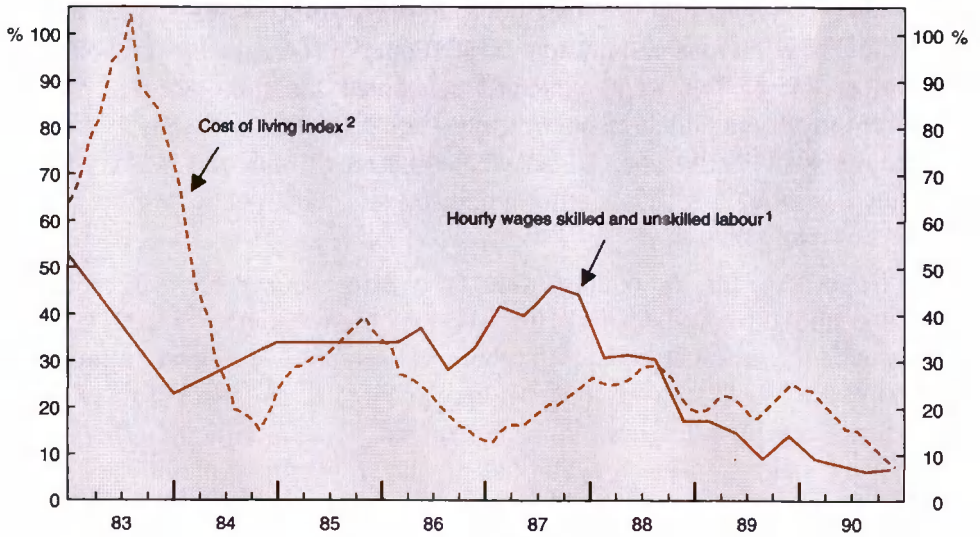
Table 4. **Labour market conditions**

	1983	1984-86	1987	1988	1989	1990 Preliminary
Labour vacancies						
Number (in thousands)	..	2.4	3.2	1.7	–0.2	0.0
Per cent of total labour force	..	2.6	3.5	1.9	–0.4	0.0
Unemployment rate[1]	1.0	0.9	0.4	0.6	1.7	1.7
Workweek of full-time manual workers[2]	49.6	50.0	50.0	47.6	47.9	..
Work stoppages (days)	1	68	116	131	611	..
Earnings per worker						
Nominal	56.7	34.5	42.0	24.0	12.0	10.0
Real	–15.0	5.4	19.7	–1.1	–7.5	–4.2

1. Based on unemployment insurance registrations.
2. More precisely, the workweek of skilled and unskilled workers who work more than 400 hours per quarter.
Sources : National Economic Institute; Nordic Council of Ministers and the Nordic Statistical Secretariat, *Yearbook of Nordic Statistics 1989/90.*

Largely reflecting the agreement's success, inflation fell sharply from rates in the mid-20s in the past several years to 7.3 per cent over 1990 as a whole, much as the authorities had projected. This was the sharpest reduction in inflation since 1984, when wage and price controls were in force. A number of factors, mostly temporary, resulted in a modest pick-up in inflation late in the year. First, world oil prices rose in August[2]. Second, as part of the agreement, the government undertook not to raise certain administered prices above already-announced levels, and it also reduced certain taxes, both of

Diagram 4. **INFLATION PERFORMANCE**



1. Per cent change from four quarters earlier.
2. Per cent change from twelve months earlier.

Source: National Economic Institute.

which introduced a temporary downward bias to the measured inflation rate. Nevertheless, in the last three months of 1990 the cost of living index was up only 6.4 per cent at an annual rate.

Prospects

In the course of the next two years the economic recovery which is underway is likely to gain momentum, while inflation may stabilise at less than 10 per cent. The short-term outlook depends on five key factors: the ability of the social partners to maintain and improve on the gains in reducing

inflation, the fish catch, the external environment, the Atlantal aluminium smelter project and economic policies.

The projection assumes that the February 1990 agreement runs its course and that there is no outburst of inflationary pressure when it expires in September 1991. The wage increases scheduled for this year – 2½ and 2 per cent in March and June respectively – are consistent with annual growth in labour costs of well under 10 per cent. As a result, inflation is likely to be contained without any further tightening of monetary policy, which would hinder economic recovery.

The outlook for the fishing industry is rather mixed. A cod quota of 257 thousand tons has been set for the first eight months of 1991[3]. This corresponds to a catch of about 320 thousand tons for 1991 as a whole, around the size of the 1990 catch. However, it may prove to be optimistic if there is no significant migration of cod from Greenland waters, although there are already signs of migration. Capelin fishing was stopped entirely at the beginning of 1991, but a quota of 175 thousand tons has been set for the winter season, and the catch for the year may be as much as 245 thousand tons, a considerable decline from a year earlier. Nevertheless, capelin are short-lived fish, and stocks can rebuild quickly, as happened in the early 1980s. Thus, there is a reasonable prospect that the catch will rebound in 1992 and 1993. Stocks of most other species are quite healthy.

Even though two of Iceland's major export markets – the United Kingdom and the United States – fell into recession, world fish markets are expected to remain firm for the next two years. As a result, prices are likely to stabilise at their current relatively high levels. Nevertheless, the decline in volume will leave exports in 1991 unchanged from the previous year. In the medium term, there are some signs of improvements in environmental conditions, which may signal improved catch levels, and the reforms to the quota system implemented in January, which are discussed in Chapter II, should increase the efficiency of the industry. Despite these factors, it is unlikely that the fish and fish-processing sectors will prove to be major contributors to economic growth in the near term.

The other external economic development affecting the outlook was the Gulf crisis and the associated increase in world oil prices in late-1990. Rotterdam spot prices for crude rose from $15 per barrel in the summer of 1990 to a

peak of $40 in October, but then fell to about $21 after the outbreak of hostilities in the Gulf in January 1991 and fell to pre-war levels after the end of the war. The Icelandic economy is sensitive to oil price movements, as its oil-intensity is similar to the OECD average and Iceland imports refined products (rather than crude), the prices for which rose more than crude prices. The travel and transportation industries, which together accounted for more than 15 per cent of exports in 1989, were adversely affected by the crisis as travel and tourism dried up around the world and Icelandair substantially reduced its international service. However, it now appears unlikely that the major summer tourist season will be affected.

The projected course of the economy in the next few years is dominated by the construction phase of the Atlantal aluminium smelter and an associated hydroelectric power plant, which is assumed to begin in 1992. The smelter itself is to be constructed and owned by a foreign consortium, which will also be responsible for purchasing the raw alumina and selling the processed aluminium. The Icelandic government is to build a hydroelectric plant for the smelter. When the smelter is in operation, the government will receive revenues from two sources: the tax on corporations and the sale of electricity to the smelter. Electricity rates to the smelter are to be proportional to the price of aluminium, with discounts applying for the first nine years of operation (in the first three years, a floor and a ceiling have been placed on the rates). As both revenue sources will be sensitive to the prices of aluminium, the government is bearing a substantial part of the risk of the project. At a price of just above $1 800 per ton the revenues will be sufficient to pay for the construction and operating costs of the hydroelectric facility. World aluminium prices are, however, very volatile: they have fallen from a recent high of over $3 000 a ton to only $1 500 a ton in early 1991. While long-term projections are for prices to average about $1 900 a ton, these are obviously fraught with considerable uncertainty.

In terms of macroeconomic impact, it is estimated that, allowing for multiplier effects, investment required by these projects will add about 2 per cent to GDP in 1992 and 5 per cent in 1993, and 0.8 and 1.9 per cent to employment (Table 5). Of course, they will also add significantly to imports, the current account deficit and the external debt, resulting in a deterioration of the current balance of 2.2 per cent of GDP in 1992 and 5.1 per cent in

1993. The large impact of the construction phase of the project raises the possibility of supply bottlenecks, overheating and rising inflation. In part, these effects are likely to be blunted because much of the material input will be imported and the labour requirement is not very large, even in relation to the small Icelandic labour force. The timing also appears to be fortunate, as slack has been created by the recession. Moreover, the construction of the Blanda hydro project will be winding down in 1991, freeing specialised workers and equipment for the construction of the Atlantal hydro facilities.

Table 5. **Economic impact of the Atlantal project**

Percentage difference from baseline

	1991	1992	1993	1994	1995	1996	1997	1998
GDP	0.1	2.0	4.9	6.3	3.1	2.8	3.2	3.8
Investment	0.6	18.2	40.6	52.3	24.8	0.5	–1.1	2.9
Imports	0.2	6.7	14.9	19.0	13.3	13.2	12.2	13.5
Exports	0.0	0.2	0.5	0.8	0.6	16.4	17.0	16.7
Domestic demand	0.2	4.5	10.3	13.1	7.8	1.9	1.7	2.8
GNP	0.1	2.0	4.8	5.8	1.9	1.1	0.9	1.6
Employment[1]	0.0	0.8	1.9	2.4	1.4	0.8	0.8	1.0
Unemployment rate[2]	0.0	–0.2	–0.5	–0.6	–0.2	0.1	0.1	0.0

1. Domestic labour only.
2. Percentage point difference.
Source : National Economic Institute.

Nonetheless, the past history of inflation in Iceland suggests that the stimulus of the Atlantal project presents a significant risk to the inflation outlook. As is discussed in Chapter II, maintaining an inflation rate close to that of Iceland's major trading partners is one of the keys to a policy orientation that emphasises a stable external value of the króna, financial liberalisation and closer economic ties with Europe. The projection assumes that the government will pursue fiscal consolidation and monetary restraint, and that expenditure policy takes into account the specific demands of Atlantal by scaling back or postponing public works projects.

Table 6. **Exports by commodity group, 1970-89**

Per cent of total exports

	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Total merchandise exports	61.4	65.8	76.7	73.5	64.9	67.8	67.7	66.8	70.3	71.2	72.3	72.2
Marine products	48.0	51.1	57.5	57.6	48.7	46.1	45.5	50.0	54.1	54.1	51.4	51.3
Agricultural products	2.0	1.9	1.3	1.1	0.8	0.8	1.2	0.9	0.9	1.0	1.2	1.2
Manufacturing products	10.6	11.8	16.6	14.1	14.5	19.9	18.9	15.0	13.9	14.3	16.2	17.8
Aluminium	8.1	7.0	9.3	7.1	6.5	11.9	9.8	6.6	6.5	6.8	7.8	9.3
Ferro-silicon	..	..	1.4	1.4	1.9	2.2	2.9	2.4	2.1	2.0	2.8	2.7
Other merchandise exports	0.8	1.0	1.3	0.7	0.9	1.0	2.1	0.9	1.4	1.8	3.5	2.0
Non-factor services	37.1	33.8	22.2	24.7	32.5	30.9	31.0	32.0	28.6	27.6	26.6	26.3
Travel	2.1	2.5	1.9	1.8	2.4	2.5	3.2	3.5	3.8	4.5	5.5	5.6
Transportation	20.8	18.3	10.7	13.6	17.5	15.4	15.0	17.8	13.2	11.2	10.6	10.0
Insurance	5.3	2.3	0.8	0.8	0.8	1.1	0.8	1.0	0.7	0.9	1.3	0.8
Defence force, net	5.3	5.8	5.7	5.6	8.3	7.9	7.9	6.2	6.9	6.4	6.0	6.6
Other services	3.6	4.9	3.1	2.9	3.5	4.0	4.1	3.6	3.9	4.7	3.2	3.2
Interest receipts	1.5	0.4	1.1	1.8	2.6	1.3	1.3	1.2	1.1	1.2	1.1	1.5

Note: Data may not add up due to rounding.
Source : Central Bank of Iceland.

The Atlantal project also affects economic developments beyond 1992. When the smelter becomes fully operational in the late 1990s, Iceland's aluminium production will double, and real gross domestic product is expected to be higher by about 4 per cent; gross national product, a measure of income, is likely to rise by about 1½ per cent (The difference represents the repatriation of profits and the increase in international debt payments stemming from the foreign borrowing required to finance the construction of the hydroelectric plant). This borrowing is likely to raise external debt to a peak of 53 per cent of GDP in 1994, after which it is expected to fall to 46 per cent by 1995 (without the project, the ratio is projected to fall from 50 per cent in 1990 to 37 per cent in 1996). This build-up of foreign ownership and debt need not, in itself, be a cause for concern, as it can be serviced from income generated by the capital investment, so long as the smelter is sufficiently profitable.

The Atlantal project will significantly reduce Iceland's dependence on the fishery. Fish products accounted for about 50 per cent of exports of goods and services in 1989, and 70 per cent of merchandise exports. By contrast, aluminium exports were only 9 per cent of the total. With the smelter in full production, the share of fish products is expected to decline to about 45 per cent, and that of aluminium to rise to 20 per cent. While this diversification will tend to reduce the variability of Iceland's terms of trade, two-thirds of its exports would still be concentrated in fish products and aluminium. However, although further diversification might reduce fluctuations in export earnings and incomes, it could also have potential costs. These costs would arise if the structure of economic production were shifted away from Iceland's comparative advantages, resulting in lower average incomes. An alternative strategy, which may be appropriate for a very small economy like Iceland's, is to maximise the flexibility of its response to external shocks. This theme runs through the next two chapters of this Survey.

II. The Policy environment

The change in policy regime

Historically, macro-economic policy has been geared to maintaining high employment and consequently has tended to be inflationary: over the two decades from 1970 to 1989, inflation averaged 32 per cent *per annum,* and was accompanied by large and repeated devaluations of the króna. Monetary and fiscal policy have been very closely intertwined, with, on the one hand, the government using the Central Bank to funnel subsidised loans to industry and, on the other hand, financing part of its deficit through inflation taxes[4] and by running overdrafts with the Central Bank. Table 7 relates inflation over the past two decades with the deficit, Treasury overdrafts and money growth. The inflation rate peaks of 1975 and 1983 corresponded to substantial deficits and recourse to Central Bank lending, while both money growth and inflation rose sharply in the late-1970s.

This approach to macroeconomic policy may be a thing of the past, as emphasis has recently been shifting from maintaining high levels of employment at almost any cost to controlling inflation, stabilising the external value of the króna and reducing reliance on foreign borrowing. As a result, real interest rates have risen, and have been kept at high levels even in the face of weak economic activity and rising unemployment during the last three years. Tighter monetary and fiscal policy and the nation-wide wage deal that was struck in early 1990 have reduced inflation dramatically through the year, making it possible to stabilise the króna.

Another major shift in policy orientation has been reflected in a range of structural reforms that have progressively reduced the government's role in directing the allocation of economic resources. The major structural reforms of 1990 and 1991 have been in two domains: the financial sector and the

Table 7. **Deficits, money growth and inflation**

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Treasury deficit[1]	0.9	–0.5	0.1	–0.3	–2.4	–3.8	0.3	–0.6	–0.3	–0.1	0.9	0.4	0.8	–1.4	0.8	–2.0	–1.3	–1.3	–2.8	–2.0	–1.3
Treasury borrowing from the Central Bank[1,2]	0.9	–0.4	0.1	–0.4	–2.5	–2.8	–0.3	–0.5	–0.7	0.2	0.3	0.7	0.3	–2.0	0.6	–2.2	1.9	–0.8	–1.4	1.2	0.8
M3 (percentage change)[3]	25.7	22.6	18.2	25.7	27.7	28.0	32.2	37.3	44.5	55.8	59.6	74.1	56.8	75.1	46.1	43.6	40.5	35.6	28.7	23.8	22.2
Velocity[4]	2.6	2.7	2.8	3.1	3.6	4.0	4.3	4.5	4.9	4.6	4.7	4.2	4.2	4.2	3.8	3.6	3.4	3.3	3.1	2.9	2.8
Cost of living index (percentage change)	13.3	6.9	9.2	21.6	42.7	49.0	33.0	30.3	44.5	44.5	57.8	50.8	49.9	85.6	30.9	31.9	22.2	18.3	25.7	20.7	15.5

1. Cash basis after 1980, accruals basis 1980 and earlier. As a percentage of GDP.
2. A negative sign indicates Central Bank lending to the Treasury.
3. Based on average for each year.
4. GDP divided by M3.

Source : Central Bank of Iceland.

fishery. Going into 1991, the bulk of these reforms are already in place or, in the case of financial markets, have been scheduled for the near future. The government has also pursued efforts to reduce the economy's reliance on fishing by encouraging the establishment of other industries, notably aluminium smelting.

All these initiatives have been taken so as to enhance the economy's capacity to adapt to rapidly changing conditions in the world economy. In general, the OECD countries have been turning away from government interference in the economy, as the costs and benefits of such policies have come under greater scrutiny. Iceland has tended to lag behind the rest of the OECD in this regard. Of at least equal importance, however, is the more specific issue of the changing international economic relationships in Europe, and Iceland's position in them. As a small open economy that is highly dependent on trade, Iceland has relied for access to markets on its membership in the European Free Trade Association (EFTA), its status as a Nordic country and special arrangements with the European Community. EFTA is in the process of negotiating a "European Economic Area" with the EC, although full EC membership is now government policy in two of the six EFTA countries.

In any event, it seems very likely that Iceland will be faced in the next few years with the need to forge closer links to the EC. This would mean that economic policy in Iceland must be brought more into line with policies prevailing in the rest of Europe, requiring, at a minimum, greater international freedom of movement of financial capital. The EC has also been moving towards a regime of fixed exchange rates, which may lead in time to full monetary union. There are reasons why Iceland may not wish to go as far as monetary union, or even full EC membership[5]. Nonetheless, for reasons discussed below, closer economic ties with Europe are likely to require a stable exchange rate, which will limit the government's discretion in implementing fiscal and, especially, monetary policy.

While the structural and policy reforms that are being undertaken now will eventually result in improved economic efficiency and living standards, the experience of other OECD countries suggests that the transition period can be difficult. This poses a set of policy challenges in the coming years: managing the reforms in such a way that their long run benefits are

maximised while limiting any short-term costs; staying the course in the face of short-term dislocations; and extending the reform process further.

Structural policies

The financial sector

The rationalisation and liberalisation of the financial sector has been underway for a number of years, as has been discussed in previous *Surveys*. Some of the more important steps have been: the partial deregulation of interest rates in 1984 and their virtually full deregulation two years later; the reduction in Central Bank accommodation of producer loans in 1985; the introduction of liquidity requirements in 1987; the efforts to create a market for treasury bills; changes in home financing in late 1989; and the creation of the first large-scale private bank (Islandsbanki) in 1990 by the merger of one government-owned and three private banks.

Liberalisation of international financial transactions was put in motion in late 1990 with the relaxation of capital controls. As of 15 December 1990, residents were allowed to make outward direct investments of up to 5.625 million krónur per annum. This limit was increased in January 1991 and will be eliminated as of January 1993. The limits on portfolio investment in 1991 and 1992 are only one-tenth those on direct investment, but Icelandic mutual funds may invest up to 112.5 million krónur in foreign securities in 1991, a limit which will also be increased in 1992 and abolished in January 1993. Non-residents can invest in Icelandic securities, but only those with a maturity exceeding one year. The regulation of inward direct investment by non-residents is, in most cases, subject only to legislation on limited liability companies and controls on ownership of certain assets. The former is somewhat restrictive – the majority of the board of directors and managing directors must be residents, though they need not be Icelandic citizens. The latter is rather more restrictive – for example, only Icelandic citizens can own real estate and commercial fishing boats.

In addition to the restrictions already mentioned, there are several areas where liberalisation is far from complete. Certain restrictions remain on transactions in foreign exchange. Notably, residents cannot obtain foreign currency

for the explicit purpose of holding foreign-currency bank accounts, although they can acquire a very limited amount of foreign exchange for personal purposes (gifts, for example). Foreign-currency accounts are generally, although not entirely, restricted to business purposes. All foreign exchange transactions must be carried out through a resident bank and often require documentation to ensure they do not contravene remaining restrictions. Finally, all transactions by residents and non-residents in foreign securities (including mutual fund investments) must be made through a licensed domestic broker. Nevertheless, the change in policy outlook reflected in the liberalisations undertaken so far has recently led Iceland to inform the OECD that it no longer wishes to invoke the general derogation clause of the OECD Capital Movements Code (it had been the only country to do so), although it intends to maintain several specific reservations.

Iceland's economy should ultimately benefit from the reforms of its financial sector, most directly through greater access to world capital markets, which will allow residents to take advantage of a broad range of foreign investment and financing opportunities. These opportunities will enable the economy as a whole to diversify financial risk better and, in the longer run, will lead to a more efficient allocation of Iceland's capital stock. However, during the transition there may be considerable shifts of capital as the cumulated effects of decades of controls are unwound. In the first instance, this may lead to increased overseas investment by Icelandic individuals and firms as they take advantage of the new financial opportunities. This diversification is, of course, desirable from the point of view of asset holders and it will also improve Iceland's net debt position *vis-à-vis* the rest of the world. Such portfolio movements may also put some upward pressure on domestic interest rates, at least in the short term, as investment abroad is likely to occur more rapidly than foreign investment in Iceland. However, in the longer term as liberalisation proceeds and Iceland's financial markets become more closely integrated with the rest of the world, this interest rate pressure should be reduced by inflows of foreign capital.

Taking full advantage of liberalised capital markets will require further institutional change. Elimination of some remaining restrictions on foreign-currency bank accounts and purchases of foreign exchange would remove unnecessary burdens on those wishing to transact on world markets. Giving

greater freedom to the pension funds in their investment decisions would also be desirable. Beyond that, moving toward privatisation of the commercial banks and investment credit funds (ICFs) would contribute further to efficient allocation of capital within Iceland. The pension funds' implicit interest in the ICFs could perhaps be converted into explicit ownership stakes and allowed to be sold.

Fisheries policy

A new quota system was put in place at the beginning of 1991 to replace the one that had existed, with a few minor changes, since 1984. The primary purpose of the old system was to prevent overfishing and the eventual depletion of the fish stock. It was also designed to increase efficiency in an industry characterised by massive overinvestment during the 1970s (see the *1984/85 Survey of Iceland*). To this end, the old system allowed quotas to be traded, thus allowing efficient operators to expand by purchasing quota rights from others[6]. However, this mechanism appears to have been blunted and, in the event, rationalisation has been slow.

Four features of the old system undermined its effectiveness. First, some quotas were allocated on the basis of effort, rather than catch: for example, a vessel would be allowed to fish for a fixed number of days. This not only led to a tendency for the actual overall catch to exceed the overall quota limit, but provided a powerful incentive to increase the fishing capacity of the fleet. This incentive was reinforced by the practice of awarding larger quotas to vessels that had larger catches under the effort quota. Second, small boats were not required to have quota, also leading to their proliferation and to overfishing. Third, quota legislation had been of short duration. This, and the fact that the quota system is only a recent development, led to expectations that quotas might be abolished sometime in the future. Fishermen therefore had an incentive to overinvest to position themselves for a return to uncontrolled fishing. Fourth, there were numerous restrictions placed on the buying and selling of quotas.

Under the new system, as under the old, the government sets an annual total allowable catch for each species, on the advice of the Marine Institute, the quota for each operator being a proportion of the total allowable catch. For 1991, quotas will be inherited from the old system. However, their nature

has changed significantly. They are no longer tied to effort, but rather specify the allowed catch explicitly, and all fishing vessels are now to be brought into the quota system. For both of these reasons, the new system should increase the ability of the government to regulate the fish harvest. The new quota legislation is also of indefinite duration, which should help to remove speculation of any return to uncontrolled fishing.

An important criterion for evaluating the new system is the extent to which it encourages the rationalisation of the fleet. The gains from rationalisation are potentially quite large, owing to the importance of the fishing industry in the Icelandic economy. One study reports that the current fleet could be reduced by 40 per cent without lowering the catch, and that the annual saving from such a reduction would amount to 4 per cent of Iceland's GDP[7]. A key mechanism for reducing capacity would be an active secondary market in quota rights, which would tend to allow the most efficient operators to expand. It remains to be seen whether this will prove effective. While the new legislation relaxes some of the restrictions on the resale of quota rights, some still remain. For some less important species (e.g. capelin), ministry permission is required to transfer a quota to a vessel that does not already have one for the same species. Also, to protect regional interests, any municipality has the first option to buy a fishing vessel that is being transferred to another municipality. The regional aspects of fisheries policy are discussed in the next Chapter in the context of labour market adjustment.

One feature of previous quota systems that was not changed is the practice of giving away the quotas, rather than selling or taxing them. Since the economic value of quota rights is linked to profits from fishing, selling the rights would help to reduce the income fluctuations of fishermen, so reducing their impact on aggregate demand (this is one of the goals of the Fisheries Equalisation Fund, which is discussed below). It would also transfer economic rents accruing from the exploitation of the fish stock from those working in the industry to Icelanders more generally. This is likely to prove to be a very sensitive issue: on the one hand, it could be argued that the fish stock is a national resource, the benefits from which should be shared as widely as possible; but, on the other hand, fishermen have historically had the right to fish freely, a right which has already been somewhat circumscribed by the current quota system, even if there is no charge for the quotas themselves.

Another policy initiative in the fishery was the introduction of the Fisheries Equalisation Fund in 1990, which replaces a similar programme. Although specifically affecting only the fishery, the intent of the programme is to reduce the impact of changes in world fish prices on the rest of the economy. Under the programme, fish processing companies are required to pay into special interest-bearing accounts when fish export prices exceed their average over the most recent 5-year period by 3 to 5 per cent, with the exact trigger to be determined by a commission. After the trigger is reached, half of the excess export revenue goes into the accounts. Withdrawals are made from the accounts when fish prices fall below the 5-year average by a comparable percentage. The Fund is distinguished from its predecessor principally by the fact that it is explicitly designed to avoid any subsidy element by limiting each firm's withdrawals to its own past contributions. One macroeconomic consequence of the fund will be an attenuation of the impact of fluctuations in fish prices on fishermen's incomes and aggregate demand. It should also help to reduce the spillover from incomes in the fishing sector to wages in other sectors, which has tended to destabilise the economy in the past.

In principle, companies could each run their own "stabilisation fund" by voluntarily building up their bank accounts in good times and running them down in bad. It is reasonable to ask why they do not do so – or not to the extent that the government would wish – and whether forcing them to save and dissave with the cycle of fish prices will increase economic welfare. In the past, it may have been that financial regulations restricted savings choices and distorted behaviour to such an extent that a stabilisation fund was required as an offset. With the financial liberalisation that took place in the second half of the 1980s and is scheduled to continue for the next few years, such distortions are likely to dwindle and with them, perhaps, the need for the stabilisation fund.

There are two potential drawbacks to stabilisation schemes. The first is that the government may be faced with demands to provide a subsidy if, for example, a long period of low prices were to exhaust the accounts. However, the nature of the funding arrangement makes it difficult to change the stabilisation scheme into a subsidy programme, suggesting that such pressures will be met, if at all, by other means. A more subtle problem arises because the rise and fall in prices would normally be signals to enter or leave the

industry, and the fund blunts the effect of the signal. However this is less of a concern in the case of the fishery than similar schemes would be in other sectors, because the ultimate determinant of the output of the industry is the catch, which must be determined according to longer-term consideration of conservation, rather than market prices.

Fiscal policy

Recent budgetary developments

Iceland has recently made progress in controlling its budget deficit (revenue balance), reducing it to 1.3 per cent of GDP in 1990 from 2.8 per cent only two years earlier (Table 8). This consolidation is all the more remarkable since it has taken place during a recession and therefore despite increases in the "automatic stabiliser" components of the deficit. The improvement has resulted largely from enhanced revenue collections: while expenditure has risen slightly in the past two years (representing 29 per cent of GDP in 1990), revenues have increased by about 2 per cent of GDP (to 27½ per cent). In the 1991 budget, the government aims to make further progress in moving toward budget balance. If, as expected, the recession ends this year, tax receipts should grow automatically. In addition, the Treasury plans to cut various expenditures, especially in the areas of agricultural subsidies and subsidies for medical care.

The revenue balance – tax collections less direct expenditures by the central government – is the narrowest fiscal measure in Iceland and, in particular, it excludes the financial operations of the government. The net borrowing requirement, which includes Treasury net lending, improved as a percentage of GDP from 3.3 per cent in 1988 to 2.1 per cent in 1990. However, this figure excludes the extensive transactions of public financial agencies, such as the investment credit funds[8]. The public sector borrowing requirement, the broadest measure of the "deficit", rose from 5.6 per cent of GDP in 1988 to 7.1 per cent in 1989 and 8 per cent in 1990. Thus, despite the improvement in the Treasury revenue balance, total Treasury debt increased by about 10 per cent, and rose as a fraction of GDP to almost 32 per cent, from 30 per cent a year earlier. The modest economic expansion and further

Table 8. **Treasury finances**[1]

	1987	1988	1989	1990 Provisional	1991 Budget
	Krónur million				
Current revenue	48 957	64 382	80 001	92 453	101 398
Current expenditure	51 688	71 583	86 056	96 899	106 956
Deficit	2 731	7 201	6 055	4 446	5 558
Loans and short-term credit	2 790	1 106	1 541	3 848	2 545
Net borrowing requirement (+)	5 521	8 307	7 596	8 293	8 103
of which:					
Domestic borrowing	2 728	1 526	5 837	11 236	9 319
Foreign borrowing	1 119	3 198	5 181	2 740	–545
Central Bank	1 674	3 583	–3 422	–5 682	–671
	As a per cent of GDP				
Revenue	23.5	25.3	27.0	27.5	27.8
Expenditure	24.8	28.1	29.1	28.9	29.3
Revenue balance	–1.3	–2.8	–2.0	–1.3	–1.5
Net borrowing requirement	2.7	3.3	2.6	2.5	2.2
of which:					
Domestic borrowing	1.3	0.6	2.0	3.3	2.5
Foreign borrowing	0.5	1.3	1.8	0.8	–0.1
Cash and Central Bank	0.8	1.4	–1.2	–1.7	–0.2
Public sector borrowing requirement, net[2]	5.5	5.4	6.4	6.4	6.5

1. Cash basis.
2. Treasury and public financial institutions.
Sources : Ministry of Finance and National Economic Institute.

deficit control projected for 1991 could result in a small decline in the Treasury debt to GDP ratio.

The upward creep in expenditures in recent years appears to reflect forces similar to those at work in other OECD countries: social expenditures have risen from 14 per cent of GDP in 1982 to 17½ per cent in 1990, accounting for virtually all of the increase in total expenditure. As in other OECD countries, Iceland will need to look for ways to limit the extent to which the ageing of the population in coming years and the consequent growth of the demand for these services leads to a higher tax burden on the working population. One solution is to reduce the government provision of (or funding for) services by linking benefits to need, although in many cases this is politically and socially

Table 9. **Breakdown of Treasury revenue and expenditure**

	Outcome 1989	Budget 1990	Outcome 1990	Budget 1991	Outcome 1989	Outcome 1990	Budget 1991
	Krónur billion				As a per cent of GDP		
Revenue	80.0	88.9	92.5	101.4	27.0	27.5	27.8
Direct taxes	13.3	16.0	17.7	19.9	4.5	5.3	5.5
Indirect taxes	61.2	67.0	68.4	75.2	20.7	20.4	20.6
Interest income, etc.	5.5	5.9	6.3	6.3	1.9	1.9	1.7
Expenditure	86.1	93.5	96.9	107.0	29.1	28.9	29.3
Public consumption	33.6	38.1	39.7	44.0	11.4	11.8	12.1
Transfer payments	34.6	37.8	39.6	42.0	11.6	11.8	11.5
Interest payments	8.5	9.1	8.3	9.7	2.9	2.5	2.7
Capital expenditure	9.6	8.5	9.3	11.1	3.2	2.8	3.0
Financial balance	–6.1	–4.6	–4.4	–5.6	–2.0	–1.3	–1.5

Sources : Ministry of Finance and National Economic Institute.

difficult. Another solution is to attempt to improve the efficiency with which any given level of service is delivered. The experience of other OECD countries in this respect has been quite varied, and success has been mixed[9]. Privatisation, contracting-out and deregulation have all been used to improve the efficiency of the delivery of public services by bringing more market discipline to bear. It appears that the nature of the market – essentially, the extent of its competitiveness – is more important than private ownership *per se,* suggesting that deregulation and other structural reforms are fundamental to promoting efficiency. Reforms in public-sector management techniques have also met with uneven success.

Iceland's social security and payroll tax system was overhauled in January 1991, as had been proposed in the budget. Previously, Iceland had a system of five social security programmes, covering old age pensions and health, accident, and unemployment insurance, that were funded from a combination of general revenues and various other levies. There was also a payroll tax that contributed to general revenues. The five programmes have now been merged into a single payroll tax, which is dedicated to social insurance rather than going into general revenue. This should reduce the administrative burden of the tax system and the distortion across different activities that can result from complex multiple-tax systems. This system, and the VAT, are also more in harmony with the tax systems prevailing in most European countries.

Reductions of borrowing from the central bank and on foreign markets have been important goals in recent years, and progress was made on both in 1990[10]. To some extent, these concerns are a product of Iceland's policy heritage of managed interest rates and strict capital controls. Under the regime of interest rate regulation, which often implied negative real interest rates, there was little demand for government treasury bills and notes; indeed, excessive lending under the fixed-rate regime forced banks into a position of permanent deficit *vis-à-vis* the Central Bank. With interest rates deregulated and a domestic capital market in place, the government should be able to sell Treasury securities to cover any reasonable budget shortfall rather than going to the Central Bank. With restrictions on international capital movements, the government had substantial control over, and responsibility for, the currency composition of Iceland's external debt. However, this will change progres-

sively as international capital movements are liberalised, because the private sector will be able to alter the currency composition of its assets and liabilities.

Monetary and exchange rate policy

The recent stance of monetary policy

Monetary policy remained tight in 1990 as measured by real interest rates – real rates on government securities rose to 6 or 7 per cent, and private-sector debt carried even higher rates – especially by the standards of the 1970s and early 1980s. On the other hand, the money stock grew by more than 20 per cent in 1990, a figure which would appear to be inconsistent with tight policy. However, with the sharp drop in inflation during the year, real money demand was boosted, implying a substantial, but once-off, increase in the nominal money stock. Nevertheless, money growth rates of this order are not consistent with low inflation for long. Moreover, in the late spring there were signs that the policy stance was easing, as the overdraft with the Central Bank grew and treasury bills outstanding declined.

Liquidity requirements

In recent years, Iceland has been moving away from large reserve requirements toward a mixture of reserve requirements and "liquidity requirements". Liquidity requirements comprise a number of instruments, most importantly, Icelandic treasury bills, but also cash, deposits at other Icelandic banks and deposits with foreign banks. The switch from reserve to liquidity requirements helps boost bank profits, since treasury bills generally pay higher interest rates than do reserves with the central bank, and therefore reduces the implicit tax that reserve requirements represent. The shift to liquidity requirements also bring reserve requirements in Iceland into line with foreign practice and raise liquid assets to more typical levels.

In practice, the requirements also have the effect of creating a captive market for Icelandic treasury bills. If the liquidity requirement were not "binding" – that is, if Icelandic banks chose to hold more treasury bills than were required – this would not be the case. But the requirement does appear to bind, as the actual liquidity ratio has tended to rise with the required ratio;

any "excess" liquidity has been held only as a precaution against falling below the requirement and incurring a penalty (Table 10). This suggests that current interest rates offered on bills – although more than 5 per cent in real terms – are not high enough to induce banks or others to hold them voluntarily, and the liquidity requirement has served as a way of holding treasury bill interest rates artificially low. Thus, the requirements continue to impose a hidden tax on banks, which would appear to conflict with stated government policy of encouraging the development of the financial sector[11]. Elimination of this hidden tax would involve paying a rate of return on treasury debt sufficient to induce the private sector to hold it voluntarily.

Table 10. **Liquidity ratios and reserve requirements**

Bank liquidity	Liquidity ratio		Reserve requirements	Total requirements
	Outcome	Required	Per cent of deposits	
	Per cent of loanable funds			
1987				
March	8.8	7.0	13.0	20.0
June	9.9	7.0	13.0	20.0
September	9.1	8.0	13.0	21.0
December	6.0	8.0	13.0	21.0
1988				
March	5.4	8.0	13.0	21.0
June	7.9	8.0	13.0	21.0
September	8.9	9.0	12.0	21.0
December	8.6	9.0	12.0	21.0
1989				
March	11.7	10.0	11.0	21.0
June	10.8	9.0	11.0	20.0
September	11.2	9.0	11.0	20.0
December	10.9	9.0	11.0	20.0
1990				
March	12.1	9.0	11.0	20.0
June	14.3	12.0	7.0	19.0
September	14.6	12.0	7.0	19.0
December	11.7	12.0	7.0	19.0

Source : Central Bank of Iceland.

Exchange rate policy

The króna has been fixed at its late-1989 level *vis-à-vis* a trade-weighted basket of 17 currencies as part of the February 1990 wage agreement. The policy of fixing the exchange rate is closely related to those of financial-market reforms and of disinflation. With financial markets liberalised, the authorities have fewer effective instruments available to counter pressure on the exchange rate and domestic interest rates. This raises the possibility that domestic markets will be disrupted by overseas financial turbulence. These pressures will be more easily managed if the authorities can gain credibility in exchange rate policy by demonstrating the ability to stabilise the króna.

A key factor in the longer run is a monetary policy that is consistent with exchange rate stability, because a nominal depreciation is inevitable if the domestic inflation rate is much higher than the rate prevailing in Iceland's major trading partners. A policy of fixing the exchange rate could, in turn, reinforce the authorities' ability to deal with inflationary pressures, as the experience of some EC countries has demonstrated. This "virtuous circle" arises because a commitment to maintaining the external value of the currency is a very visible one, whereas the relationship between policy and inflation is otherwise often obscure. Thus, a failure to implement policies that would contain inflation would become obvious once the government is forced to break its exchange-rate commitment.

Nevertheless, a fixed exchange rate policy is not the only option available to Iceland. In choosing the most appropriate policy, a number of conflicting factors, both short-term and long-term, must be weighed and, in many instances, economic theory and experience do not provide clear-cut solutions. Iceland's inflation rate, although very low by historical standards, was in 1990 still slightly higher than its major trading partners', raising the possibility of a real appreciation that would put pressure on exports. This situation could get worse in the near term, as two of Iceland's major markets – the United States and the United Kingdom – are currently going through recessions that should result in disinflation. Therefore, inflation needs to be further reduced in the next few years in Iceland if a nominal devaluation is to be avoided.

In the longer term, closer economic ties with the European Community may be difficult to reconcile with the extra degree of policy freedom of a flexible exchange rate. The EC has been moving in the direction of fixing

Table 11. **The real exchange rate of the króna**

	Relative consumer prices		Relative unit labour costs	
	Real exchange rate 1980=100	Change from previous period Per cent	Real exchange rate 1980=100	Change from previous period Per cent
1981	104.3	4.3	106.6	6.6
1982	95.8	-8.2	102.1	-4.2
1983	90.2	-5.8	85.5	-16.2
1984	94.6	4.9	85.4	-0.2
1985	93.1	-1.6	86.9	1.8
1986	94.9	2.0	87.9	1.2
1987	104.0	9.5	109.3	24.3
1988	109.3	5.2	118.1	8.0
1989	100.5	-8.1	106.7	-9.7
1990[1]	98.4	-2.1	94.9	-11.0
1988 Q1	113.5	2.1	121.7	-0.3
1988 Q2	107.6	-5.2	116.5	-4.3
1988 Q3	109.8	2.1	116.1	-0.3
1988 Q4	106.4	-3.1	118.1	1.8
1989 Q1	102.1	-4.1	111.5	-5.6
1989 Q2	103.1	0.9	111.0	-0.5
1989 Q3	99.5	-3.4	103.0	-7.2
1989 Q4	97.4	-2.2	101.3	-1.7
1990 Q1	97.4	0.0	94.4	-6.7
1990 Q2	97.8	0.4	94.3	-0.2
1990 Q3	99.7	2.0	96.2	2.1
1990 Q4[1]	98.8	-0.9	94.8	-1.6

Note: The calculations are based on quarterly information on relative consumer prices, wages, output and employment in 15 countries.
1. Preliminary figures.
Source: Central Bank of Iceland.

exchange rates among its members for some time now, and there is even the prospect of a single currency by as early as the turn of the century. Thus, there will be an increasing incentive to stabilise the value of the króna, even though Iceland is not contemplating joining the EC. As has been mentioned, an advantage of a credible commitment to a fixed exchange rate policy is that it can reinforce a low-inflation policy (or, at least, a policy of matching inflation to that of the countries against whose currency the króna is pegged).

The major drawback of a fixed exchange rate would be that Iceland, because of the importance of its marine exports, is faced with terms of trade

shocks that are quite different from those faced by its trading partners or the EC. A decline in fish prices, for example, requires a cut in aggregate real wages, which can come about either by a nominal depreciation and an increase in the price level, or through a cut in nominal wages (under a fixed exchange rate, a lower growth rate of nominal wages would probably be insufficient because the inflation rate would be too low). It is widely believed that resistance to nominal wage cuts is stronger than that to a real cut, in which case a depreciation can be helpful during the adjustment period. One factor which should mitigate the macroeconomic impact of terms of trade changes is the Fisheries Equalisation Fund (see above). A more important factor, however, is the flexibility of the labour market, which may make adjustment through nominal wage changes easier in Iceland than in other OECD countries. This flexibility and the features of the labour market that have given rise to it are discussed in the next Chapter.

III. The Labour market

A flexible labour market is a key both to the moderation of short-term cyclical fluctuations and to longer-term economic growth. Sticky wages prevent labour markets from clearing, thereby generating cycles in employment and unemployment. They also send misleading signals to firms and workers, leading to structural misallocations of labour in the longer term. Labour market flexibility is particularly important for a country like Iceland, which, with its small open economy and relatively narrow industrial base, is subject to frequent shocks beyond the control of policymakers. As judged by employment, unemployment and, until recently, economic growth, Icelandic labour markets have performed as well as or better than any in the OECD. The analysis of this Chapter, which builds on the previous *OECD Economic Survey of Iceland,* suggests that this can be traced to wage flexibility and institutional features of the labour bargaining process. This Chapter begins with a discussion of the recent performance of the labour market, followed by an analysis of the cyclical nature of labour market adjustment in terms of economic and institutional factors. Medium-term issues of the adjustment to a changing composition of employment and the role of education are then discussed.

Labour market performance

The principal external shocks faced by the Icelandic economy are movements in world prices for both imports and exports, particularly the export prices of fish and fish products (although the world aluminium market will take on greater importance when the second smelter begins full production in the mid-1990s). Internal shocks have also been significant, with expansionary monetary policy being punctuated with periods of disinflation, often engineered by economy-wide wage bargains and wage and price controls[12]. Wage

and price controls have been associated particularly with periods of rapid disinflation coupled with sharp reductions in real wages – 1983-84, for example – although the current recession illustrates that real wage cuts are possible without controls[13]. Despite such large and frequent shocks, the unemployment rate has historically been both low and stable, exceeding 1 per cent only twice in the last decade. In 1984-85 it rose to 1.6 per cent in the wake of the sharp decline in output growth (and incomes controls) that broke the inflationary spiral of the early 1980s. The unemployment rate rose again during the current recession, reaching 1.7 per cent in 1990.

By the standards of other OECD countries, this is a remarkable performance. To some extent, however, it is due to differences in the way labour market statistics are calculated in Iceland as compared with other countries. Unlike most OECD countries, Iceland has no household survey to measure the labour force and the unemployment rate. Unemployment is instead measured by registrations for unemployment insurance and therefore excludes new entrants to the labour market and the longer-term unemployed who have exhausted their unemployment benefits, but includes those drawing benefits but not in the labour force (not, for example, actively seeking employment). Even so, other data suggest that the impression of little labour market slack is not misleading. Labour force surveys taken from time to time also indicate a very low unemployment rate. The experience of the few other OECD countries that also rely on registrations to estimate unemployment indicates the relative tightness of Iceland's labour market: unemployment rates in Germany, the United Kingdom and the Netherlands on a registration basis were 7.1, 9.8 and 6.3 per cent in 1987[14].

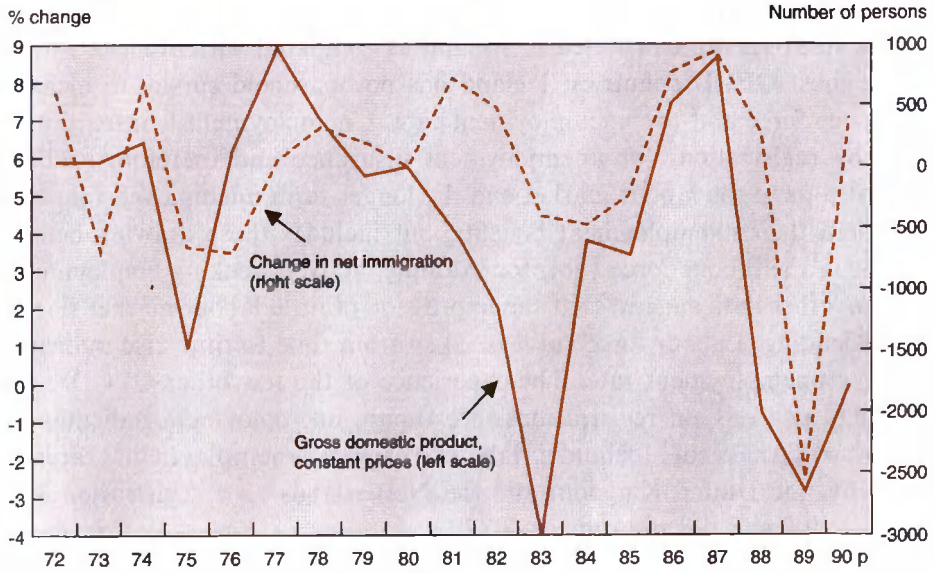
Despite high employment and relatively low unemployment, the performance of the Icelandic economy has been far from ideal in several other respects. Inflation has been high and variable, and the króna has been subject to repeated devaluations. Real incomes and real wages have also varied considerably. Moreover, the underlying trend growth rates of real income and labour productivity have been well below the OECD average since the early 1980s. While Iceland's *per capita* income is one of the highest in the OECD, even adjusting for international differences in purchasing power, this is in part due to the high participation rate and long work hours.

Cyclical adjustment

Labour force flexibility

An important economic factor stabilising the unemployment rate is net migration, with net immigration rising substantially during upturns in economic activity (Diagram 5). It is large relative to the number of unemployed

Diagram 5. **IMMIGRATION AND THE BUSINESS CYCLE**



Note: p = provisional.
Source: Statistical Bureau of Iceland.

workers, with almost 1 per cent of the workforce leaving in the last two recession years. Emigration is facilitated by the common Nordic labour market, which gives Icelanders the legal right to work and receive full social benefits in any Nordic country. Another factor contributing to labour-force

flexibility is the largest "volume" of work – the combination of long working hours and high participation rates – in the OECD[15]. As a result, some of the cyclical variation in labour demand can be easily absorbed by changes in work hours and the labour force (the latter, especially, by "secondary" participants, such as students). A related factor is the strictness of Iceland's unemployment benefits. Although benefit schedules are complex and vary widely from country to country (for example, they can depend on income in the previous job, marital status or age), Iceland has a low ratio of benefits to income, relative to other Nordic countries (Table 12). Moreover, the conditions for eligibility are also relatively tight. In Iceland, one must have worked for 425 daytime hours (somewhat less than 2 months) in the past 12 months to qualify, and benefits are exhausted after 260 days (until mid-1990, the limit was only 180 days). By contrast, in Denmark one must have worked for 26 weeks in the last 36 months to qualify, and one remains eligible for benefits for up to seven years[16].

Table 12. **Unemployment benefits in the Nordic countries, 1987**

Per cent of net daily income

	Iceland	Denmark	Finland	Norway	Sweden
Single man	47	62	60	68	90
Single woman	62	62	62	66	93
Married man, no children, working wife	45	62	60	68	90
Married man, two dependent children, working wife	56	62	67	74	91

Source : Social Security in the Nordic Countries: Scope, Expenditures and Financing, 1987, Copenhagen, 1990.

Wage flexibility

The Icelandic economy has been subject to both real and nominal shocks that affect equilibrium wages. An example of the former is a decline in the fish catch, or in the world price of fish exports, which should lead to a fall in

real wages, if full adjustment is to occur. An example of the latter is restrictive monetary policy that reduces the inflation rate. In this case, there is ultimately little need for real wages to change, but the growth in nominal wages must fall by as much in the drop in inflation. With either shock, major economic dislocation can result if wages do not adjust promptly, as labour demand falls below supply, unemployment rises and output falls. While declines in employment and aggregate demand put downward pressure on wages and prices, employment and output may have to fall a great deal to bring adjustment about in the presence of rigidities. Thus, a country with a flexible labour market should have relatively variable wages (and prices), but comparatively stable employment, for any given shock. The rest of this section discusses the flexibility of these variables in relation to other OECD countries.

The Icelandic economy is subject to very large real shocks by OECD standards, largely due to its dependence on the fishing industry and to the large year-to-year changes in both the fish catch and fish prices. As a result, Iceland has the greatest real output volatility of any OECD economy, as judged by the standard deviation of real output (see Table A1 of Annex I)[17]. The variability of real wages and employment, relative to the size of the shocks, is an indicator of the flexibility of the labour market. Iceland has the second-highest real wage volatility (after Portugal) and the second-lowest employment volatility (after Japan) in the OECD, which reflects rapid adjustment of the real wage to real shocks, and a consequent muting of the employment response. This is consistent with estimated wage equations, such as that developed in the previous *Survey*. This equation is consistent with the view that the adjustment of wages to labour market disequilibria occurs within the year. As was argued there, problems in measuring the unemployment rate and the importance of migration may account for this, but equations using output growth versus output gaps (which do not suffer from such problems) point to the same conclusion[18].

Iceland has also had the greatest variability of nominal wages and prices of any OECD country, even if these variables are normalised for changes in trend and the fact that the Icelandic economy has been generally the most volatile in the OECD (Table A2). Again, this may suggest that prices and wages respond rapidly to nominal shocks, although it could also reflect nothing more than large nominal shocks. A more direct measure of nominal

flexibility is the decline in inflation (in percentage points) that has typically been associated with a deviation of output from its trend[19]. The same concept can also be thought of as the so-called sacrifice ratio, or the output foregone to reduce the inflation rate by one percentage point. Regression analysis confirms the impression that Iceland's markets adjust rapidly to shocks: a loss of output of 1 per cent for one year reduces the inflation rate by about two percentage points in Iceland, while the OECD average is only about ½ a percentage point.

In the absence of an explicit economic model and an identification of the shocks striking the economy, conclusions derived from this analysis must be tentative. The standard deviations and regression coefficients presented here are certainly not "structural", in the sense that changes in the policy regime could give rise to rather different performance *ex post.* For example, if the government is successful in stabilising monetary policy and the inflation rate, the size of nominal shocks will be reduced, making them more difficult to separate from real shocks. The sacrifice ratio may then rise. An important consideration that suggests otherwise, however, is the particular institutional nature of labour bargaining in Iceland, which appears to have succeeded in marrying some of the benefits of centralisation – essentially co-ordination between different groups which can pave the way for wage cuts when these are necessary – without an excessive loss of flexibility.

Labour market institutions

An important characteristic of labour market institutions is their degree of centralisation, as this determines in large part the extent to which wage bargains take account of, and have an effect on, macroeconomic variables. Of course, the concept of "centralisation" is difficult to pin down precisely and, in the case of Iceland, labour markets are highly centralised in some respects and less so in others.

Iceland's unionisation rate – in excess of 90 per cent – is the highest in the OECD[20], suggesting a significant degree of centralisation. Moreover, the union movement itself is dominated by two labour federations, the Icelandic federation of Labour (ASI), with some 63 000 members, and the Federation of State and Municipal Employees (BSRB), with 15 500 members[21]. Within the former, the General and Transport Workers' Federation (27 500 workers)

and the Store and Office Workers' Union (13 000 workers) comprise the bulk of the membership.

The dominant role of labour unions reflects in part a tradition of treating organised labour as the social equal of employers and government, a tradition shared by other Nordic countries. However, several more tangible factors are also involved: many contracts specify that priority in hiring must go to union members, or even a closed shop; only union members are eligible for unemployment insurance; and pension funds are organised around labour unions. Iceland has come under some criticism from the European Council for the first two practices, and especially for the eligibility restrictions on unemployment insurance benefits (which remain a matter of contention between employers and unions).

Private-sector employers are also represented by bargaining organisations, notably the Icelandic Federation of Employers (VSI), representing over 3 000 firms, and the much smaller Association of Co-operative Employers (VMSS). The public sector is represented by the central government, which is by far the largest single employer in the country, and the municipal governments, most of which (Reykjavik is an important exception) are represented by a collective negotiating committee. The existence of large umbrella organisations for both workers and employers has made nation-wide labour bargains possible, typically with the active participation of government. The agreement of early-1990 was only the most recent example.

However, underlying this centralisation is a fragmented system of labour unions and pay practices. Although some of the labour federations are very large, individual labour unions are often quite small, as their membership is often determined by both type of work and geographical location. As a result, there are perhaps 350 separate unions for a unionised labour force of about 100 000 workers. Individual unions have always had the right to negotiate independently of the federations, which officially act only on behalf of the unions. They have often exercised that right, even after tripartite wage bargains had been negotiated at the national level. This fragmentation may have weakened labour's bargaining power *vis-à-vis* management, but it has also permitted wages to reflect conditions particular to an occupation or industry. Another decentralising feature of the labour market is the widespread practice of paying wages above negotiated settlements when warranted by condi-

tions in specific sectors or occupations. In some years, "wage drift" appears to have accounted for a significant fraction of overall labour compensation, although precise estimates are not available.

The independence of local unions and wage drift help explain why Iceland has avoided the compression of wage differentials of the sort that has characterised other economies with high rates of unionisation and centralised bargaining. Nation-wide bargains are likely to ignore local economic conditions and thus set relative wages inappropriately. Worse, they may incorporate measures which attempt to reduce "inequality" by reducing interindustry and interoccupational wage differentials. Over the longer term, the collapse of wage differentials can lead to rigidities in the allocation of labour, as occupations that require scarce skills will be unable to attract qualified workers.

Labour contracts have featured extensive formal and informal price indexation. Until the early 1980s such indexation was optional and, in practice, virtually all contracts were indexed. Indexation was required in the early eighties, then forbidden for two years as the authorities attempted to control inflation. In the last several years, price indexation has been permitted, but not required. The current economy-wide wage-price agreement contains a limited degree of price indexation, as well as a certain amount of indexation to the terms of trade.

The labour market has also been characterised by substantial wage-wage emulation, owing as much to the small size of the market as its degree of unionisation. The importance of this mechanism can be illustrated by two examples. The first involves the fishing industry, in which wages are partly determined by a revenue-sharing formula and are thereby tied to the fish catch and fish prices. While this arrangement provides considerable real wage flexibility in the fishing industry, increases in fish prices have tended to spill over in to wage increases in other sectors of the economy, where productivity bears no relationship to the fish catch. The second example relates to the wage-price bargain that has been in force in Iceland since early 1990: In June 1990, scheduled government-sector wage increases were rescinded for fear that emulation effects would lead to the breakdown of the national agreement.

These various mechanisms have, until recently, operated in the context of an inflation rate well in excess of 20 per cent per year. In effect, the nation-

wide bargains that have been struck have amounted to some workers – those having relatively weak bargaining power – receiving the agreed wage increase while others – those in particularly high demand, or who bargained independently of the federations – receiving larger increases. However, should inflation fall to only a few per cent per annum, the same degree of wage flexibility may require some workers to take nominal wage cuts, something which has not been necessary in the past. The bargaining institutions described above may be helpful here, although for wage drift to work as before – i.e. as an increase for some workers that is in excess of the negotiated wage – the negotiated increase would have to be below the sum of productivity growth and inflation; if these are both very low, it is possible that the negotiated increase in nominal wages would have to be negative.

Medium-term adjustment

The structure of employment in Iceland is summarised in Table 13, which shows the evolution of employment shares by sector. During the 1980-88 period, total employment rose by 18 per cent, implying that sectors and regions with constant shares experienced significant employment increases. Iceland's economy is highly dependent on fish and fish products, which dominate exports and accounted for about 12 per cent of employment in 1988. This was significantly less than its 14½ per cent share in 1980, although the level of employment changed little (and had been higher in 1987 than in 1980). Manufacturing also lost share, although the level of manufacturing employment was up somewhat. By contrast, the share of service employment trended up in the 1980s – particularly in financial services, reflecting the liberalisation of financial markets, and trade, restaurant and hotel services, owing in part to increases in tourism.

The argument was put forward in the previous chapter that the capacity of the fishing fleet could be reduced by as much as 40 per cent without any reduction in the catch and with considerable gains in economic welfare due to reduced costs. However, any rationalisation of this size raises concerns that labour released from fishing may not be absorbed elsewhere in the economy. Employment in fishing, as distinct from fish processing, rose by 18 per cent from 1980 to 1988 despite there having been little change in the catch,

Table 13. **Distribution of employment by sector**

Per cent

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Commercial sector	81.9	80.1	80.2	79.6	80.3	79.8	79.2	79.1	78.2
Agriculture	7.9	7.4	7.2	6.8	6.5	6.1	5.9	5.4	5.1
Fishing and fish processing	14.6	14.1	13.6	14.0	13.6	13.0	12.9	12.7	11.9
Fishing	5.3	5.0	5.0	5.1	4.8	5.0	5.0	5.2	5.2
Fish processing	9.3	9.1	8.6	8.9	8.8	8.0	7.9	7.5	6.7
Manufacturing[1]	15.1	14.7	14.5	14.3	14.6	14.6	14.2	14.0	13.3
Electricity and water supply	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Construction	10.1	9.8	10.3	10.2	10.0	9.5	9.1	9.4	9.2
Trade, restaurants and hotels	13.4	13.1	13.6	13.9	14.5	15.0	15.3	15.7	16.0
Transport	7.3	7.1	7.0	7.0	6.7	6.8	6.6	6.5	6.6
Financial institutions and insurance	5.4	5.9	5.6	5.9	6.6	6.9	7.2	7.4	7.8
Other services	7.2	7.1	7.5	6.6	6.9	7.0	7.1	7.1	7.4
Producers of government services	15.7	17.1	16.7	17.0	16.4	16.5	16.8	16.9	17.4
Producers of private non-profit services to households	2.4	2.8	3.1	3.4	3.3	3.7	4.0	4.0	4.4

1. Other than fish processing.
Source : National Economic Institute.

suggesting that significant declines in fishing employment would be expected in the course of a rationalisation. The fishing industry also has an important regional dimension, as fishing forms the economic base of many smaller centres. Rationalisation of the fleet could therefore result in the decline or disappearance of some small communities, and an increase in the concentration of employment in the Reykjavik area.

Some indication of the results of sectoral and regional adjustment can be gleaned from the decline in agricultural employment of 23 per cent from 1980 to 1988, which had a regional dimension as workers moved from rural areas to, primarily, the Reykjavik area. The figures in Table 14 confirm the growing concentration of employment in the Reykjavik area, although in only one region (the West Fjords) did employment levels actually decline from 1980 to 1988. Nevertheless, the adjustment appears to have occurred very smoothly, especially when compared with the experience of other OECD countries. In Iceland, there has been little effect on the trends in unemployment rates at either the national or the regional levels, although, by the standards of the

Icelandic labour market, the number of jobs lost in agriculture was significant[22]. There were almost 2 000 fewer man-years worked in agriculture in 1988 than in 1980, which is almost 2 per cent of economy-wide man-years worked in 1980.

Table 14. **Distribution of employment by region**

Per cent

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Capital area	54.1	54.6	55.0	55.4	55.5	56.5	56.8	58.2	59.7
Western Iceland	6.1	6.1	6.0	6.0	5.9	5.9	5.8	5.7	5.5
West Fjords	4.9	4.8	4.3	4.5	4.6	4.5	4.5	4.2	4.0
North-west Iceland	4.4	4.5	4.3	4.3	4.4	4.3	4.1	4.0	3.8
North-east Iceland	10.4	10.4	10.1	10.0	9.9	10.0	9.6	9.4	9.4
Eastern Iceland	5.6	5.4	5.7	5.4	5.4	5.1	5.2	4.8	4.6
Southern Iceland	8.1	7.9	8.2	8.0	7.9	7.4	7.4	7.3	7.0
Reykjanes peninsula	6.4	6.4	6.5	6.5	6.6	6.3	6.4	6.4	5.8

Source : National Economic Institute.

The reasons for such smooth adjustment are of two types. The first relates to the flexibility of the labour market, which was documented above. The avoidance of wage compression across occupations has provided incentives for labour to move from jobs in low demand to growth areas. Moreover, the unemployment insurance system does not appear to have been generous enough to seriously blunt the incentive to move. Another reason relates to the nature of Iceland and its society. Iceland is a very small country by OECD standards, and its population is quite homogeneous. As a result, job opportunities can become known by "word of mouth" and migration within Iceland is relatively easy. Thus, there appears to have been little need for the sorts of employment programmes (which attempt to match workers and jobs or promote geographical mobility) that have been widely used in other countries.

An important factor contributing to labour market flexibility is the high level of education. Most Icelanders speak three languages (Icelandic, Danish and English) and many have substantial training beyond general compulsory

schooling[23]. Although there is only one general university (the University of Iceland), many students pursue post-secondary studies – especially at the graduate level – overseas, mainly in other Nordic countries and the United States. The Icelandic economy has had an enviable record of creating jobs but, from the perspective of labour force training, continued success depends on educational institutions being nimble enough to respond to changes in the occupational mix required by the economy. The challenge of Iceland's educational system, therefore, is to produce graduates that can adapt to the upcoming changes in the labour market that will be dictated by a modernising economy.

IV. Conclusions

The Icelandic economy has begun a process of transformation from one characterised by high tensions and volatility towards one with lower inflation and more stable growth. The main impulses behind this process are a dissatisfaction with the economic policies and outcomes in recent years and the perception that increasing economic integration with Europe is inevitable and requires a certain degree of convergence of economic structure and performance. That these motives are apparently shared by the government and the social partners alike is attested to by the marked wage/price moderation in the past year, the deregulation moves that have been under way for several years and the prudent macroeconomic policies now in place.

The Icelandic economy appears to be on the way to recovery from the recession that started in 1988. One feature that distinguishes the present recovery from previous ones is that it is occurring in an environment of a relatively austere macroeconomic policy stance and adverse external conditions, notably the rise in oil prices and low levels of the fish catch. Real output was about unchanged in 1990 from a year earlier, following two consecutive years of decline. Despite the contraction, the central government deficit has been controlled and fell as a fraction of GDP in 1990. The current account deteriorated, although the ratio of the net foreign debt position to GDP remained unchanged from a high level. Inflation and wage growth fell sharply during 1990, reaching a level comparable to Iceland's major trading partners', owing to the nation-wide wage/price agreement that was struck between labour, business and government in February 1990. This agreement was, in turn, the result of a growing realisation that the economic policies and labour-bargaining practices that had led to the high inflation in past years had been unsuccessful in promoting growth and macroeconomic stability.

As part of the agreement, the króna has been fixed against a basket of currencies in order to protect real incomes. Although in the past the authorities have also attempted to peg the króna, this is the first time in almost two decades that Iceland's inflation rate has been as low as that of its trading partners. As a result, the government now has an opportunity to shift the economy to a credible, low-inflation regime, although if inflation were to rise much above its current rate – almost 6 per cent in the last quarter of 1990 – the real appreciation would result in pressure to depreciate the króna and, perhaps, cause the situation to unravel. Thus, there is a clear need to tackle the sources of inflationary pressure and to reduce inflation further. The principal advantage of a commitment to a stable currency is that it strengthens the credibility of the authorities' effort to deal with the high and variable inflation that has characterised the Icelandic economy. A disadvantage is that the authorities lose an instrument to attenuate the fluctuations in economic activity that result from the frequent, large swings in the terms of trade. However, the need for such an instrument may be less in Iceland, as the flexibility of its labour market might allow relatively smooth adjustment to terms of trade shocks, even in the absence of nominal exchange rate changes.

The flexibility of Iceland's labour markets was underscored in 1990 by the fact that the inflation rate declined by almost 20 percentage points through the year with very little increase in unemployment. This performance was characteristic, in that unemployment rates have historically remained very stable in the face of large real and nominal shocks, and substantial structural changes in the sectoral and occupational mix of employment. Cyclical changes in aggregate employment have tended to be reflected in compensating changes in net migration. Adjustment in the occupational and sectoral composition of employment has also proved to be rather smooth, probably in large part owing to the small size and cultural homogeneity of Iceland as well as to the relatively low levels of unemployment benefits and income support. Labour-market institutions have played a major role, especially in macroeconomic wage adjustment. Both workers and firms are represented in the wage-bargaining process by central organisations, and several tripartite agreements have been concluded over the years. Unfortunately, these agreements have typically been coupled with concessions by the government on taxes, expenditures and administered prices that have aggravated budget

deficits and added to the inflationary pressures the agreements were meant to offset.

Iceland has continued its structural reform process in 1990 and 1991, with important reforms in two areas: international capital movements and fisheries. Iceland's liberal attitude toward international capital movements follows several years of credit market reform, including the freeing of interest rates from direct government control from 1984 to 1986, and changes made between 1985 and 1989, which gave the central bank greater independence and greater control over monetary policy. The new, freer access to foreign credit markets should allow individuals and pension funds in Iceland to better diversify their holdings, and access to foreign borrowing should provide needed competition to Icelandic financial institutions.

However, there is ample scope for further reform in this area, as remaining restrictions will continue to limit access to world capital markets and distort the allocation of capital within Iceland. To a significant degree, savings and investment will still remain under direct or tacit government control. Savings will continue to be channelled mostly through the pension funds, whose portfolios will continue to be directed to housing funds to a considerable extent; and the ICFs will continue to lack a market test on their investment decisions. Also, important restrictions will remain on foreign investment in Iceland, with large parts of the economy being off-limits, including the fishing industry, landholding and banking, and with many types of financial transactions being funnelled through Icelandic intermediaries.

A key change in the fishing sector has been the reform of the quota system. The new system will allow for greater control of the annual fish catch, helping to ensure that stocks remain at sustainable levels. More importantly, by reducing restrictions on the trading of quotas, eliminating effort-based quotas, and making the quota system permanent, the reform has enhanced incentives toward reducing the overcapacity in Iceland's fishing fleet. Such rationalisation could be further encouraged, though, by reducing remaining restrictions on the trading of quotas. Another fisheries reform – the Fisheries Equalisation Fund – should help to reduce the volatility of Iceland's economy by smoothing somewhat the variations in aggregate demand brought about by changes in fish prices. The new fund, unlike its predecessors, has no subsidy element. Pressure to provide government support, should the fishing industry

have several years of weak prices, ought to be resisted, since subsidisation will serve to slow rationalisation.

Economic activity will receive a substantial impetus from the construction of the Atlantal smelter and the associated hydroelectric power plant. The outlook for the key fishing industry, however, is for a catch that will rise little in the next couple of years, although increases in the efficiency with which fish are used may raise output somewhat. Fish prices, on the other hand, are expected to remain strong, providing a boost to export earnings. The wage-price agreement expires in September 1991, just as the labour market is likely to begin to tighten again. Care must be taken, therefore, to ensure that fiscal and monetary policies remain restrictive enough to prevent the sort of wage-price spiral that has occurred several times in the recent past. This would require limiting government deficits in order to reduce pressures on aggregate demand, and avoiding a devaluation of the króna. Government expenditure policy can play a role here by scaling back or postponing public works projects that would compete with the Atlantal project for skilled manpower.

Several factors could change this outlook. If the anticipated migration of cod from Greenland does not materialise, the catch would be significantly less in 1991 than expected. If world fish prices soften, export earnings and profitability in this key industry will suffer. The Atlantal project presents several risks. If it does not go ahead, the near-term outlook would be for much less expansion. If it does, the aggregate demand boost during the construction phase could touch off an inflationary spiral, as it would probably be much harder to reach a wage-price agreement in the context of higher employment than it was in 1990, after two years of recession. A significant tightening of policy would then become necessary. After construction is complete, the benefits to Iceland depend on the world price of aluminium, which has been quite volatile in the past, and is obviously difficult to predict in the longer-term.

The central policy challenges for the next few years remain little changed from those of the past decade. However, substantial progress has already been made in most areas, leaving Iceland better positioned, on the whole, going into the 1990s than it was a decade ago. The success in controlling inflation should be consolidated by further reductions, and macroeconomic policies should be consistent with this goal. The important structural changes that have been

implemented could also be pressed further. Many restrictions remain in the financial sector, and the economy would benefit if these were relaxed. Considerable income gains could also be realised through a rationalisation of the fishing fleet, although it is already efficient by international standards. The longer-term problem of economic diversification remains, even when the new aluminium smelter is taken into account. The small size of the Icelandic economy makes a relatively high degree of specialisation almost inevitable. Nevertheless, changing technological opportunities, particularly the globalisation of communications, opens up potential opportunities in services. To take advantage of these, Iceland will be well served by a responsive labour market and an economy having access to world markets for both goods and financial capital.

Notes and References

1. As is described more fully in Chapter III of this survey, the measured unemployment rate in Iceland is not comparable to that of most other OECD economies.
2. However, their impact on inflation was delayed, since, by law, domestic petroleum product prices are based on the acquisition cost of existing inventory, not on the cost of new oil.
3. Under the new quota system (discussed in Chapter II), the fishing year is to be from September to September, rather than the calendar year as before. For 1991, the first year of the new system, a quota has been set for January to September.
4. Monetisation of the deficit increases inflation and amounts to a tax on those who hold money. In Iceland, the inflation tax was reduced dramatically in the early 1980s with the relaxation of interest rate controls; before this, real interest rates had often been negative.
5. Currently, a major stumbling block is the treatment of the fishing industry. EC regulations prohibit the sort of ownership restrictions Iceland uses to protect its fishery, while Iceland feels that such restrictions are necessary in view of the economic and social importance of the industry and the extensive subsidisation provided to most European fishing fleets.
6. One would expect quotas to be purchased preferentially by efficient operators, as they would be able to pay the highest prices while remaining profitable.
7. See T. Gylfason, "Iceland in the Outskirts of Europe: The Common Property Resource Problem", presented at *EFTA Countries in a Changing Europe* (conference) in Geneva, November 1990. Nevertheless, Iceland's fishing industry appears to be quite efficient when compared with that of other countries. For example, the same study reports that Norway's fleet could be reduced by two-thirds (although the saving in terms of Norwegian GDP would be only 1 per cent). Unlike elsewhere in Europe, the Icelandic fishing fleet does not receive large subsidies.

8. Not all these transactions contribute to fiscal expansion in the usual sense – some are used to finance investments, for example.

9. For a broad overview, see H. Oxley, M. Maher, J. Martin, G. Nicoletti and P. Alonso-Gamo, "The public sector: Issues for the 1990s", *OECD ESD Working Paper n° 90, 1990.* Issues pertaining to medical expenditures are discussed in *Health care systems in transition: The search for efficiency,* OECD, Paris, 1990.

10. Under a new law, overdrafts from the Central Bank must be repaid in the first quarter of the following year. However, there is effectively no restriction on these overdrafts in the short term.

11. It is worth noting that, on the other hand, this hidden tax has been reduced substantially in recent years: in 1987 the rate paid on reserves was indexed and, as mentioned above, the tax on the liquidity requirement is less than that on reserves.

12. These shocks and their macroeconomic effects have been discussed in detail in this and previous *Surveys of Iceland.*

13. Moreover, wage equations for Iceland indicate that wage and price controls have had no independent impact on wage formation (see the *1989/90 Survey of Iceland*).

14. See *Labour Force Statistics: 1968-88,* OECD (1990), Part III. It should be emphasised that there are significant differences in the definition and method of estimation of unemployment from country to country. The OECD publishes adjusted, or "standardised" unemployment rates for most Member countries (although not for Iceland) in an attempt to eliminate, insofar as is possible, the effects of such differences. On a standardised basis, the unemployment rates for Germany, the United Kingdom and the Netherlands were 6.2, 9.6 and 10.3 per cent in 1987 (see the *Employment Outlook,* OECD, July 1990).

15. See the *1989-90 Survey of Iceland,* Table 20, which compares volume of work measures across the OECD. Neither participation rates nor hours of work are fully comparable from country to country, due to conceptual and cultural differences.

16. The Danish system mixes unemployment benefits with guaranteed job experience and education. The maximum duration varies, depending on the circumstances of the claimant. See the *1989-90 Survey of Denmark* for details.

17. This standard deviation is with respect to trend output, and therefore does not depend on the long-term growth rate of the economy. The underlying shock is not observable, and the standard deviation of detrended real output is therefore used as a proxy in what follows.

18. This argument is developed more fully in Annex I.

19. Alternatively, changes in wage inflation could be related to the unemployment rate. For the reasons already discussed, the unemployment rate may not be a good measure of labour-market slack. Nevertheless, such a regression implies that a 1 percentage point increase in the unemployment rate has been associated with a 22 percentage point reduction in inflation in Iceland.

20. See the *Survey of Iceland* of last year for comparative unionisation rates in OECD countries.

21. Annex I of the previous *Survey of Iceland* has a detailed description of union membership.

22. The capital region has had a lower unemployment rate through the 1980s than any region except the West Fjords.

23. Although virtually all Icelanders have been literate for a thousand years, most had been educated in the home. The modern educational system was largely built up in the post-war period. See the *Review of National Policies for Education: Iceland,* OECD, 1987.

Annex I

Wage-price behaviour in Iceland

Documenting Iceland's relative economic performance

Table A1 shows the "normalised" standard deviations of several real variables related to labour market performance in OECD countries. All are normalised in two ways. First, they are deviations from their trends. While this makes the variability measures somewhat sensitive to the detrending technique, it is necessary because the variance of a trended series has no obvious interpretation. The so-called Hodrick-Prescott method was used to extract the trend[1]. Second, the measures were adjusted

Table A1. **Variability in Iceland and other OECD countries[1]**

	Standard deviation of output	Standard deviation in indicated series over standard deviation in output		
		Employment	Real wage	Output per employee
Iceland	**3.22**	**0.38**	**2.14**	**0.95**
United States	2.34	0.65	0.29	0.51
Japan	1.60	0.34	1.07	0.85
Germany	1.63	0.84	0.71	0.97
France	1.10	0.48	1.09	0.65
Italy	1.83	0.40	0.84	0.89
United Kingdom	2.25	0.72	0.94	0.63
Canada	2.05	0.82	1.06	0.77
Australia	1.64	0.89	1.36	0.72
Austria	1.39	0.67	1.12	0.98
Belgium/Luxembourg	1.50	0.64	1.16	0.74
Denmark	1.94	0.65	0.64	0.65
Finland	2.20	0.84	1.06	0.62
Greece	2.43	0.44	1.76	1.22
Ireland	2.08	0.87	1.03	0.72
Netherlands	1.66	0.87	1.22	0.84
Portugal	3.12	0.55	2.42	1.44
Spain	2.72	0.81	0.78	0.35
Sweden	1.47	0.52	1.77	0.98
Switzerland	2.66	0.82	0.70	0.66

1. Sample: 1970-87.
Source : OECD.

for the fact that some countries, notably Iceland, have been subjected to larger shocks than others. Since the underlying economic shocks are not observable, the standard deviation of real output was used as proxy. Since real output is an endogenous economic variable, and therefore in part the result of stabilising (or destabilising) mechanisms rather than of shocks, using it as a measure of shocks is less than ideal.

The first column in the table shows the standard deviation of the percentage gap between real GDP and its trend. Iceland has the most variable output in the OECD by this measure, although Portugal is a close second. The second column shows the standard deviation of total employment, again relative to its trend, divided by the GDP variability measure shown in the first column. Only Japan has a smaller degree of employment variability relative to the volatility of GDP than Iceland, although Italy is quite close. The same measure for the real wage rate is shown in the third column. The real wage is calculated as compensation per employee divided by the GDP deflator. Only Portugal has greater variability of real wages (compared with the variability in its output) than does Iceland. The last column shows the variability of labour productivity (output per employee).

Table A2. **Inflation variability in Iceland and other OECD countries**[1]

	Standard deviation in indicated series relative to standard deviation in output	
	Percentage change in GDP deflator	Percentage change in compensation per employee
Iceland	**4.21**	**2.90**
United States	0.77	0.56
Japan	2.19	2.13
Germany	0.52	0.59
France	1.89	2.48
Italy	2.09	2.21
United Kingdom	2.17	2.19
Canada	1.39	1.41
Australia	1.74	3.07
Austria	0.81	1.04
Belgium/Luxembourg	1.50	1.66
Denmark	0.88	1.20
Finland	1.54	1.81
Greece	1.82	1.83
Ireland	2.08	1.72
Netherlands	0.75	1.08
Portugal	1.37	2.35
Spain	1.32	1.26
Sweden	1.72	2.17
Switzerland	0.79	0.88

1. Sample: 1970-87.
Source : OECD.

Table A2 shows the standard deviations of two inflation measures, the percentage change in the GDP deflator and the percentage change in compensation per employee. Each of the inflation measures was detrended to remove any permanent shifts before the standard deviation was calculated. Iceland has the most volatile inflation in the OECD by either measure.

The "sacrifice ratios" shown in Table A3 represent the amount of output loss that must be sustained for one year in order to reduce the inflation rate by one percentage point. They are calculated from a price-price Phillips curve:

$$\pi_t = \pi_{t-1} + b_0 + b_1 \, \mathbf{gap}_{t-1}$$

where π is the inflation rate, measured as the percentage change in the GDP deflator, and **gap** is the GNP gap, measured as the percentage deviation of GNP from its trend (the same measure used to calculate the first column of Table A1). The equation indicates that if output is one percentage point below potential for one year, inflation will fall by b_1 percentage points. It follows that to reduce inflation by one percentage point, output must fall by $1/b_1$ percentage points, giving the sacrifice ratio. Iceland has the smallest sacrifice ratio among the OECD countries listed – only ½ per cent of

Table A3. **Sacrifice ratios in Iceland and other OECD countries**

	Phillips curve coefficient	90 per cent confidence interval of Phillips curve coefficient	Sacrifice ratio
Iceland	**1.92 ***	**(0.69, 3.14)**	**0.52**
United States	0.46 *	(0.26, 0.66)	2.16
Japan	1.15 *	(0.40, 1.89)	0.87
Germany	0.33 *	(0.10, 0.57)	3.00
France	0.82 *	(0.37, 1.27)	1.22
Italy	–0.24	(–0.97, 0.49)	–
United Kingdom	1.17 *	(0.45, 1.89)	0.86
Canada	0.32	(–0.20, 0.85)	3.10
Australia	0.59 *	(0.00, 1.18)	1.70
Austria	0.17	(–0.20, 0.55)	5.76
Belgium/Luxembourg	0.77 *	(0.23, 1.30)	1.30
Denmark	0.52 *	(0.23, 0.81)	1.93
Finland	0.23	(–0.46, 0.92)	4.37
Greece	0.97 *	(0.32, 1.62)	1.03
Ireland	0.57	(–0.28, 1.42)	1.76
Netherlands	0.14	(–0.25, 0.53)	7.12
Portugal	0.46	(–0.05, 0.96)	2.20
Spain	0.18	(–0.26, 0.62)	5.51
Sweden	1.06 *	(0.34, 1.78)	0.94
Switzerland	0.20	(–0.21, 0.60)	5.10

Notes: Sample: 1970-89.
*: Indicates significance at the 10 per cent level.
Source : OECD.

output is lost for one year to reduce inflation by one percentage point, compared with an OECD average of 2 per cent. Unemployment rate gaps, rather than output gaps, are often used to estimate sacrifice ratios. When this is done for Iceland the estimated sacrifice ratio is very low indeed: a one percentage point increase in the unemployment rate for one year is associated with a 22 percentage point reduction in the inflation rate. However, this estimate reflects in part the data problems discussed in Chapter II of the text.

The wage equation

Last year's *Survey* presented a wage equation in which the change in employment explained wages, but the level of the unemployment rate did not enter. A similar result is obtained when output is used in place of employment:

$$\%\Delta \text{ wage} = \underset{(10.5)}{-29.1} + \underset{(*)}{1.0}\,(\%\Delta \text{ prices}) + \underset{(3.0)}{4.9}\,(\%\Delta \text{ GDP}) - \underset{(0.3)}{0.5}\,(\textbf{gap})$$

(numbers in parentheses are t-statistics).

Estimation period: 1970-88, S.E. = 25.0, D.W. = 1.2,

where "%Δ" indicates the per cent change in a variable, wage is measured by total compensation divided by employment, price is the GDP deflator, with the coefficient constrained to be 1.0 (this constraint is easily accepted, and lagged inflation is not significant), and **gap** is the per cent deviation between GDP and its trend, as explained above. As the t-statistics indicate, the per cent change in output is strongly significant, while the output gap is not significant at all.

In the standard Phillips curve, if wages were sticky and adjustment prolonged, the gap variable would explain the evolution of wages during the adjustment period. The insignificance of the gap variable suggests that, on the contrary, adjustment is complete within the year (the data are annual). Wage growth should still be a function of the growth in output (or employment), because expansionary stocks will increase the demand for labour and tend to drive up real wages (so long as the labour supply curve is not downward sloped). The results of the wage equations are therefore consistent with the finding, documented above, that wages and prices are particularly flexible in Iceland.

Note

1. This method is described in R. G. King and S. T. Rebello, "Low frequency filtering and real business cycles", *Rochester University Centre for Economic Research working paper n° 205,* and F. E. Kydland and E. C. Prescott, "Business Cycles: Real facts and a monetary myth", *Quarterly Review,* Federal Reserve Bank of Minneapolis, Spring 1990.

Annex II

Calendar of main economic events

1990

January

Islandsbanki, a private-sector bank formed by the merger of four banks, begins operation.

The Value Added Tax replaces the sales tax. The standard rate for the VAT is 24.5 per cent, although there are a number of exempted goods.

February

A wage/price restraint agreement between unions, management and government comes into force. The unions agree to accept only limited wage increases, with modest indexation to price developments. The government agrees to maintain the króna exchange rate and not to raise certain administrative prices beyond already-scheduled amounts. Farmers agree to limit food price increases. The agreement will expire in September 1991.

New fisheries quota bill introduced in the Althing.

May

The Central Bank lowers the required reserve ratio and raises the liquidity reserve ratio, leaving the sum of the two unchanged.

The new Price Equalisation Fund for the fishing industry is established in law. Unlike its predecessors, the new fund is designed to smooth disposable income without providing a subsidy to the fishing industry.

June

The Central Bank shifts 3.8 billion krónur of its government debt to the deposit money banks. This is done by swapping the Central Bank debt for special government securities, and then exchanging the securities for a reduction in deposit money bank reserve requirements.

July

The Ministry of Commerce and the Central Bank issue liberalised foreign exchange regulations, some of which are to come into force on 1 September, and the rest on 15 December.

The government cancels a scheduled 4.5 per cent pay increase to public sector employees (members of the Federation of Graduate Public Employees) for fear that other unions would demand similar increases and the wage/price agreement would unravel.

September

Liberalised foreign exchange regulations come into force. Licences will no longer generally be required for most foreign exchange transactions. Inward direct and portfolio investment by both residents and foreigners is to be allowed up to a limit (which is scheduled to be abolished on 1 January 1993) and subject to other legislation (for example, ownership of land, fishing boats and equity are still subject to restrictions).

A small wage increase (0.3 per cent) is triggered under the indexation clause of the wage/price agreement.

October

Draft budget introduced, projecting a deficit target of 1 per cent of GDP for 1991.

November

Books are exempted from the VAT.

A small wage increase (0.5 per cent) is triggered under the indexation clause of the wage/price agreement.

December

Rules governing outward portfolio investments are liberalised. Residents can purchase foreign securities up to a limit (which is scheduled to be abolished on 1 January 1993) and subject to some restriction (the securities must be quoted on an OECD country stock exchange and the transactions must pass through a licensed resident broker who is a member of the Icelandic Securities Exchange).

The Ministry of Fisheries announces the cod quota of 257 thousand tons for the first eight months of 1992.

The inflation rate for the last quarter stands at about 5½ per cent.

1991

January

The new fishing quota system comes into effect. It extends the reach of the quota system to small boats, eliminates effort quotas and liberalises somewhat the trading of quota rights.

February

The Atlantal aluminium plant negotiations are extended as the consortium that is to construct the plant requires more time to find financing. The beginning of the construction of the plant is delayed until the fall of 1991.

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STATISTICAL ANNEX

Table A. **Supply and use of resources**

Kr. million, current prices

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Private consumption	8 846	14 327	22 939	39 418	53 886	74 705	96 933	131 712	158 200	176 254
Public consumption	2 546	4 039	6 644	11 559	14 056	20 136	27 291	36 791	47 468	56 368
Gross fixed asset formation	3 927	5 929	9 251	14 127	18 356	24 460	29 684	41 042	48 032	55 510
Expenditure on final domestic use	15 319	24 295	38 834	65 104	86 298	119 301	153 908	209 545	253 700	288 132
Change in stocks of export products	80	253	913	–1 070	786	–978	–2 094	–416	1 850	–885
National expenditure	15 399	24 548	39 747	64 034	87 084	118 323	151 814	209 129	255 550	287 247
Exports of goods and services	5 746	8 724	12 714	27 078	34 295	49 819	63 125	73 466	84 131	108 968
Imports of goods and services	5 648	8 936	14 329	25 275	33 871	49 051	56 342	74 496	85 042	100 366
Gross domestic product (market prices)	15 497	24 336	38 132	65 837	87 508	119 091	158 597	208 099	254 639	295 849
Net income from abroad	–411	–811	–1 495	–3 066	–4 554	–5 584	–6 229	–6 203	–8 333	–13 217
Gross national product	15 086	23 525	36 637	62 771	82 954	113 507	152 368	201 896	246 306	282 632
Depreciation	1 810	2 871	4 742	8 724	10 691	14 502	18 425	22 030	27 067	35 167
Net national product (market prices)	13 276	20 654	31 895	54 047	72 263	99 005	133 943	179 866	219 239	247 465
Indirect taxes	3 520	5 778	9 202	14 486	20 062	26 341	33 964	46 314	58 875	69 269
Subsidies	490	762	1 392	2 204	2 389	3 491	4 228	4 783	7 808	10 560
Net national income	10 246	15 638	24 085	41 765	54 590	76 155	104 207	138 335	168 172	188 756

Sources : National Economic Institute and Central Bank of Iceland.

Table B. **Supply and use of resources**

Kr. Million, constant 1980 prices

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Private consumption	8 846	9 470	9 972	9 364	9 660	10 099	10 904	12 691	12 183	11 209
Public consumption	2 546	2 733	2 902	3 039	3 045	3 234	3 455	3 665	3 818	3 910
Gross fixed asset formation	3 927	3 965	3 945	3 461	3 778	3 854	3 808	4 531	4 471	4 090
Expenditure on final domestic use	15 319	16 168	16 819	15 864	16 483	17 187	18 167	20 887	20 472	19 209
Change in stocks of export products	80	170	357	–207	122	–85	–201	–75	130	–60
National expenditure	15 399	16 338	17 176	15 657	16 605	17 102	17 966	20 812	20 602	19 149
Exports of goods and services	5 746	5 819	5 260	5 802	5 976	6 631	7 043	7 328	7 125	7 215
Imports of goods and services	5 648	6 024	5 987	5 649	6 174	6 775	6 792	8 345	8 084	7 282
Gross domestic product (market prices)	15 497	16 133	16 449	15 810	16 407	16 958	18 217	19 795	19 643	19 082
Net income from abroad	–411	–426	–503	–616	–676	–755	–795	–795	–879	–916
Gross national product (market prices)	15 086	15 707	15 946	15 194	15 731	16 203	17 422	19 000	18 764	18 166
Effect of changes in terms of trade	0	61	21	238	262	238	547	877	876	708
Gross national income[1]	15 086	15 768	15 967	15 432	15 993	16 441	17 969	19 877	19 640	18 874

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 plus effect of changes in terms of trade.

Sources : National Economic Institute and Central Bank of Iceland.

Table C. **Production and employment**

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990[1]
Fisheries and fish processing											
Output (% change in volume)	13.3	1.9	–8.7	–14.6	13.8	10.9	4.8	0.3	3.8	–3.6	–4.1
Export production											
Value (millions of krónur)	3 411	5 318	7 267	12 564	16 562	23 937	32 605	40 220	45 686	55 507	41 277[2]
Fishing fleet [3,4]:											
Trawlers (GRT)	42 265	45 258	47 944	48 478	50 801	50 844	50 569	51 380	54 086	52 830	51 865[5]
Motor boats (GRT)	64 222	63 313	63 904	63 294	62 046	61 750	61 822	66 072	65 521	63 181	54 479[5]
Total (GRT)	106 487	108 571	111 848	111 772	112 847	112 594	112 391	117 452	119 607	116 011	106 344[5]
Employment (man-years)	15 456	15 719	15 583	16 045	15 802	15 728	16 064	16 788	15 145	..	..
Agriculture											
Output (% change in volume)	14.3	–0.6	–1.7	–2.8	15.3	12.6	0.7	3.2	–10.0	–4.5	–1.5
Export production											
Value (millions of krónur)	75	116	126	237	406	597	690	1 015	997	1 288	665[2]
Capacity[4]:											
Cultivated grassland (1 000 hect.)	127.2	129.0	130.1	131.1	132.1	133.4	134.1	134.5	..	..	..
Sheep (1 000 heads)	827.9	794.6	747.7	711.9	714.4	709.3	675.5	624.3	586.9	560.9	..
Cattle (1 000 heads)	59.9	60.4	64.4	68.5	72.7	72.9	71.4	69.0	70.8	72.8	..
Employment (man-years)	8 387	8 205	8 182	7 864	7 595	7 420	7 374	7 147	6 470	..	..
Manufacturing (excluding fish processing)											
Output (% change in volume)	3.9	1.4	1.4	–0.9	7.3	2.8	2.3	8.7	–1.4	–2.5	0.5
Export production											
Value (millions of krónur)	975	1 309	1 910	4 528	6 673	7 776	8 794	10 059	13 677	19 460	10 718[2]
of which:											
Aluminium	588	741	1 042	2 333	3 445	3 472	4 042	4 761	6 705	10 146	5 487
Diatomite	24	36	70	142	189	289	284	296	348	416	322
Ferro-silicon	90	129	233	619	1 060	1 267	1 352	1 195	2 203	2 899	1 514
Employment (man-years)	16 053	16 260	16 494	16 394	16 956	17 620	17 740	18 439	17 057	..	..

1. Projection.
2. Average January to July 1990.
3. Including whale catchers, excluding open boat.
4. Data is end of year.
5. Situation on January 1st 1991.

Sources : National Economic Institute and Central Bank of Iceland.

Table D. **Gross fixed asset formation and national wealth**

Kr. million, current prices

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Gross fixed asset formation, total	3 927	5 929	9 251	14 127	18 356	24 460	29 684	41 042	48 032	55 510
Classification by end-use:										
Industrial asset formation	1 567	2 396	3 775	5 888	7 961	12 230	16 090	22 148	23 959	24 696
Agriculture	183	212	409	621	978	1 609	2 226	2 367	2 560	2 448
Fishing	217	376	518	781	839	910	2 648	4 192	5 835	3 360
Fish processing	148	222	360	521	785	1 137	1 358	1 440	1 509	1 265
Manufacturing other than fish processing	407	568	798	1 264	2 020	3 023	3 457	4 261	4 671	5 865
Transport equipment	283	470	593	832	790	1 734	1 403	1 774	1 387	3 846
Commercial buildings, hotels, etc.	176	308	613	1 084	1 269	1 933	2 626	4 770	4 190	4 700
Various machinery and equipment	153	240	484	785	1 280	1 884	2 372	3 344	3 807	3 212
Residential construction	964	1 317	2 251	3 495	4 714	5 380	5 770	7 752	10 106	12 740
Public works and buildings	1 396	2 216	3 225	4 744	5 681	6 850	7 824	11 142	13 967	18 074
Electric power, generation and distribution	507	797	1 159	1 510	1 550	991	899	1 177	1 882	3 103
Geothermal heating and water supply	267	370	330	375	570	871	840	930	1 650	2 340
Communications	403	649	1 061	1 764	2 229	3 062	3 625	5 634	5 409	6 288
Public buildings	219	400	675	1 095	1 332	1 926	2 460	3 401	5 026	6 343
National wealth	48 673	76 551	124 216	222 302	276 243	373 551	468 127	567 529	698 400	884 650
Private sector[1]	16 551	26 190	41 196	74 345	94 344	126 987	158 103	188 035	231 666	304 277
Public works and buildings	17 191	27 108	45 191	79 317	96 436	129 743	159 886	195 650	237 941	303 072
Industrial sector	14 931	23 253	37 829	68 640	85 463	116 821	150 138	183 844	228 793	277 301

1. Residential housing and private automobiles.

Source : National Economic Institute.

Table E. **Gross fixed asset formation and national wealth**

Kr. million, 1980 constant prices

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Gross fixed asset formation, total	3 927	3 965	3 945	3 461	3 778	3 854	3 808	4 531	4 471	4 090
Classification by end-use:										
Industrial asset formation	1 567	1 617	1 627	1 443	1 653	1 961	2 091	2 522	2 323	1 855
Agriculture	183	142	174	149	207	266	305	283	255	190
Fishing	217	256	226	196	173	147	330	461	542	244
Fish processing	148	152	157	131	161	177	168	158	139	93
Manufacturing other than fish processing	407	386	344	308	402	460	418	456	424	420
Transport equipment	283	312	254	191	150	246	179	207	142	281
Commercial buildings, hotels, etc.	176	204	260	269	257	296	323	499	372	339
Various machinery and equipment	153	165	212	199	303	369	368	458	449	288
Residential construction	964	870	952	865	955	825	711	812	898	919
Public works and buildings	1 396	1 478	1 366	1 153	1 170	1 068	1 006	1 197	1 250	1 316
Electric power, generation and distribution	507	537	497	366	311	152	111	124	168	226
Geothermal heating and water supply	267	245	140	93	115	133	104	97	146	169
Communications	403	432	444	423	474	488	488	620	489	464
Public buildings	219	264	285	271	270	295	303	356	447	457
National wealth	48 673	50 953	52 861	54 173	55 951	57 580	59 521	61 652	64 160	65 418
Private sector[1]	16 551	16 551	17 873	18 321	19 043	19 473	20 229	20 627	21 536	21 850
Public works and buildings	17 191	18 037	18 737	19 198	19 661	20 006	20 279	20 737	21 238	21 719
Industrial sector	14 931	16 365	16 251	16 654	17 247	18 101	19 013	20 288	21 386	21 849

1. Residential housing and private automobiles.

Source : National Economic Institute.

Table F. **Balance of payments, OECD basis**

US $ million

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Current balance	19	–21	–79	–148	–263	–57	–131	–115	17	–191	–221	–93
Long term capital (excluding special transactions)	78	95	153	191	214	94	113	155	157	178	208	261
a) Private	21	27	76	100	50	–29	–18	32	47	95	65	70
b) Official	57	68	77	91	164	122	131	123	109	83	143	191
Basic balance	97	74	74	43	–49	37	–18	40	174	–13	–13	168
Non-monetary short-term private capital	–15	–28	16	22	–10	–47	25	128	–43	76	15	–104
Non-monetary short-term official capital	2	7	–7	19	16	4	23	–58	–4	–16	22	–24
Errors and omissions	–32	–36	–44	–14	–47	2	–28	–53	–18	–59	–4	23
Balance on non-monetary transactions	52	17	39	70	–90	–4	2	57	109	–12	20	63
Private monetary institutions short-term capital	–1	21	–5	3	–6	16	–16	8	–9	–6	–17	–8
Balance on official settlements	51	38	34	73	–96	12	–14	65	100	–18	3	55
Use of IMF credit	–11	–16	–25	–11	18	–1	–	–	–13	–14	–	–
Special transactions	–	–	–	–	–	–	–	–	–	–	–	–
Miscellaneous official accounts	–	–4	–4	–4	–	–	–	–	–	–	–	–
Allocations of SDRs	–	4	4	4	–	–	–	–	–	–	–	–
Change in reserves (+ = increase)	40	21	10	60	–78	10	–15	64	87	–32	1	55
a) Gold	–	–	–	–	–	–	–	–	–	–	–	
b) Currency assets	41	20	7	62	–66	8	–15	64	87	–34	2	56
c) Reserve position in IMF	–	7	5	–	–10	4	–	–	–	–	–	–
d) Special Drawing Rights	–1	–6	–2	–2	–2	–2	–	–	–	2	–1	–1

Source : OECD.

Table G. **Central government and social security income and expenditure**

Kr. million , accruals basis

	1982	1983	1984	1985	1986	1987	1988	1989	1990[1]
Current revenue	11 072	17 994	23 889	31 304	41 218	53 876	71 300	86 280	95 100
Direct taxes	2 054	3 054	3 976	4 616	7 630	8 273	14 110	17 864	21 600
Indirect taxes	8 009	12 500	17 115	22 850	29 334	40 462	51 011	59 646	66 400
Other	1 009	2 440	2 798	3 838	4 254	5 141	6 179	8 770	7 100
Current expenditure	8 895	15 798	19 197	27 747	36 130	47 441	64 517	78 474	86 200
Public consumption	5 087	9 009	10 845	15 681	21 049	28 650	36 535	42 871	49 150
Interest expenditure	669	1 777	2 297	3 300	3 931	4 340	7 174	9 685	9 500
Current transfers and subsidies	3 139	5 012	6 055	8 766	11 150	14 451	20 808	25 918	27 550
Current balance	2 177	2 196	4 692	3 557	5 088	6 435	6 783	7 806	8 900
Capital revenue	253	408	526	680	820	1 044	1 229	1 521	1 913
Capital transfers	73	88	120	129	109	181	211	276	433
Consumption of fixed capital	180	320	406	551	711	863	1 018	1 245	1 480
Capital expenditure	1 606	3 713	3 679	5 879	11 902	8 475	11 966	16 037	13 650
Gross fixed investment	606	969	1 279	1 889	1 871	3 065	3 960	4 417	6 150
Capital transfers	1 000	2 744	2 400	3 990	10 031	5 410	8 006	11 620	7 500
Capital balance	–1 353	–3 305	–3 153	–5 199	–11 082	–7 431	–10 737	–14 516	–11 737
Financial balance	824	–1 109	1 539	–1 642	–5 994	–996	–3 954	–6 710	–2 837
Net increase in claims	1 780	984	3 229	3 597	–2 955	4 347	4 887	4 348	..
Borrowing requirement	956	2 093	1 690	5 239	3 039	5 343	8 841	11 058	..

1. Estimate.

Source : National Economic Institute.

Table H. **Fish catch, wages and prices**

	Fish catch (thousand metric tons)					Wages and prices (indices, 1980 = 100)								
							Price indices				Export price of fish products[2]			
	Total	White fish, etc.	Herring	Capelin	Shrimp, lobster, shell-fish	Hourly wage rates unskilled workers[1]	Total cost of living	Consumer price	Credit terms	Building cost	Fresh and iced fish	Frozen products	Salted products	Fish meal and oil
1979	1 641	578	45	964	10	63.7	63.1	62.0	63.4	64.4	68.5	74.4	64.2	64.5
1980	1 508	659	53	760	12	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981	1 435	716	40	641	11	152.1	150.9	150.6	151.8	152.4	124.2	144.8	173.3	152.3
1982	786	690	57	13	12	237.2	227.8	227.5	227.4	236.7	220.4	242.9	263.5	192.5
1983	835	603	59	134	16	362.0	419.8	422.6	407.9	403.4	360.0	500.7	448.4	511.6
1984	1 525	564	50	865	27	443.1	542.3	550.7	545.7	505.3	486.2	593.5	519.5	550.1
1985	1 672	585	49	993	27	591.4	717.9	730.5	712.8	667.9	805.0	821.4	726.8	597.4
1986	1 651	632	66	895	38	787.8	870.6	880.9	888.4	931.9	1 048.2	985.0	1 013.8	627.9
1987	1 625	684	75	804	41	1 083.4	1 034.0	1 047.5	1 043.3	978.9	1 180.0	1 163.6	1 295.5	695.1
1988	1 752	698	93	909	32	1 364.9	1 297.2	1 324.5	1 287.2	1 153.4	1 317.4	1 302.6	1 389.4	873.9
1989	1 430	644	88	658	25	1 526.0	1 570.6	1 619.8	1 524.4	1 420.4	1 661.3	1 642.6	1 752.0	1 102.0
1990[3]	1 444	623	84	698	28	1 632.3	1 803.6	1 858.0	1 769.8	1 673.1	..	..	..	..

1. Weighted averages.
2. The index shows the development of export prices (fob) in terms of Icelandic krónur.
3. Prelimimary figures.

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	Non-OPEC developing countries		Total	Europe		USA	Eastern Europe	Non-OPEC developing countries
			EEC	Others						EEC	Others			
1977	50.7	41.6	24.5	10.3	3.3	6.1	2.8	42.7	34.6	16.8	4.0	12.9	5.1	2.0
1978	56.7	47.8	27.4	12.4	4.0	5.6	3.2	54.2	43.6	21.6	5.0	15.9	4.2	3.7
1979	68.8	57.5	34.3	13.9	4.5	8.5	2.7	65.8	58.1	30.7	6.7	18.4	5.3	1.4
1980	83.4	71.0	39.7	15.7	7.8	9.1	3.3	77.5	62.8	36.4	8.1	16.7	6.8	2.2
1981	86.3	74.6	41.0	19.1	6.7	7.8	3.9	75.4	57.3	34.5	5.2	15.7	6.0	1.6
1982	78.6	67.1	38.9	15.6	6.6	7.8	3.7	57.2	48.9	27.8	4.2	14.8	4.8	1.2
1983	69.1	59.5	33.7	14.2	5.4	7.6	2.0	62.5	52.8	27.6	5.5	17.7	5.0	1.6
1984	70.3	60.7	36.2	13.1	4.8	7.5	2.1	61.9	54.6	29.2	5.3	17.6	5.9	1.2
1985	75.5	66.7	40.0	14.9	5.1	6.4	2.3	67.8	61.0	33.1	5.9	18.3	5.3	1.4
1986	93.1	83.9	49.5	19.2	6.5	5.8	3.3	91.2	83.1	49.5	9.2	19.8	5.0	1.5
1987	131.9	119.6	69.1	27.3	9.4	7.2	5.1	114.3	105.4	65.6	9.6	20.9	5.4	1.8
1988	133.6	121.3	69.0	29.7	10.1	7.2	5.1	119.5	108.5	70.6	12.2	16.2	6.3	3.3
1989	116.7	104.5	59.7	22.4	13.0	7.3	4.8	116.7	104.0	65.6	13.3	16.4	6.2	6.0

Sources : Central Bank of Iceland, and OECD, *Monthly Statistics of Foreign Trade, Series A.*

Table J. **Foreign trade by commodity group**

US $ million

	Imports by commodity group							Exports by commodity group							
			Other imports												
	Total	Transport equipment	Total	Food and live animals	Manufactured goods	Machinery and equipment	Other goods	Total	Fish products, total	Frozen fish fillets	Herring salted	Herring and capelin meal	Agricultural products	Aluminium products	Other manufactured products
	SITC No.	78-79		0	6	71-77									
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	16.2	87.3	40.9
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	21.3	106.3	64.3
1980	1 000.1	102.7	897.4	82.3	194.1	172.6	448.4	931.2	697.1	266.4	21.7	61.6	17.7	113.2	88.7
1981	1 021.0	107.8	913.2	81.3	189.4	183.8	458.7	902.5	706.4	237.1	22.1	45.3	13.3	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	9.0	68.0	82.7
1983	815.2	58.4	756.8	72.9	156.7	139.0	388.2	745.3	506.7	245.9	18.3	1.9	9.1	130.9	87.4
1984	821.3	65.4	755.9	69.5	149.6	155.9	380.9	744.2	500.2	222.3	24.5	42.3	13.9	108.2	99.4
1985	904.0	60.7	843.3	72.0	163.1	185.0	423.2	813.9	609.3	261.5	21.2	44.4	13.1	80.5	102.1
1986	1 115.3	135.4	979.9	85.2	211.1	233.3	450.3	1 095.8	843.8	320.7	18.0	57.0	16.9	100.5	115.7
1987	1 581.3	268.4	1 312.9	99.8	275.7	337.9	599.5	1 374.3	1 044.5	381.8	21.7	50.9	26.1	131.6	144.4
1988	1 590.3	266.8	1 323.5	106.7	283.5	318.2	615.1	1 431.2	1 016.9	367.1	24.6	75.1	24.8	153.8	167.0
1989	1 395.0	183.8	1 211.2	110.7	254.2	269.1	577.2	1 401.3	994.3	398.2	21.8	63.1	23.9	180.1	164.8

Sources : Central Bank of Iceland and OECD, *Foreign Trade by Commodities, Series C.*

Table K. **Money and credit**

End of period

	Central Bank		Money supply			Deposit money banks			Credits granted by DMB					Foreign exchange	
										of which to:					
	Penalty rates (annual rate)	Net position of government	M1[1]	M2[2]	M3[3]	Required reserves	Demand deposits	Net foreign liquid assets	Total	Agriculture	Fishery and fish processing	Manufacturing and commerce	Dwellings	Net foreign reserves	Commercial banks' short-term foreign assets
	Per cent[4]	Kr. million													
1977	32.5	169	306	783	1 079	225	219	17	1 011	153	264	267	105	43	18
1978	36.0	305	429	1 122	1 606	337	307	34	1 421	240	333	376	156	173	29
1979	45.0	303	625	1 677	2 503	556	468	47	2 235	378	501	617	273	404	–104
1980	55.8	336	1 010	2 773	4 137	1 001	791	78	3 533	532	817	978	456	910	–323
1981	55.3	268	1 620	4 841	7 056	1 900	1 224	69	6 165	800	1 421	1 645	781	1 637	–447
1982	58.0	145	2 089	7 133	11 149	3 039	1 570	198	11 593	1 273	3 111	3 386	1 197	1 494	–1 217
1983	58.2	852	3 700	12 372	19 902	5 582	2 941	–45	20 625	2 191	5 570	5 806	2 183	2 603	–3 088
1984	31.5	1 159	5 299	18 666	26 575	7 142	4 354	283	30 133	2 860	8 857	8 694	2 830	2 160	–5 710
1985	44.0	3 147	6 662	30 126	39 135	6 956	5 436	144	39 603	4 028	8 537	12 566	3 678	7 671	–10 022
1986	30.5	2 806	9 682	41 368	52 940	9 176	7 991	461	48 652	4 972	7 602	15 782	4 651	11 273	–7 860
1987	35.9	5 550	12 750	56 902	71 602	9 877	10 562	658	71 701	6 367	11 699	22 596	6 171	10 537	–11 105
1988	43.9	9 117	14 853	73 271	88 802	10 529	12 302	1 700	95 504	7 681	17 161	28 738	8 064	11 887	–15 399
1989	35.9	8 237	19 725	92 548	112 998	13 928	16 816	2 943	118 122	9 254	19 261	34 518	11 325	19 951	–11 513
1990[5]	27.0	3 594	24 866	105 840	129 910	10 951	21 811	2 845	136 313	10 425	17 839	36 085	12 791	23 460	–8 597

1. Notes and coins, demand deposits.
2. Broad money, i.e. M1 plus general savings deposits.
3. M2 plus time deposits.
4. Annual average. 1990 data is January to October average.
5. Preliminary figures.

Source : Central Bank of Iceland.

STRUCTURAL ANNEX

Table L. **Public sector**

	1960	1970	1980	1986	1987	1988	1989
General government accounts (as a per cent of GDP)							
Current revenue	28.2	30.2	33.3	32.1	32.1	35.0	36.4
Tax revenue[1]	27.7	29.6	31.1	29.5	29.6	32.6	33.5
Interest income	..	..	..	2.2	2.1	2.0	2.3
Capital revenue	..	..	..	0.7	0.7	0.6	0.7
Total expenses	25.8	29.9	32.2	36.6	33.3	37.3	40.0
of which:							
Current expenditure	..	..	..	27.5	27.5	30.5	32.1
Current transfers	..	..	..	4.8	5.1	5.6	6.0
Subsidies	..	..	3.2	2.7	2.3	3.1	3.3
Capital expenditure	..	..	..	9.2	5.8	6.8	7.9
Gross fixed investment	..	..	..	3.0	3.5	4.1	4.4
Capital transfers	..	..	..	6.2	2.3	2.7	3.4
General expenditures:							
General affairs[2]	..	..	2.6	2.4	2.7	2.9	..
Social affairs	..	..	11.0	12.1	12.6	13.4	..
of which:							
Education	..	..	3.6	3.6	3.8	3.9	..
Health affairs	..	..	5.4	6.4	6.6	7.0	..
Industrial affairs	..	..	2.0	1.9	1.8	1.7	..
of which:							
Transport affairs	..	..	1.3	1.2	1.1	1.1	..
Tax receipts as a per cent of general government total taxes							
General government							
Direct taxes	31.5	30.9	26.9	27.4	24.8	29.1	30.2
Indirect taxes	68.5	69.1	73.0	72.6	75.2	70.9	69.8
Central government and Social security							
Total taxes	..	..	..	79.0	79.1	78.5	78.2
Direct taxes	..	..	..	16.3	13.4	17.0	18.0
Indirect taxes	..	..	..	62.7	65.7	61.5	60.2
Local government							
Total taxes	22.5	22.8	20.2	21.0	20.9	21.5	21.8
Direct taxes	..	..	..	11.1	11.4	12.1	12.2
Indirect taxes	..	..	..	9.9	9.5	9.5	9.6

1. Direct and indirect taxes.
2. General affairs include Government administration and Administration of justice and occupational safety.
Sources : National Economic Institute and *Sögulegt Yfirlit Hagtalna, 1945-1988*, National Economic Institute.

Table M. **Labour market**

	Capital area	Western Iceland	West Fjords	North west Iceland	North east Iceland	Eastern Iceland	Southern Iceland	Reykjanes peninsula	Total
Employment									
(number of man-years)									
1980	57 301	6 490	5 192	4 659	11 069	5 895	8 575	6 762	105 943
1986	70 823	7 281	5 616	5 108	12 003	6 530	9 270	8 024	124 655
1987	76 727	7 524	5 511	5 273	12 438	6 363	9 590	8 382	131 808
1988	76 364	7 087	5 157	4 918	12 027	5 940	8 999	7 423	127 915
1989[1]	74 022	6 869	4 999	4 767	11 658	5 758	8 723	7 196	123 992
Unemployment rate (per cent)									
1980	0.2	0.2	0.1	0.9	0.7	0.5	0.4	0.3	0.3
1986	0.4	0.9	0.1	1.5	1.4	0.9	1.2	1.1	0.7
1987	0.2	0.9	0.5	1.1	1.0	0.9	1.0	0.5	0.4
1988	0.2	1.5	0.3	2.0	1.4	1.2	1.5	0.7	0.6
1989[1]	1.2	2.8	0.8	3.7	2.7	2.8	2.6	2.1	1.7

	1961	1970	1980	1986	1987	1988	1989
Population by age group							
(per cent change over previous year)							
Under 15 and over 65 years	2.0	–0.4	0.3	0.6	0.4	0.6	0.8
Between 15 and 19 years	3.3	1.8	–0.4	–3.4	1.7	1.4	0.9
Between 20 and 64 years	1.9	1.1	1.9	2.2	2.0	1.1	1.4
Between 15 and 64 years	2.1	1.2	1.5	1.4	1.9	1.1	1.3
Total population	2.1	0.5	1.1	1.1	1.4	0.9	1.1
Labour supply (per cent change over previous year)	–0.1	2.0	3.3	2.9	5.5	–2.8	–1.3
Work stoppages							
Number of stoppages	..	65	14	4	34	15	16
Working days lost	..	48	48	13	116	131	611
Number of participants	..	15 705	4 220	847	8 432	11 642	2 028
Number of man-days lost	..	303 743	30 760	1 071	98 527	100 773	79 970
Non-seamen in ASI	..	296 596	16 044	657	8 773	100 773	2 250
Seamen	..	7 147	3 696	414	66 140	0	0
Others	..	0	11 020	0	23 614	0	77 720

1. Estimate.
Source : National Economic Institute.

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BASIC STATISTICS

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	1988	16 538	7 596	9 879	25 950	5 130	4 947	55 873	61 451	10 016	250	3 538	57 441	122 610	375	14 760	3 326	4 209	10 305	38 996	8 436	6 672	53 969	57 065	246 329	23 560
Inhabitants per sq.km	Number	1988	2	91	324	3	119	15	102	247	76	2	50	191	329	144	396	12	13	112	77	19	161	69	233	26	92
Net average annual increase over previous 10 years	%	1987	1.4	0.0	0.0	1.0	0.1	0.4	0.4	0.0	0.7	1.0	0.8	0.3	0.7	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	1988	7 366	3 310	3 660 (87)	12 245	2 660	2 420	21 179	26 825	3 598 (87)	135	1 078	20 937	60 110	174	5 934	1 503	2 079	4 280	11 780	4 399	3 481	16 550	25 555	114 968	..
of which: Agriculture	% of TCE		5.9	8.1	2.7	4.5	5.8	9.8	6.8	4.0	26.6	10.4	15.4	9.8	7.9	3.4	4.8	10.4	6.4	20.7	14.4	3.8	5.7	50.6	2.3	2.9	..
Industry	% of TCE		26.4	37.4	28.0	25.6	27.2	30.6	30.3	39.8	27.2	31.1	27.8	32.4	34.1	31.6	26.4	26.0	26.4	35.1	32.5	29.5	35.1	20.4	29.8	26.9	..
Services	% of TCE		67.8	54.5	69.3	69.8	67.1	59.6	62.9	56.1	46.2	58.5	56.8	57.7	58.0	65.0	68.8	63.6	67.1	44.2	53.1	66.7	59.2	29.0	68.0	70.2	..
Gross domestic product (GDP)																											
At current prices and current exchange rates	Bill US $	1988	247.0	127.2	150.0	484.6	107.6	105.3	949.9	1 201.8	52.5	5.9	32.5	828.9	2 848.9	6.6	228.3	41.8	89.4	41.7	340.1	181.8	183.7	70.7	822.8	4 817.8	62.8
Per capita	US $		14 937	16 748	15 180	18 675	20 926	21 287	17 002	19 581	5 244	24 031	9 182	14 430	23 235	17 592	15 461	12 568	21 241	4 265	8 722	21 546	27 581	1 305	14 413	19 558	2 664
At current prices using current PPP's[3]	Bill US $	1988	221.3	94.8	124.5	477.8	70.2	68.1	758.6	867.5	67.9	4.0	28.8	744.4	1 751.5	5.8	189.1	36.5	67.0	65.9	363.6	124.4	110.8	235.6	765.1	4 817.8	..
Per capita	US $		13 383	12 482	12 599	18 413	13 655	13 772	13 577	14 134	6 786	16 087	8 131	12 960	14 285	15 528	12 807	10 972	15 916	6 737	9 325	14 743	16 641	4 348	13 402	19 558	..
Average annual volume growth over previous 5 years	%	1988	4.5	2.2	2.2	4.7	2.3	3.5	2.2	2.5	2.1	4.4	3.0	3.0	4.5	4.1	2.3	1.8	3.4	2.7	3.6	2.7	2.7	6.0	3.6	4.4	..
Gross fixed capital formation (GFCF)	% of GDP	1988	25.0	23.5	17.8	22.0	18.4	25.0	20.1	19.9	17.4	18.8	17.0	19.9	30.5	24.2	21.4	19.7	29.1	26.8	22.5	19.7	26.6	24.0	19.2	17.1	17.2
of which: Machinery and equipment	% of GDP		12.1	9.9	8.0	7.5	7.5	10.1	8.8	8.8	7.1	5.8	9.6	10.0	11.7	10.5	10.3	8.8	9.0	9.8 (86)	7.8 (87)	8.9	9.3	9.3 (85)	9.3	7.9	..
Residential construction	% of GDP		5.9	4.9	4.1	7.3	4.2	6.5	5.2	5.2	4.7	4.0	3.7 (87)	5.0	6.3	4.4	5.7	4.3	5.0	4.8 (86)	4.1 (87)	4.8	17.3[9]	3.3 (85)	4.0	4.8	..
Average annual volume growth over previous 5 years	%	1988	6.1	3.8	5.4	8.3	5.6	3.1	3.0	2.4	–1.3	5.3	–2.6	3.8	7.9	6.0	6.0	0.0	3.1	3.2	7.1	5.6	6.3	6.3	7.2	6.8	..
Gross saving ratio[4]	% of GDP	1988	22.4	25.2	19.3	20.4	16.0	23.8	20.5	24.6	16.7	16.2	18.0	20.7	33.5	58.8	23.5	17.0	22.7	25.3	22.7	18.2	32.8	26.0	16.4	15.2	..
General government																											
Current expenditure on goods and services	% of GDP	1988	17.4	18.4	15.3	18.8	25.8	20.2	18.6	19.5	20.6	18.6	16.7	17.2	9.4	17.0	15.7	17.1	21.0	16.0	14.3	26.0	12.8	8.8	19.9	18.3	14.2
Current disbursements[5]	% of GDP	1988	32.0	45.8	49.0	41.7	57.3	35.9	46.9	43.1	45.7	30.5	50.0 (87)	46.1	26.8	46.2 (86)	53.3	..	49.7	40.4 (86)	36.1 (86)	57.2	30.4	..	41.2 (87)	34.8	..
Current receipts	% of GDP	1988	34.3	46.8	44.3	40.4	59.5	40.3	47.1	43.7	35.1	35.7	43.8 (87)	39.9	34.3	54.2 (86)	52.2	..	55.1	37.6 (86)	35.0 (86)	61.9	34.8	..	40.7 (87)	31.5	..
Net official development assistance	% of GNP	1988	0.41	0.21	0.44	0.48	0.88	0.55	0.73	0.39	..	0.05	0.20	0.37	0.31	0.10	0.98	0.27	1.10	0.08	0.06	0.88	0.32	..	0.30	0.20	..
Indicators of living standards																											
Private consumption per capita using current PPP's	US $	1988	7 703	6 952	7 951	10 666	7 283	7 353	8 198	7 747	4 652	9 968	4 708	7 930	8 192	8 873	7 615	6 830	8 426	4 387	5 872	7 821	9 756	2 817	8 456	12 999	1 333*
Passenger cars, per 1 000 inhabitants	Number	1988	497 (85)	370	349	454 (86)	321	344	394	457	130	488	201 (86)	408	241	443	348	490	388	135 (82)	263	400	419	18 (82)	318	559	121 (83)
Telephones, per 1 000 inhabitants	Number	1985	540 (83)	460 (83)	414 (83)	664	783	615	614	641 (86)	373	525 (83)	235 (83)	448	535 (83)	425 (86)	410 (86)	646	622 (84)	166 (83)	381	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	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)	2.2 (86)	2.8 (87)	2.8 (83)	2.4 (84)	1.3 (82)	3.6	1.3 (82)	1.9 (86)	2.2 (84)	2.4	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	%	1988	5.3	4.5	2.7	3.8	6.0	7.9	4.8	3.8	17.2	..	6.4	7.9	2.9	..	2.0	8.9	9.4	16.4	9.3	8.0	..	..	8.4	2.8	96.5
Consumer prices	%	1988	7.1	2.8	3.0	4.2	4.6	5.1	4.3	1.2	18.1	25.7	4.6	7.1	1.1	2.3	1.0	11.3	6.9	15.6	7.8	5.9	2.1	47.8	4.7	3.5	101.3
Foreign trade																											
Exports of goods, fob*	Mill US $	1988	32 852	31 044	92 124[7]	111 600	27 108	22 176	167 508	323 244	5 484	1 416	18 576	128 484	264 864	..[8]	103 056	8 784	22 452	10 476	40 236	49 764	50 448	11 604	144 540	322 428	12 598
As % of GDP	%		13.3	24.4	58.8	23.0	25.2	21.1	17.6	26.9	10.4	23.8	57.2	15.5	9.3	..	45.1	21.0	25.1	25.1	11.8	27.4	27.5	16.4	17.6	6.7	20.0
Average annual increase over previous 5 years	%		10.3	15.0	12.1	8.7	11.0	12.1	12.0	13.8	6.6	13.7	16.6	12.1	12.5	..	9.8	10.2	4.6	18.0	15.3	12.6	14.5	15.2	9.5	9.9	9.5
Imports of goods, cif*	Mill US $	1988	33 276	36 564	92 436[7]	106 512	25 920	21 972	173 016	250 332	12 408	1 584	15 444	138 588	187 668	..	99 288	7 320	23 088	15 744	60 432	45 792	56 388	14 412	189 012	440 952	13 154
As % of GDP	%		13.4	28.7	59.0	22.0	24.1	20.9	18.2	20.8	23.6	26.7	47.5	16.7	6.6	..	43.5	17.5	25.8	37.8	17.8	25.2	30.7	20.4	23.0	9.2	21.0
Average annual increase over previous 5 years	%		12.4	13.5	10.8	11.6	9.7	11.3	11.3	10.4	7.6	14.1	11.0	11.5	8.3	..	10.4	6.5	11.4	14.2	15.8	11.9	14.1	8.9	13.7	11.3	6.0
Total official reserves[6]	Mill SDR's	1988	10 105	5 475	6 935[7]	11 437	8 000	4 733	18 849	43 486	2 690	216	3 780	25 798	71 879	..	11 945	2 132	9 510	3 810	27 550	6 310	17 985	1 758	32 773	27 305	1 774
As ratio of average monthly imports of goods	ratio		3.6	1.8	0.9	1.3	3.7	2.6	1.3	2.1	2.6	1.6	2.9	2.2	4.6	..	1.4	3.5	4.9	2.9	5.5	1.7	3.8	1.5	2.1	0.7	1.6

(*) At current prices and exchange rates.
1. Unless otherwise stated.
2. According to the definitions used in OECD Labour Force Statistics.
3. PPP's = Purchasing Power Parities.
4. Gross saving = Gross national disposable income minus Private and Government consumption.
5. Current disbursements = Current expenditure on goods and services plus current transfers and payments of property income.
6. Gold included in reserves is valued at 35 SDR's per ounce. End of year.
7. Including Luxembourg.
8. Included in Belgium.
9. Including non-residentiel construction.

SOURCES: Population and Employment: OECD *Labour Force Statistics.*
GDP, GFCF, and General Government: OECD National Accounts, Vol. I and OECD Economic Outlook, Historical Statistics.
Indicators of living standards: Miscellaneous national publications.
Wages and Prices: OECD *Main Economic Indicators.*

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- 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.

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