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BELGIUM-LUXEMBOURG

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LUXEMBOURG

Introduction

The macroeconomic performance of the Luxembourg economy continues to be impressive. In 1989 activity once again expanded more rapidly than elsewhere in the EC, unemployment fell to its lowest level in five years, inflation remained fairly restrained, the State budget notched up a small favourable balance, and the current account registered yet another enormous surplus. In no small way these results are the fruit of past years' economic policies, both macroeconomic and microeconomic. This Survey examines the sustainability of these accomplishments. It begins with a review of macroeconomic developments, with a particular focus on results in the important financial and steel sectors. There follows a set of projections through to the end of 1992, including a preliminary assessment of the likely impact of the August 1990 oil-price shock. A second chapter turns to an examination of recent policy goals and outcomes, with particular emphasis on the problems and prospects faced by Luxembourg's social-security system. Some brief conclusions are drawn in a final section.

I. Recent developments and macroeconomic outlook

Strong, robust growth

Having averaged less than 1 per cent from 1974 to 1983, economic growth in Luxembourg has exceeded 4 per cent since then (Table 1). That performance is partly attributable to the improvement in international economic conditions in recent years, with the production structure and openness of the Grand Duchy's economy enabling it to reap the benefits of the upturn in foreign demand. But it is also a result of the policy of diversification that the government has pursued consistently since the mid-1970s. This strategy, which was designed to reduce the economy's extreme vulnerability born of excessive specialisation, succeeded in attracting an increasing number of foreign firms and encouraging the growth of productive investment between 1983 and 1989, which itself strengthened the country's export capacity. The increase in gross fixed capital formation was particularly marked in the textiles, rubber and plastics sectors, as well as in financial

Table 1. Comparison of the trend of real activity in Luxembourg with that in the EC
Average annual growth rate

	Luxembourg ¹				EC			
	1970-74	1974-83	1983-88	1989	1970-74	1974-83	1983-88	1989 ²
Households' consumption	5.2	2.5	3.1	3.0	4.0	2.3	3.1	3.1
Public consumption	3.6	2.3	2.8	3.7	4.1	2.6	2.2	0.7
Gross fixed capital formation	5.4	-1.7	5.3	13.4	2.5	-0.1	4.4	6.5
Changes in stockbuilding (in % of GDP)	-1.1	0.3	0.0	2.1	0.0	-0.2	0.1	0.1
Total domestic demand	3.9	1.7	3.6	7.7	3.6	1.6	3.3	3.5
Foreign balance (in % of GDP)	1.5	-0.8	1.0	-1.5	0.2	0.3	-0.5	0.0
Exports of goods and services	8.3	-0.1	9.0	7.4	8.4	3.8	4.7	9.0
Imports of goods and services	6.7	0.7	8.1	8.8	7.1	2.4	6.7	8.8
GDP	5.4	0.9	4.5	6.2	3.9	1.9	2.8	3.5

1. Standardised System of National Accounts definition.

2. Estimates.

Sources: STATEC and OECD, *National Accounts*.

services, and more concentrated on machinery and equipment expenditure than on construction (Table 2). Households saw their disposable income rise in conjunction with the pick-up in growth, and so increased their residential investment which had fallen sharply in the wake of the first oil shock. In all, these developments enabled Luxembourg to achieve real annual average GDP growth nearly 2 percentage points higher than in the EC as a whole between 1983 and 1989.

Despite a substantially negative contribution of the real foreign balance to growth, economic activity accelerated in 1989, with GDP growing by some 6 per cent in real terms. While the increase in exports slowed modestly last year, with demand for steel flagging somewhat, both internationally and in Luxembourg¹, domestic demand picked up significantly again. The volume of private consumption grew relatively briskly as a result of the increase in households' disposable income, itself due to the rise in wages and extensive job creation. But the strength of total domestic demand reflects above all the considerable increase in stockbuilding as

Table 2. **Gross fixed capital formation by product and sector¹**

Average annual growth rates

	Structure in 1989	1970-74	1974-83	1983-89
Gross fixed capital formation	100	5.5	-1.8	6.6
By product				
Capital goods	44.5	3.0	-0.5	10.6
Construction	51.7	6.5	-2.5	3.5
<i>of which:</i>				
Housing	17.4	13.6	-7.8	7.3
Others	34.3	2.5	0.5	1.9
Other products	3.8	20.7	2.5	13.2
By sector				
Agriculture, energy and water supply	4.8	1.1	-1.2	-3.7
Industry	16.9	-4.8	-3.1	2.6
<i>of which:</i>				
Iron and steel	n.a.	-8.5	-10.4	12.1 ²
Textiles, rubber and plastics	5.8	-2.1	-11.2	30.0
Other	n.a.	-1.6	3.1	-15.1 ²
Building and civil engineering	1.8	12.5	-6.0	3.9
Traded services	58.7	11.4	-2.6	12.0
<i>of which:</i>				
Financial institutions	15.8	17.9	8.0	22.0
Other	42.9	11.0	-3.8	9.5
Non-traded services	18.0	12.0	1.6	1.2

1. At constant prices.

2. 1983-88.

Source: STATEC.

well as the rapid growth in total investment, especially in public administration, market services and construction, despite a less favourable outcome in the steel industry².

Recent trends in the financial and steel sectors

The financial sector, whose spectacular advance was a particular feature of Luxembourg's economic progress during the 1970s, constitutes the country's key activity, accounting for 15.3 per cent of GDP and 8.2 per cent of total domestic employment³. And it has continued to achieve rapid growth in recent years. Bank balance sheets have increased at an average annual rate of some 15 per cent since 1987, after eliminating the fluctuations in foreign-currency exchange rates against the Luxembourg franc, while the number of foreign financial establishments located in the Grand Duchy has risen by more than 14 per cent per year. The factors no doubt mainly responsible for this development include the national-treatment concept which the government applies to foreign financial organisations in line with OECD guidelines, the move to even more liberal legislation and regulations⁴, the firm commitment to uphold the principle of bank secrecy (except in the case of criminal activity which, since 1989, has included the laundering of money generated from the narcotics trade), and also the tax system which is advantageous for both savers and companies. In addition to expanding its traditional Euromarket activities, the Luxembourg financial market is experiencing very rapid growth of asset-management services for private and institutional customers. The increase in these operations, which the financial institutions have been seeking to develop for the past few years, is reflected in particular in the shift in the banking system's sources of refinancing towards non-bank deposits, in the increase in profits on commissions⁵ and in the impressive growth in both the number of mutual funds and in their assets (which increased by 26.7 and 61.6 per cent per year, respectively, from 1987 to 1989). A growing number of these funds have been asking the Institut Monétaire Luxembourgeois to vouch for their compliance with the EC directive allowing them to market their products freely in the other EC countries. Since portfolio-management services are highly labour-intensive, their expansion has boosted employment in the financial sector (up 19.2 per cent between 1987 and 1989).

The steel sector performed well overall in 1989 for the second consecutive year. Against the background of this industry's international situation which saw some slowdown in real activity from 1988, but with sharply higher prices,

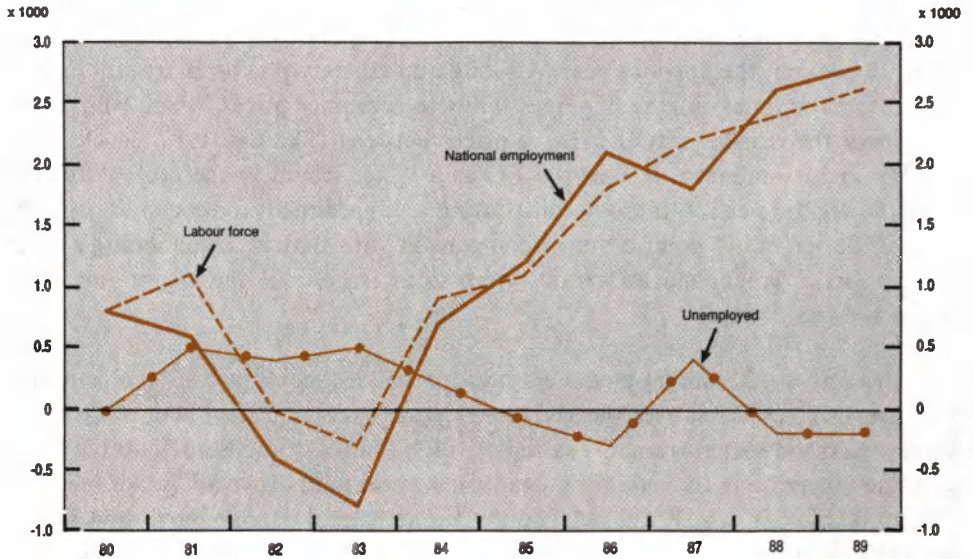
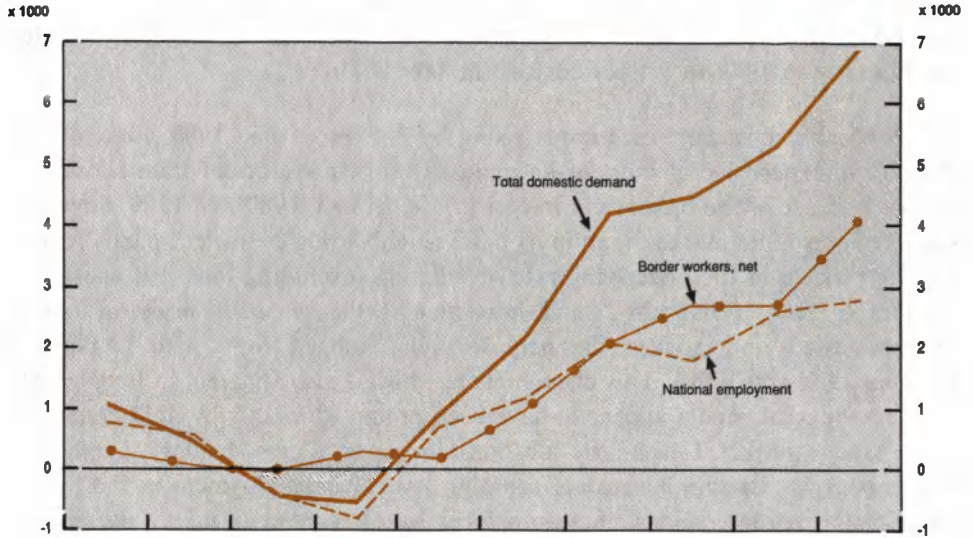
Luxembourg's steel firms improved their balance sheets. The profits made by ARBED, the country's main steel group, reached their highest level for fifteen years, due, in the main, to the restructuring in progress since 1974. Per capita productivity, for example, has increased by an average of 3.7 per cent per year since then, compared with less than 2 per cent for the economy as a whole; also, investment aimed at modernising the productive system has expanded appreciably since 1983 (Table 2).

ARBED intends to persist with this policy of consolidation and restructuring and will pursue its strategy of diversifying into new activities. The main measures planned include further workforce cuts, which began in 1989 and are to continue until 1991 at a rate of 1 000 per year, and the expenditure of LF 30 billion for investment covering the period 1989-1993⁶. Also under consideration is a partial merger of flat-products manufacturing operations with the Belgian group Cockerill Sambre with a view to strengthening the position of the two firms in that segment of the European market. The medium- and long-term future of the steel industry is very uncertain because of excess capacity at the international level, increasing competition from the newly industrialising countries – which could now be accentuated by competition from the central European countries – and the additional requirements of environmental protection which Luxembourg firms are having to meet. Since the beginning of 1990, falling orders in the automobile sector in particular have resulted in distinct signs of a downturn in the world steel market. The effects of this softening have been felt by Luxembourg firms: crude-steel output fell by 5.6 per cent between January and September from the corresponding period of the previous year, and producer prices were down a similar amount.

Other main macroeconomic results

The strong and sustained upturn in economic growth since 1983-1984 has prompted a continuous acceleration in the growth of total domestic employment, which reached nearly 4 per cent in 1989. This has been mainly attributable to the increase in demand for labour in market services, itself boosted since 1986 by demand in the building and civil-engineering sector. Manufacturing employment, on the other hand, has continued to decline, the brisk rate of job creation in new industries (14 per cent of all jobs created between 1983 and 1989) failing to offset the falls recorded in the steel sector. Incremental labour demand has been mainly satisfied by means of an inflow of cross-border workers (Diagram 1), whose share in total domestic employment reached 17.0 per cent in the first quarter of 1990. Also,

Diagram 1. LABOUR-MARKET DEVELOPMENTS
Change in thousands



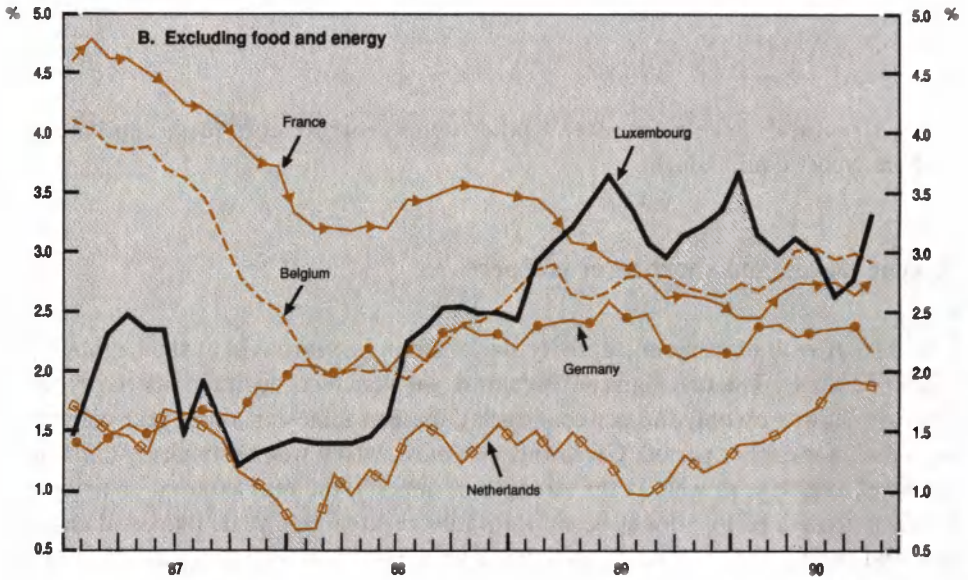
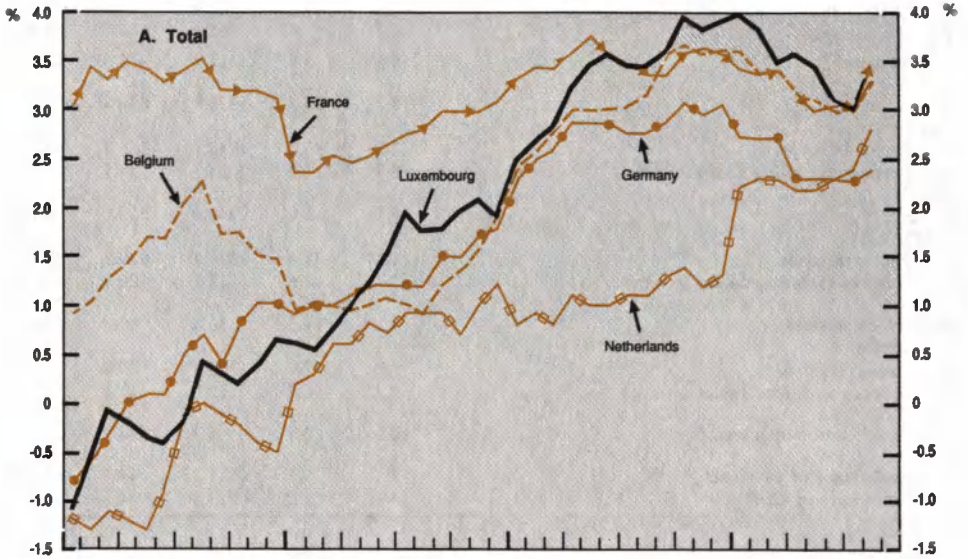
Source: STATEC.

the labour force has grown as a result of increased Luxembourgish participation in the labour market. It would seem that the female participation rate is rising in conjunction with an increase in part-time work⁷. Nonetheless, the participation rate in the Grand Duchy (61.9 per cent in 1988) is well below the average for OECD Europe (66.2 per cent). The unemployment rate, which was already very low, fell very slightly in 1989 to 1.4 per cent of the labour force.

With the consumer price index rising by 3.4 per cent in 1989, Luxembourg shared the experience of most of its main partners in seeing inflation accelerate, mainly because of the increase in import prices between 1987 and 1989. However, the trend was more marked than in its main neighbouring countries⁸, partly reflecting the pick-up in the underlying rate of inflation (excluding food and energy) in the Grand Duchy (Diagram 2) and, in particular, the rise in the prices of locally-produced goods and services (the increase having jumped from 1.7 to 4.4 per cent between 1987 and 1989). This phenomenon, which is also apparent in Belgium but to a lesser extent, would appear to have been prompted mainly by tight conditions in the labour market. Despite the substantial reserves of cross-border manpower at Luxembourg's disposal, because of the high level of unemployment in the French and Belgian border regions, these provinces have recorded sizeable falls in their numbers of jobseekers⁹. The effects of the tightening have been reflected in real wages which, on an hourly basis, rose by 2.7 per cent in industry in 1989, compared with 1.4 per cent the previous year. Although inflationary pressures are still moderate, automatic index-linking of wages solely to consumer prices, which was probably one of the reasons why the rise in prices between 1982 and 1987 slowed more quickly in Luxembourg than in the EC as a whole, could in the present context have the opposite effect, thereby constituting an impediment to economic performance. Inflation could deteriorate in comparison with that in Luxembourg's main competitors if labour-market strains were to increase or if the recent rise in oil prices were to endure.

Luxembourg's foreign-payments position in 1989 continued to evolve in line with trends established over the last fifteen years. At over 20 per cent of GDP, its current-account surplus remains extremely high (Table 3) and is attributable to the sustained increase in the balance of trade in services and, above all, factor incomes. This development, which is a reflection of the structural change the Grand Duchy has undergone since the early 1970s with the expansion of its financial market, has been accompanied by an ever-widening trade deficit. The growing surpluses recorded in a number of industrial sectors (metals, plastics and tyres, for example), mainly as a result of the government's diversification policy, have not offset the

Diagram 2. TREND OF CONSUMER PRICES
Change on the previous year



Source: OECD, *Main Economic Indicators*.

Table 3. Luxembourg's current balance of payments
LF billion

	1970	1975	1980	1985	1989 ¹
Exports of goods	42.5	65.3	87.9	168.1	212.8
Imports of goods	38.2	69.2	105.6	186.7	244.0
Trade balance	4.3	-3.9	-17.7	-18.6	-31.2
Exports of services	18.7	95.3	376.8	622.8	937.1
<i>of which:</i>					
Factor incomes	12.8	81.0	348.1	568.7	868.1
Services excluding factor incomes	5.9	14.3	28.7	54.1	69.0
Imports of services	15.2	81.0	340.0	555.6	841.0
<i>of which:</i>					
Factor incomes	11.5	73.4	326.3	529.3	804.7
Services excluding factor incomes	3.7	7.6	13.7	26.3	36.3
Balance on services	3.5	14.3	36.8	67.2	96.1
<i>of which:</i>					
Factor incomes	1.3	7.6	21.8	39.4	63.4
Services excluding factor incomes	2.2	6.7	15.0	27.8	32.7
Net private and public transfers	-0.5	-0.7	-1.7	-3.9	-6.5
Current balance of payments	7.3	9.7	17.4	44.7	58.4
<i>In percentage of GDP</i>	13.3	11.2	13.1	21.7	22.4

1. Provisional data.
Source: STATEC.

rising structural deficits for several other items (energy, agro-food, capital goods and transport equipment).

Recent trends and short-term prospects

The growth of economic activity slackened in Luxembourg at the beginning of 1990 (Table 4). The first signs of this slowdown were recorded in industrial production, which was up only 0.4 per cent during the first semester of the year compared with the year-earlier period. Given this weakness, which was particularly marked in the steel industry, as well as the strength of imports, the real external contribution to GDP growth will no doubt be substantially negative this year. Indeed, domestic-demand growth appears to be still brisk as a result of the strength in industrial investment (reported in business surveys), due in particular to the implementation of major investment projects by foreign firms. Growth of capital expenditure in the

Table 4. Short-term projections¹
Annual percentage changes, 1985 prices

	1989	1990	1991	1992
Private consumption	3.7	3.6	4.5	3.7
Public consumption	3.7	3.6	3.5	3.5
Gross fixed capital formation	13.4	13.0	7.4	4.8
Final domestic demand	6.0	5.9	5.1	3.9
Changes in stockbuilding ²	1.9	-1.0	-0.3	0.0
Total domestic demand	7.8	4.7	4.7	3.9
Foreign balance ²	-1.5	-2.0	-1.9	-0.8
Exports of goods and services	7.2	3.1	4.0	6.0
Imports of goods and services	8.8	4.9	5.6	6.6
GDP	6.1	2.6	2.8	3.1
Unemployment rate (level)	1.4	1.3	1.4	1.5
Consumer price index	3.4	3.7	4.2	3.8
GDP deflator	5.2	3.5	3.6	3.7

1. Standardised System of National Accounts definitions.

2. As a percentage of GDP in the previous period.

Source: OECD estimates.

public sector and in market services remains firm, while the construction boom is continuing, given that sector's well-filled order books early in the year. Activity in the financial sector was still buoyant in the first half of the year and should remain so, thus helping to create large numbers of jobs which are serving to bolster private incomes and consumption.

From around 2.6 per cent in 1990, real GDP growth could rise slightly to 2.8 per cent in 1991 and 3.1 per cent in 1992. The less-favourable external environment and the rise in interest rates in conjunction with the emergence of inflationary pressures caused by higher oil prices (assumed here to be \$27 per barrel in real terms) could slow the growth of investment and exports. However, exports will be supported in 1991, to the extent that new orders in the steel sector have been recovering somewhat through 1990, and should pick up in 1992 in line with an expected OECD-wide recovery. Nevertheless, export performance could be checked by a loss of competitiveness due to the already-observed effective appreciation of the franc. The increase in disposable income next year could be substantial due primarily to the tax reform and the granting to public servants of an end-of-year bonus equal to one-half of a month's salary. Private consumption should rise strongly in 1991, thereby bringing about a significant expansion in imports. The rise in prices, which had slowed somewhat during the first half of 1990 (the annual increase in the consumer price index declining from 4.0 to 3.0 per cent between

January and July 1990), may be expected to re-accelerate in 1991 because of the strains which will probably continue to affect the labour market, and also because of the oil-price rise, which should, however, be partly offset by the appreciation of the exchange rate. In 1992, however, inflationary pressures could abate after the oil-price shock is absorbed. The results are likely to remain satisfactory where unemployment is concerned; and the current surplus can be expected to fall appreciably next year as a result of the increase in the oil bill and the significantly greater buoyancy of domestic demand in Luxembourg than likely to be seen elsewhere.

II. Economic policy

Budgetary policy

The conduct of fiscal policy, traditionally prudent in Luxembourg, has been facilitated by the buoyancy of the economic climate since 1984. With the extra revenue generated by growth, the government has been able to achieve several objectives simultaneously. It has managed to keep the central-government budget in equilibrium, while at the same time carrying out an in-depth consolidation of the public finances: budgetary reserves have been replenished¹⁰ (these accounted for 2.5 per cent of GDP in 1989), while gross general-government debt, which was already very low compared with other countries, was reduced from 14.5 to 9.2 per cent of GDP between 1982 and 1989. Tax-relief measures totalling almost LF 12 billion (i.e. 5 percentage points of GDP) were introduced between 1985 and 1989; these helped to improve the profitability of Luxembourg firms (the rate of corporation tax was lowered from 40 to 34 per cent, for example) and to ease personal-income tax which in Luxembourg had been above the EC average. Public investment in both construction and civil engineering was stepped up with the object of developing the country's infrastructure¹¹. Lastly, following a period of austerity which ended in 1983-1984, civil-service salaries and certain transfer payments were raised quite substantially. These results are undeniably positive; on the other hand, despite the authorities' progress in reducing government aid to the private sector as a share of GDP more rapidly than in most other EC countries, its level is still high by comparison (see Table 13 in the accompanying *Survey* of Belgium). Taken together, these subsidies, which were particularly high in the case of the railways, manufacturing industry excluding steel, and no doubt agriculture too, accounted for 4.1 per cent of GDP, compared with the European Community average of 2.2 per cent.

As in previous financial years, the budget outturns for 1989 (Table 5) showed appreciable extra revenue (LF 8.7 billion, i.e. 3¼ per cent of GDP). The higher-than-forecast tax receipts served to fund public investment, particularly in telecom-

munications. The 1990 budget marked a temporary break in the process of tax reform and reduction, foreseeing a slight overrun on the public expenditure growth norm. That norm, according to which growth of public expenditure has to remain below projected nominal GDP growth for the current year, was not respected, despite expectations of robust growth of output (3½ per cent in real terms): expenditure is set to rise by 7.9 per cent in nominal terms, i.e.½ of a percentage point more than the norm set for 1990. With public consumption increasing moderately, it is transfers to households and local authorities and also investment which account for the bulk of the overrun. The final outcome should, however, as usual, show a surplus, estimated at LF 2.7 billion, which would increase budgetary reserves to some LF 9 billion. The available data for the first half of 1990 reveal a rapid increase in tax receipts, especially in the form of corporate-income and value-added tax.

The draft 1991 Budget, which is accompanied by a proposal for major changes in the tax system, shows as before a rise in spending (9.8 per cent, or nearly 7 per cent once adjusted for inflation) in excess of the annual target (7.2 per cent in nominal terms). This is in part explained by the rigidity of current expenditure, of which around two-thirds is linked to the increase in the consumer price index, and in part by the rapid rise in appropriations to finance expenditure by the social-security system in the form of sickness and old-age benefits (see the section below).

Table 5. **Central-government budget**
In LF billions

	1988 outturn	1989 budget voted	1989 provisional outturn	1990 budget voted	1991 draft budget
Ordinary budget					
Revenue	92.6	89.4	103.3	97.1	106.1
Expenditure	81.5	81.7	85.4	86.1	94.4
Balance	11.1	7.7	17.9	11.0	11.7
Extraordinary budget					
Revenue	0.1	0.1	0.2	0.1	0.1
Expenditure	10.9	8.2	17.6	8.3	9.3
Balance	-10.7	-8.0	-17.5	-8.2	-9.2
Total budget					
Balance	0.4	-0.3	0.4	2.8	2.5

Source: Ministry of Finance.

However, the steep growth of spending also reflects the authorities' determination to achieve specific targets: *i)* the growth of public investment, over 25 per cent in nominal terms, testifies to the effort to develop and improve the road system and maintain public buildings; *ii)* the almost 70 per cent increase (over LF 1 billion) in housing and town-planning appropriations is evidence of the authorities' active policy in this area; *iii)* next year's budget also provides for a substantial increase in aid to developing countries. Yet budget equilibrium is not to be endangered: even with the proposed tax reduction, tax-revenue growth should be sufficient to cover all expenditure including investment spending (which is presented in the extraordinary budget) and to produce a surplus of around LF 2.5 billion.

Other aspects of economic policy

The draft tax reform concerns only direct taxation. It is to come into force on 1st January 1991 and is to be accompanied by changes in the local-tax system at the beginning of 1992. The proposed changes, easing the tax burden by almost LF 13 billion in the 1991 tax year (4.4 per cent of GDP), with 70 per cent of the reduction going to households and 30 per cent to the business sector, reflect a twofold aim: first, to simplify, modernise and make fairer the different tax regimes; and, second, by reducing Luxembourg's tax rates, to take better account of the economy's limitations due to its small size in terms of both the adequacy of labour supply and the scope for developing new activities. Thus, the reduction in personal income tax, designed *inter alia* to encourage greater female participation in the labour force, could also help attract skilled foreign manpower. Major measures affecting households include the following: *i)* the top marginal tax rate is to be brought down from 56 to 50 per cent, the schedule of marginal rates is to be made linearly progressive, the number of tax bands is to be reduced from 25 to 18, and the solidarity tax on personal income from 5 to 2.5 per cent; *ii)* the tax-free allowance is to be raised substantially, and tax relief for dependent children is to be increased, particularly in the case of low-income families; *iii)* a tax regime favouring working couples is to be instituted; and *iv)* tax incentives for retirement-saving schemes and home ownership are to be enhanced¹². At the same time, the tax burden on company profits is to be eased, with corporation tax to be lowered from 34 per cent to 33 per cent and the rate of firms' solidarity contributions reduced from 2 to 1 per cent. In addition, the taxation of capital will be lowered significantly by the elimination of the *taxe d'abonnement* (annual tax paid by corporations for the privileges of limited liability) for all corporations except holding

companies and mutual funds. Finally, various reforms are to be introduced to boost investment and encourage economic diversification¹³.

This policy of diversification, to which the authorities attach a high priority, has produced extremely positive results in the past, encouraging as it did the development of the Luxembourg financial market. More recently, the emphasis has shifted towards strengthening industrial structures by setting up new activities with the object of ensuring that the economy has several independent growth poles. As a result, the means at the disposal of a number of institutions such as, for example, the Société Nationale de Crédit et d'Investissement¹⁴, will in future be increased. In addition, the rise in general-government capital expenditure, with the adoption of a multi-year investment plan and the introduction of the tax reform with effect from 1991 are measures aimed at providing a favourable economic climate for the establishment of new industries. Coupled with a promotion campaign abroad, these measures are directed mainly at the audio-visual sector where the government has awarded tax subsidies for the production of television programmes¹⁵, while audio-visual distribution has been encouraged by attaching a government guarantee to debts incurred in respect of a private telecommunications satellite.

The social-security system in Luxembourg

An overview

Luxembourg boasts a well-developed system of social protection dating back to the beginning of the century. While it has evolved to a substantial extent over the years, primarily through the extension of the range of benefits and inclusion of all demographic sectors, it is well-structured, transparent and, although generous, for the most part affordable, at least over the medium-term¹⁶. It is based to an important extent on the principle of solidarity between socio-economic groups and workers and the retired. Such solidarity is achieved through an equalisation of many benefits (except income-replacement transfers such as unemployment compensation and pension payments, both of which are based on insurance principles), a community of risks and a *de facto* indexation of benefits to changes in real wages and salaries. The system has several features in common with those of other neighbouring countries. First, it is managed by the social partners, even though the role played by the State is substantial. Second, the largest branch is already that of pensions (including disability pensions), despite the fact that the old-age pension scheme remains in its maturation phase (Table 6). As is projected for other

Table 6. Social security in Luxembourg

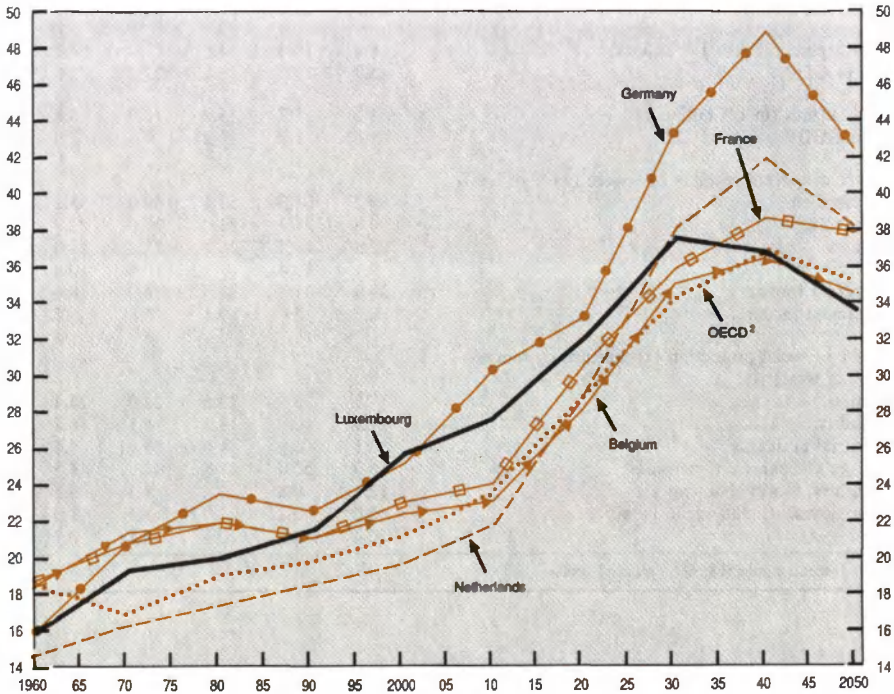
	1970	1975	1980	1985	1988	1989
Current receipts (in LF billions)	9.8	21.1	37.8	57.9	70.5	78.2
as % of GDP	17.5	22.2	25.3	24.6	24.6	24.7
Current expenditure (in LF billions)	8.8	19.4	34.6	52.0	64.7	70.7
as % of GDP	15.7	20.5	23.1	22.2	22.6	22.4
Current surplus (in LF billions)	1.0	1.7	3.2	5.9	5.8	7.5
as % of GDP	1.8	1.7	2.2	2.4	2.0	2.4
Structure of current receipts by source (as % of total)						
Contributions	61.2	61.3	58.4	59.0	55.2	55.5
Households	24.8	24.2	23.0	25.6	22.9	22.9
Business	27.3	26.7	24.1	22.8	22.0	22.7
Government	9.1	10.4	11.3	10.6	10.4	9.9
Budgetary transfers	29.9	31.1	32.5	34.2	38.6	37.7
Investment income	8.9	7.6	9.1	6.8	6.2	6.8
Structure of social protection expenditure by function (as % of total)						
Sickness	17.7	23.1	23.6	24.0	24.4	24.7
Invalidity	11.9	10.9	13.1	16.1	16.4	15.9
Industrial accidents	7.1	5.9	4.0	3.9	3.5	3.3
Old-age and survivors' pensions	50.9	50.0	47.8	44.6	44.5	43.9
Maternity, family, housing	12.1	9.8	9.4	9.3	9.5	10.7
Unemployment, placement, mobility	0.0	0.2	2.0	1.4	1.0	0.8
Other	0.4	0.1	0.1	0.8	0.7	0.8

Source: Inspection générale de la sécurité sociale.

Member countries, it is in this domain that the future growth of spending will be greatest due to an ageing population (Diagram 3). Third, an increasing share of expenditure has been devoted to health due to the aforementioned process of population "greying"¹⁷, the "luxury-good" nature of health care (an income elasticity in excess of unity), improvements in medical technology and the increasing stress of modern life. Finally, the importance of benefit payments resulting from industrial accidents has been diminishing in line with the sectoral shift in employment toward the tertiary sector.

The system is also marked by several distinguishing characteristics. The most important of these is the partially-funded nature of the pension system: a surplus of some 2 per cent of GDP is accumulated each year in order to keep reserves at an actuarially sound level. Second, the public old-age pension system is remarkably generous: for private-sector workers, for example, average retirement pensions for those having contributed for forty years were over 90 per cent of average wages and

Diagram 3. **OLD-AGE DEPENDENCY RATIOS¹**
IN OECD COUNTRIES



1. Population 65 and over/population from 15 to 64.
2. Unweighted average.

Sources: OECD, *Labour Force Statistics and Ageing Populations, The Social Policy Implications*, 1988.

salaries received by their active counterparts in 1988 (compared to about 70 per cent in France, for example, for 37½ years of contributions, even if complementary pension payments are included). A third noteworthy trait is the diminutive significance of the unemployment-insurance system, resulting, not surprisingly, from the lack of any appreciable level of unemployment. The unique combination of a small population and a central location has allowed “cross-border” or “frontier” workers to play an especially important buffering role in the domestic labour market (Table 7). This, along with a history of periodic episodes of substantial immigra-

Table 7. Frontier workers: some basic statistics
In thousands

	1979	1982	1985	1988	1989	1990 Q1
A. Non-residents working in Luxembourg	12.8	14.1	16.1	24.3	28.6	31.5
As % of domestic employment	8.1	8.9	10.0	13.9	15.7	17.0
B. Residents working abroad	0.5	0.5	0.5	0.5	0.5	0.5
As % of national employment	0.3	0.3	0.3	0.3	0.3	0.3
C. Employees of international organisations	5.8	6.9	7.4	8.1	8.3	8.3
As % of national employment	3.9	4.6	4.8	5.1	5.1	5.1
Net frontier workers (A-B-C) ¹	6.5	6.7	8.2	15.7	19.8	22.7
As % of domestic employment	4.1	4.2	5.1	9.0	10.9	12.2

Non-residents working in Luxembourg in 1989

Geographic origin		Sex		Sector	
France	45	Male	72	Industry	37
Belgium	38	Female	28	of which: Steel	13
Germany	17			Construction	14
				Trade	20
				Financial	15
				Other	14

Their role in the tax and social-security systems

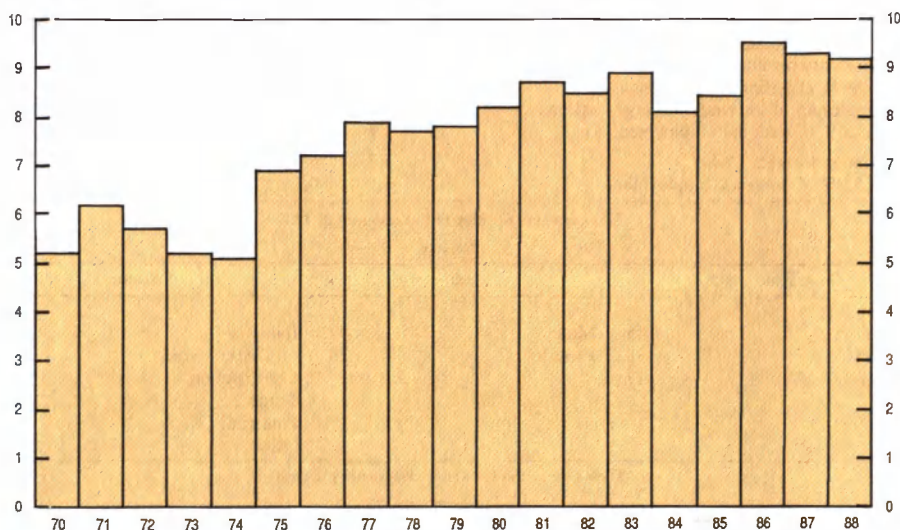
	In LF millions				
	1970	1975	1980	1985	1987
Contributions by non-residents	383	1 190	2 002	3 194	4 351
Direct taxes paid by non-residents	129	463	738	1 164	1 619
Social benefits paid to non-residents	n.a.	817	1 483	2 361	3 052
Net implicit short-term transfer received from non-residents	n.a.	836	1 257	1 997	2 918
As % of GDP	n.a.	0.9	0.8	0.9	1.1

1. Employees of international organisations are considered to be residents who work for non-resident employers and are accordingly subtracted from the official definition of net frontier workers. However, one could view them as non-residents working in Luxembourg which would raise the share of so-defined non-residents to 22.5 per cent of (redefined) domestic employment in 1990 Q1.

Sources: STATEC and Inspection générale de la sécurité sociale.

tion, has implied that the number of contributors to the system is relatively independent of purely domestic demographic factors, and that, while a substantial portion (nearly one quarter) of all pensions are paid to non-residents, there has been nonetheless a substantial transfer from non-residents to the Luxembourg treasury. Fourth, Luxembourg has recently introduced a variety of new and innovative family-allowance benefits: a minimum-guaranteed-income scheme in 1986 and a payment to mothers of children under two who stay at home or work at low-paying jobs in 1989, for example. A fifth and final feature which is somewhat

Diagram 4. **PUBLIC CONTRIBUTIONS TO THE SOCIAL-SECURITY SYSTEM**
Per cent of GDP¹



1. National definition.
Source: STATEC.

unusual is the steady increase over the longer term in budgetary transfers both in relation to total financing as well as to GDP (Diagram 4). This has been made possible by the overall healthy state of Luxembourg's economy and its history of prudent fiscal policy.

The pension system

Luxembourg's public pension system comprises two regimes: a contributing scheme for the 85 per cent of the labour force working in the private sector and a non-contributing plan for public servants and employees of the State railroad. The latter is particularly generous, granting pensions worth five-sixths of the final salary with no ceiling: allowing for the rising level of compensation with age, pensioners stand to earn more than working public servants. In addition, the normal value of a

full pension for a public servant at the lowest grade is nearly 80 per cent of the maximum pension entitlement for those covered by the contributing regime, while the highest is over twice that level. The budgetary burden is also onerous: nearly one out of every three francs devoted to personnel expenditure is in the form of pensions. The goal of the authorities to limit to a certain extent the increase in pension expenditure has resulted, after negotiations to set civil-service remuneration, in an agreement to pay a half-month's additional salary to active public servants but not to those already retired.

For the contributing scheme, there has been a community of risks among farmers, self-employed, manual workers and employees since 1985 and a unique regime since 1988. The 1985 reform also introduced a new funding system with contribution rates to be fixed for seven-year periods and reserves to be kept to a floor of two years' worth of pension payments (nearly 20 per cent of GDP). The employer, the insured party and the State each contribute 8 per cent of wages up to a ceiling of four times the minimum wage (see Annex Table A2)¹⁸. The right to an old-age pension is extended to those over 65 who have contributed for at least ten years, as well as to those over 60 with a history of 40 years of contributions. Retirement pension values include both a fixed and a variable component; the latter is determined by duration of contributions as well as their level, but someone who contributes at the ceiling for 40 years is entitled to a pension equal to 69 per cent of the discounted value of his average lifetime insured earnings. Voluntary complementary schemes exist for some of those earning above the ceiling set for the public scheme. Their existence has been largely limited to the financial sector due to a hitherto adverse fiscal system; however the draft 1991 budget allows tax relief on premiums for private schemes. While private pensions are often indexed neither to real wages nor to prices, all social-security benefits (pension payments and others) as well as wages and salaries are automatically indexed for inflation, although with a variable lag: whenever the consumer price index rises by at least 2½ per cent, there is an equal increase in the value of benefits. In addition, there is a system of semiautomatic increases in the real value of public pensions based on the historic growth of real labour incomes; while the legal requirement is for such increases to take place at least every five years, the *de facto* frequency is in fact every two years. For this reason, in 1991, pension benefits had been expected (prior to the recently announced changes – see below) to rise by 2.3 per cent based on real earnings growth during the two years to 1988.

As has been the case with most OECD member countries' pension systems, expenditures have tended to rise relative to GDP over the longer term due to the maturation of the schemes as well as their increasing generosity. This process of

maturation is reflected in the ratio of the number of pensioners to workers which rose from 32.9 per cent in 1960 to 49.1 per cent in 1988 (Table 8). In the case of Luxembourg, this medium-term trend had been interrupted in the early to mid-1980s by the arrival at retirement age of the generation which had been subject to both a low birth rate during World War I as well as military service in World War II. This effect has now run its course, and the upward trend in the burden of pensions has resumed. Of the per cent average annual increase in total pension payments from 1970 to 1988, over three-quarters was due to the growth in

Table 8. The pension account
In LF billions

	1960	1970	1975	1980	1985	1988	1989
Current receipts							
Contributing regime		4.7	9.5	16.6	25.0	30.9	35.4
Of which: contributions		n.a.	n.a.	10.2	14.8	18.0	20.1
Current expenditure							
Non-contributing regime ¹		1.6	3.5	6.1	8.7	10.3	10.9
As % of GDP		2.8	3.7	4.1	3.7	3.6	3.4
Contributing regime ²		3.8	7.9	14.6	20.9	25.6	28.3
As % of GDP		6.8	8.3	9.8	8.9	8.9	9.0
As % of base subject to contributions			18.9	22.8	22.6	22.8	22.6
Total		5.4	11.4	20.7	29.6	35.9	39.2
As % of GDP		9.6	12.0	13.9	12.6	12.5	12.4
Net State budget contribution							
Non-contributing regime		1.1	2.7	4.4	6.5	7.5	8.0
As % of GDP		2.0	2.8	3.0	2.8	2.6	2.5
As % of State ordinary expenditure		9.6	11.3	11.1	10.3	9.2	9.4
Contributing regime				4.6	7.4	9.6	10.9
As % of GDP				3.1	3.2	3.3	3.4
As % of regime's current receipts				27.7	29.8	31.2	30.9
Total				9.0	13.9	17.4	18.9
As % of GDP				6.0	5.9	6.1	6.0
As % of State ordinary expenditure				22.7	22.0	21.3	22.1
Ratio of pensioners to workers (in per cent)							
Non-contributing regime	57.6	60.1	60.9	61.4	59.9	59.7	59.2
Contributing regime	29.3	40.7	42.8	48.6	49.7	48.0	47.4
Total	32.9	42.8	44.7	50.0	50.8	49.1	48.6
End-year reserves							
Contributing regime				26.8	41.0	56.3	63.4
As % of GDP				18.0	17.5	19.6	20.1
As multiple of annual pension payments				2.0	2.2	2.4	2.5

1. Employees of the State, communes and public railroad.

2. Other sectors than¹.

Sources: Inspection générale de la sécurité sociale and OECD estimates.

average pension values and less than one-quarter to the rise in the number of pensions. Wage and salary inflation accounted for some two-thirds of the former, with uprating and structural effects explaining the remainder.

While contributions have also grown rapidly over the years, they have not quite kept pace with the trend in expenditures, thereby necessitating the increase in the State contribution rate: over the 1980s the share of the contributing regime's current receipts attributable to State budgetary transfers has increased from 27.7 to 32.0 per cent. However, once account is taken of an offsetting decline in the cost of the non-contributing regime over the past decade, due to the aforementioned age-structure effect, the overall budgetary burden has been rather more stable. The third major source of financing for the contributing regime is the interest income earned on reserves. These reserves are invested in approximately equal proportions in public debt, industrial enterprises and subsidised residential mortgages and yield under 7 per cent per annum. The appropriateness of the last category is dubious, as it is unlikely that the advantages of cheaper mortgages for a select few¹⁹ offset the costs of higher contribution rates for all. During the 1980s, the authorities looked beyond the temporary age-structure effect and set the overall contribution rate sufficiently high so as to assure a rising trend of reserves in relation to GDP. The surprisingly strong growth of real output and employment over the last few years has also yielded unexpectedly buoyant increases in contributions and consequently in reserves.

In addition to old-age and survivors' pensions, the two regimes are also responsible for disability pensions. These have mushroomed in importance in recent years (an increase of over 40 per cent in the decade to 1988 to 9½ per cent of the labour force) and now represent nearly one-sixth of total social-security expenditure (3.7 per cent of GDP). Once disability pensions are taken into account the average Luxembourgish "retires" or at least begins to receive a public pension at age 55. This subtraction from available labour supply may prove to be increasingly costly in the years to come.

While the old-age dependency ratio will rise much more in Luxembourg in the coming decade than elsewhere in the OECD (Diagram 3) and despite an absence of any increase in contribution rates since 1976, the strength of job creation as well as better returns on reserves than had been anticipated should allow the maintenance of current contribution rates when they will be reset in 1992 for a further seven years without excessively endangering the level of reserves: end-1998 reserves should be in the range of 1.7 to 2.2 years of expenditure. Over the longer term, however, the given set of contribution rates will not suffice to maintain equilibrium.

The most recent official projections, published in 1988, showed a need for increases in the overall contribution rate to 35 per cent by 2030 under then-existing legislation and assuming no change in the number of contributors. However, in order to move towards the equalisation of private- and public-sector pensions, the authorities have just decided to treat the 7 per cent increase granted in 1987 as an advance on future increases based on real earnings growth as a structural increase in pension levels. A further structural increase of 5 per cent is also to be granted, as is a shortening of the delay in revaluing pensions from three to two years which represents a further boost of over 5 per cent, rather than the 2.3 per cent foreseen. Thus, despite the generosity of the existing system, both in absolute terms and by international standards, pensions will benefit from increases on the order of 10 per cent on 1st January 1991. In addition, the age at which early-retirement pensions are granted is expected to be lowered to 57 under certain conditions.

Although real rates of return on reserves will undoubtedly exceed the 1 per cent per year rate assumed in the 1988 projections, and while the assumption of stagnation in the number of contributors may now appear unduly cautious²⁰, with these revised benefit levels, the contribution rate would have to rise to about 28 per cent in 1999, and the peak required rate could well reach 38 or 39 per cent. The risks involved in such a strategy are substantial. In an extremely open economy it is clear that employers' contribution rates are unlikely to be raised without harming employment prospects. Similarly, employee-rate increases would no doubt also engender both political and economic difficulties. Even if it is decided to raise the ceiling on contributions to five times the minimum wage²¹, the State will still bear a large share of the financial burden of the change, as contributions are tax deductible and the State bears one-third of the burden in any case. It would therefore appear that such further increases in generosity of the already munificent public-pension system would not be in keeping with Luxembourg's tradition of fiscal responsibility. In addition, it might harm the dynamic potential of the private sector by limiting its willingness to take entrepreneurial risks.

The health-insurance system

Health insurance in Luxembourg is provided by nine different accounts, but all except the one dealing with farmers have shared a community of risks since 1978, and a draft reform is in preparation to merge them. Benefits are paid in cash for the replacement of workers who are unable to work due to illness and maternity and for funeral costs, and in kind for ambulatory and hospital care. Average reimbursement is at about a 95 per cent rate for hospital expenses, 85 to 90 per

cent for out-patient treatment costs and between 85 and 100 per cent for prescription drugs. As has been observed throughout the western world, demands on the health system have been almost insatiable – a variant of Say's Law²². Benefits paid soared from 4.6 per cent of GDP in 1975²³ to 5.9 per cent in 1989, a compound annual rate of over 5 per cent in real terms (Table 9). Nevertheless, they remain moderate by international standards (see Table 26 of the accompanying *Survey of Belgium*). Contributions have also climbed rapidly, but “only” by about 3½ per cent in real terms, in line with GDP. As a result, the ratio of contributions to benefits has declined steadily from 78.4 per cent in 1975 to 63.2 per cent most recently. The difference has been paid by the State: its financial contribution rose from 21 per cent of the total revenues of the health-insurance regime in 1975 to 39 per cent in 1989, at the same time as its subsidies to the health-insurance system have doubled to over 8 per cent of its ordinary expenditure.

With a view to braking the increasingly onerous budgetary burden of spiralling health costs, a major reform of the system was undertaken in 1983: the contribution rate was increased for benefits in kind by 0.2 percentage points, the ceiling was increased from 4 to 5 times the minimum wage, patient participation was introduced, doctors' fees were cut and pharmacists were required to grant 5 per cent price reductions to the social-security system. However, while health-expenditure growth was indeed reduced by the 1983 measures, their impact was only

Table 9. The health-insurance account
In LF billions

	1970	1975	1980	1985	1988	1989
Benefits paid						
In cash	0.2	1.3	1.6	2.3	2.8	3.0
In kind	1.1	3.1	6.3	9.6	12.9	14.5
Total	1.3	4.4	7.9	11.9	15.7	17.5
As % of GDP	2.4	4.6	5.3	5.1	5.6	5.9
Contributions received	1.3	3.4	5.4	8.2	9.9	n.a.
As % of GDP	2.3	3.6	3.6	3.5	3.6	n.a.
Ratio of contributions to benefits (in %)	96.2	78.4	68.5	69.0	63.2	n.a.
Total State budget contribution	0.1	1.0	2.6	4.1	6.1	7.0
As % of GDP	0.2	1.0	1.7	1.7	2.2	2.4
As % of total current receipts	7.0	20.9	31.1	32.0	37.2	38.6
As % of State ordinary expenditure	0.9	4.0	6.4	6.4	7.5	8.2
Share of pensioners and their families in benefits paid in kind	34.8	37.4	43.0	44.3	47.0	n.a.

Sources: Inspection générale de la sécurité sociale and OECD estimates.

temporary, and benefits in kind have since resumed their climb at a double-digit pace. Accordingly, the authorities are in the process of completing the details of a draft reform which would cap the State budgetary contribution as of 1991 at about 40 per cent of the account's current receipts, that is at the 1990 level. Thus, in effect the social partners would share the burden of rising health-care costs with the State, as is currently the case for pensions and family allowances. In addition, the contribution rate would rise by about $\frac{1}{2}$ a percentage point, split equally between employers and the insured party, in order to arrest the ongoing rise in the account's cumulative deficit (which is likely to reach LF 1 billion by the end of this year).

A more substantial reform, to take effect somewhat later, would involve more fundamental changes in the way health services are offered. A key objective would be to render both suppliers and demanders of medical services more responsible for their costs. For example: *i*) as in Germany and in Belgium, hospitals may be financed by a system of envelopes in order to enhance the efficiency of their administration; *ii*) patients may be given a personal medical-history document which would inform practitioners of previous treatment; *iii*) lists of equivalent medicines may be provided to doctors in order to urge them to prescribe the cheapest medicines with identical effects, and maximum prices may be set for certain products (Luxembourg having no indigenous production of pharmaceuticals); and *iv*) lump-sum reimbursement for certain maladies may be introduced. The authorities should also consider instituting a global envelope system for doctors' fees. As well, ways of providing more care outside of hospitals should be examined. Finally, consideration should be given to a system of paying doctors, at least in part, by the illness rather than by the act.

Provisions for unemployment and early retirement

Another branch of Luxembourg's system of social protection is that of unemployment and early retirement (Table 10). Unemployment compensation began only in 1975; benefits are paid at the rate of 80 per cent of insured earnings (which are capped at $2\frac{1}{2}$ times the minimum wage) and are financed by the "solidarity tax" on personal incomes and on business profits (5 and 2 per cent of income tax payable in 1990, respectively). Since 1978, there has also existed an early retirement scheme, initially designed to reduce the level of employment in the steel sector. It offers retirement three years prior to the normal age (which is usually 60), with a pension equal to an average of 80 per cent of pre-retirement salary. Since then, it has been extended to other sectors in need of adjustment, and now represents an annual expenditure of nearly LF 2 billion per year (about 0.7 per cent

of GDP). This scheme, previously intended to be a temporary measure to deal with a problem of structural adjustment, would be rendered permanent by a draft law currently under consideration. However, this would appear to involve an infringement on the equity of the system, since eligibility is limited to those working in certain sectors; it would therefore seem desirable to have a greater contribution from employers and employees in the relevant sectors in order to eliminate the "solidarity tax". In any case, it would represent a further subtraction from labour supply which would necessitate even greater recourse to frontier and immigrant workers.

Table 10. Unemployment and early-retirement benefits
In LF millions

	1975	1980	1985	1988
Unemployment	39.0	238.4	661.9	514.2
As % of State ordinary expenditure	0.2	0.6	1.0	0.7
As % of GDP	0.0	0.2	0.3	0.2
Early retirement	0.0	500.8	2 053.6	2 369.3
As % of State ordinary expenditure	0.0	0.9	3.0	3.2
As % of GDP	0.0	0.3	0.9	0.9
Total	39.0	739.2	2 715.5	2 883.5
As % of State ordinary expenditure	0.2	1.5	4.0	3.9
As % of GDP	0.0	0.5	1.2	1.1

International comparison
Benefits as % of GDP in 1988

	Unemployment	Early Retirement	Total
Luxembourg ¹	0.3	0.7	1.0
Belgium	2.3	0.8	3.0
France	1.3	0.7	2.0
Germany	1.3	0.0	1.3
Italy	0.4	0.3	0.7
Netherlands	2.6	0.0	2.6
United Kingdom	0.9	0.0	0.9

1. 1987.

Sources: Inspection générale de la sécurité sociale and OECD, *Labour market policies for the 1990s*, Paris, 1990, Table 14.

III. Conclusions

On virtually all fronts Luxembourg has again achieved excellent outcomes in 1989. Economic growth was vigorous, job creation rapid and inflation moderate, a performance that compares favourably with that of most other Member countries. Yet the expansion has begun to show signs of maturity. Demand increases in 1990 have begun to be concentrated on current consumption and less on external sources. Earlier this year inflation became briefly uncoupled from rates achieved by Luxembourg's principal trading partners. Domestic labour shortages and resulting wage pressures have increased in recent quarters, with over 80 per cent of new jobs having to be filled by cross-border workers. In the wake of the recent substantial jump in the price of crude oil, the near-term outlook for the Luxembourg economy is not quite so bright. For instance, real output growth next year, at 2½ per cent, could fall appreciably short of inflation for the first time since 1983 as export volumes and capital formation slacken. Price rises, which had receded from the 4 per cent rate early in 1990, look set to approach that pace again, given the complete indexation of wages and salaries. But, while the overall outlook is less rosy than it has been for some time, even with some deterioration results are likely to remain superior to those of most of its principal trading partners.

The Luxembourg authorities have wisely used the recent years of affluence to cut tax rates, pay off what limited debt they had, replenish budgetary reserves and increase public investment in order to provide an efficient economic infrastructure. They have also taken the steps necessary to ensure a suitably diversified structure of production. This year has seen the clearest benefit of that strategy, as the overall economy has been able to shake off the downturn in the steel industry. Yet there are areas of concern. Foremost among these is the exceedingly large boost to domestic demand implied by the draft 1991 Budget. The proposed tax reform would appear to be a move in the right direction, but may place an excessive amount of purchasing power in the hands of households, leading to possible inflationary pressures, which should however be attenuated by an upsurge in imports. While planned expenditures already exceeded the norm set based on projected

nominal income growth in 1990, albeit by only a few tenths of a per cent, the excess growth implied by this year's draft budget, which allows for an increase of nearly 7 per cent in real terms, is substantial. Much of the pressure on spending emanates from the social-security system, and it is there that the risks resulting from an absence of restraint are the most serious.

Luxembourg boasts a well-developed and -structured system of social protection. Like other aspects of the public finances, it has a tradition of prudence, evidenced by its substantial surpluses and the resulting reserves, which surpass 20 per cent of GDP. Over the medium term, however, it will be subject to a number of dangers. Most of these relate to the ramifications of the demographic outlook. Luxembourg has been able to transcend the limits of its small resident population by relying on immigrants and commuter labour from neighbouring countries. However, such cross-border workers are not in unlimited supply. Problems resulting from the ageing of the resident population will deepen, even if only slowly. Of course, as elsewhere, the burden of health expenditure will intensify. Also, there are currently nearly half as many pension recipients as contributors to the social-security system. In the light of the nation's reputation for industriousness, the preponderance of disability pensions is a surprising feature and a hardly justifiable subtraction from limited available supplies of labour. But even more important, measures – such as the recently announced increases – to standardise public pension systems in the civil service and the private sector by boosting the generosity of the latter to the excessive level of the former risks raising expectations beyond the economy's ability to deliver. Over the years, budgetary transfers have already needed to cover an expanding share of the costs of this and other social expenditure. Yet, the increases in contribution rates implied by recent decisions are of an order of magnitude unlikely to be sustainable without imperilling the solid foundation upon which Luxembourg's small open economy now rests.

Notes and references

1. Having exceeded 10 per cent in 1988, growth of crude-steel production in Luxembourg was only 1.6 per cent in 1989.
2. This is mainly explained by the slow growth of the steel industry's capital expenditure in 1989 - the pivotal year in the implementation of the ARBED group's five-year investment plan.
3. A detailed study of Luxembourg's financial sector is contained in the previous *Survey of Luxembourg*.
4. Deregulation making the domestic capital market more accessible for transactions in Luxembourg francs was introduced on 1st July 1990. This liberalisation measure, which should attract new issuers and subscribers, both domestic and foreign, abolished all the constraints on LF-denominated securities issues (which had hitherto involved ceilings on the overall magnitude of issues and a floor on the size of their individual units). Also, the calendar system, which could have been one of the reasons that more than one year was needed to float a public loan issue, was annulled.
5. The share of refinancing with the non-bank sector for Euromarket transactions by Luxembourg banks reached 36.2 per cent of their total liabilities in 1989 (against 14.7 per cent in 1983). The share of profits on commissions accounted for 12.4 per cent of banks' gross income (compared to 5.3 per cent in 1983), while that of interest margins had fallen to 71.8 per cent from 82.5 per cent six years earlier.
6. Of this LF 30 billion, 13 billion is earmarked for the steel sector and 2 billion for better protection of the environment, while 15 billion is to be invested in equal parts in R&D and computerisation, ARBED subsidiaries and industrial diversification.
7. For example, the share of female employment in the banking sector in Luxembourg rose from 41.9 per cent in 1974 to 46.7 and then 49.1 per cent in 1983 and 1989. Also, the fall in per capita compensation in this sector in 1988, coupled with the sharp increase in employment, would suggest that the jobs created are not all full-time.
8. The trend of the consumer price index understates the actual rate of inflation in Luxembourg. The index grew by approximately 1 point per year less than the private consumption deflator between 1980 and 1988, perhaps in part because it has been calculated since 1985 on the basis of fixed weights dating from 1977 (previously the

- weighting system was based on 1963-1964 family budgets). In line with the system of five-yearly revisions adopted, the weights are due to be updated in 1991, with the base period becoming 1986-1987.
9. The unemployment rate fell in Lorraine from 11.3 per cent in the first quarter of 1987 to 9.3 per cent in the fourth quarter of 1989. In Belgium, the number of fully unemployed in receipt of benefit in the province of Luxembourg fell by almost 24 per cent between 1987 and 1989. Although there are still large numbers of jobseekers, particularly in Lorraine (where there are some 90 000 jobless, while cross-border employment rose by only 4 000 in 1989), compared with the needs of the Luxembourg labour market, the supply of labour with the requisite skills and the necessary mobility to meet this demand is probably much more limited.
 10. These reserves had been almost entirely exhausted in 1983 because of the need to finance measures to fight unemployment and aid to the steel industry.
 11. After falling from 6.3 to 4.6 per cent of GDP between 1980 and 1984, general-government investment climbed to 5.1 per cent of GDP in 1989.
 12. Other changes in the personal tax system include a proposal to study the possibility of abandoning the system of compulsory joint taxation of married couples in favour of optional separate taxation beginning in 1993. In addition, the tax treatment of capital gains on fixed property is to be tightened.
 13. Among the reforms to stimulate investment may be cited: *i*) the ability to carry forward losses indefinitely (at present there is a five-year limit); *ii*) the possibility of avoiding future capital-gains tax on real property by anticipatory investment; and *iii*) tax incentives for environmental investment in the form of more favourable treatment of depreciation. The authorities have also proposed reforms designed to create more propitious conditions for company groups in Luxembourg. Finally, proposals have been made to eliminate a certain number of questionable additions to the tax base for the communal commercial taxes both on operating profits as well as on operating capital.
 14. The SNCI is a public banking institution set up in 1977. It grants capital-equipment credits, medium- and long-term loans and export credits. Also, it can take holdings in industrial and commercial enterprises. The action it takes is designed to provide backing for investment and export operations of general interest to the country.
 15. A law to provide tax incentives to attract venture-capital investment in audio-visual production was passed in 1988.
 16. While social-security contributions are slightly greater in Luxembourg in relation to GDP than in the average of other OECD countries, they represent a smaller share of output than in its major European partner countries, and the gap has been widening since it first appeared in 1984 (see Annex Table A1). In addition, the share of overall tax revenues attributed to the social-security system is lower than in other partner countries except the United Kingdom – see OECD, *Revenue statistics of OECD Member countries 1965-1988*, Paris, 1989, p.204.
 17. In 1988, pensioners consumed 3.2 times as much medical care as non-pensioners in Luxembourg.

18. Prior to the 1985 reform, the State's contribution had been less than 7 per cent of the wage bill subject to contributions. The State also pays one half of the regime's administrative costs.
19. Only contributors to the white-collar employees' regime are eligible for such subsidised mortgages.
20. Not only has the birth rate recently recovered somewhat (1.51 in 1988, the highest since 1981), but net immigration in the three years to 1988 averaged over 2000 per year compared with the 0, 500 and 1000 figures used as variants in the latest official projection – see "Projections de la population luxembourgeoise 1987-2030", *Bulletin du Statec*, XXXIV, 7, 1988.
21. Such a change in the ceiling, by temporarily raising reserves, would appear to entail a risk of encouraging policy makers to grant further increases in pension values. Such increases would imply an intergenerational transfer from today's workers to pensioners which would violate the thus-far-respected principle that benefits should correspond to contributions.
22. The theory of "supplier-induced demand" is due to R.G. Evans ("Supplier-induced demand: some empirical evidence and implications" in M. Perlman (ed.), *The Economics of Health and Medical Care*, Macmillan, London, 1974). It may be argued that, as with the case of urban motorways, supply creates its own demand. In the case of Luxembourg's medical system, the number of non-specialist doctors increased from 1975 to 1986 at an average annual rate of 3.9 per cent, but the number of doctors per thousand population remains low in comparison with other OECD countries. However, Luxembourg has a very high level of hospital beds per capita (see Table 27 of the accompanying *Survey of Belgium*).
23. Comparisons have been made with 1975 rather than 1970 because of the important reform of 1974 when the State took over the payment of maternity and various other benefits.

Annex I
Supplementary tables

Table A1. Social-security contributions as a percentage of GDP

	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988
A Total											
Luxembourg	8.6	11.6	12.0	12.0	11.5	11.7	11.2	11.2	11.1	11.4	10.9
France	12.7	15.0	17.8	17.8	18.3	18.9	19.2	19.3	18.9	19.2	19.2
Germany	10.0	12.0	13.1	13.3	13.5	13.4	13.6	13.9	14.0	14.1	14.0
Italy	9.9	12.0	11.5	11.4	12.3	12.5	12.0	11.9	12.4	12.4	12.4
United Kingdom	5.6	7.1	7.7	8.0	8.3	8.2	8.3	8.6	8.6	8.7	8.8
Belgium	10.7	13.1	13.2	13.5	13.6	14.1	14.9	15.3	15.5	15.6	15.2
Netherlands	13.2	16.8	17.4	18.0	18.9	21.0	20.0	19.9	19.6	20.6	20.4
<i>Unweighted average</i>											
EEC	7.8	9.7	10.7	10.9	11.3	11.7	11.6	11.7	11.7	11.9	11.7
OECD ¹	6.5	8.4	9.4	9.6	9.9	10.1	10.0	10.1	10.2	10.4	10.4
B Employers'											
Luxembourg	4.6	6.4	6.6	6.5	6.2	6.0	6.0	6.0	6.0	6.1	5.8
France	9.3	10.8	11.9	11.9	12.1	12.4	12.4	12.5	12.1	12.1	12.0
Germany	5.3	6.6	7.0	7.2	7.3	7.1	7.1	7.2	7.2	7.2	7.1
Italy	-	9.7	8.6	8.6	8.9	8.9	8.5	8.5	8.8	8.7	8.9
United Kingdom	3.0	4.0	4.6	4.7	4.8	4.9	5.0	5.1	5.0	5.0	5.1
Belgium	6.9	8.4	8.4	8.3	7.7	8.0	8.5	9.0	9.1	9.4	9.3
Netherlands	6.2	7.7	8.2	8.1	8.0	8.3	7.9	8.0	8.1	8.4	8.1
<i>Unweighted average</i>											
EEC	4.6 ²	6.3 ³	6.4	6.5	6.5	6.6	6.6	6.7	6.7	6.8	6.7
OECD ¹	3.7 ²	5.3 ³	5.8	5.9	5.9	5.9	5.9	5.9	6.1	6.1	6.1

1. Excluding Iceland, Australia and New Zealand.

2. Also excluding Greece and Italy.

3. Also excluding Greece.

Source: OECD, *Revenue Statistics of OECD Member countries*, 1965-1989, 1990.

Table A2. Summary table of principal contributions

	Total rate	Insured person	Employer	Government	Floor	Ceiling
Pensions	24.0	8.0	8.0	8.0	Min. wage ¹	4 x min. wage
Health						
Blue-collar	8.7	4.35	4.35	—	Min. wage ¹	5 x min. wage
White-collar	4.86	2.425	2.425	—	Min. wage ¹	5 x min. wage
Public servants	4.7	2.35	2.35	—	Min. wage ¹	5 x min. wage
Self-employed (other than farmers)	4.9	4.9	—	—	Min. wage ^{1,3}	5 x min. wage ³
Farmers	3.5-6.5% of min. wage	3.5-6.5% of min. wage	—	—		
Pensioners	4.7	2.35	2.35	—	Min. wage ¹	5 x min. wage
Unemployed	4.7	2.35	2.35	—	Min. wage ¹	5 x min. wage
Family						
Dependent employees	1.7	—	1.7	—	Min. wage ^{1,4}	4 x min. wage
Self-employed (other than farmers)	0.6	0.6	—	—	Min. wage ^{1,4}	4 x min. wage
Accidents	0.5-6.0	—	0.5-6.0	—	Min. wage ¹	4 x min. wage
Unemployment ²	—	—	—	—	—	—

1. LF 31 389 per month.

2. Financed by taxes viz. "Impôt de solidarité".

3. Based on their "class" which is determined by income and land.

4. Except for those under 18.

Source: Inspection générale de la sécurité sociale, *Rapport général sur la sécurité sociale 1988*, October 1989.

Annex II

Calendar of main economic events

LUXEMBOURG

1989

July

The Parliament adopts a new law imposing criminal penalties on those who contribute to any operation of placing, concealment or conversion of the proceeds of an infringement of the legislation regulating the sale of drugs.

September

Presentation of draft budget for 1990 to Parliament. Total revenue is estimated at LF 97.1 billion, and expenditure amounts to LF 94.4 billion. The Government plans to suspend tax cuts for 1990, reduce the public debt, set up a reserve to finance the tax reform planned for 1991, increase by 20 per cent appropriations for public investment and increase expenditure of a social nature.

The Luxembourg Monetary Institute prepares a circular aimed at the total liberalisation of the Luxembourg capital market, notably by abolishing the system of the issuing calendar, the liberalisation of public bond issues denominated in Luxembourg francs and the removal of certain restrictions relating to the launching of private bond loans. This financial reform is to come into force on 1st July 1990.

Adoption of a draft law extending the early-retirement scheme. The State's contribution is raised from 50 to 70 per cent and several technical changes are made to the legislation.

1990

March

Adoption of a draft law with sanctions for insider trading and plans to set up a stock-exchange commission to supervise the market.

June

Adoption of a new consumer price index which will come into force at the beginning of next year. The number of items composing the index will be increased, in particular items representing the health services, while tobacco and cigarettes will be removed from the list of reference items. Rent will have a heavier weight in the index.

September

The Government presents the 1991 draft budget which estimates total receipts amounting to LF 106.2 billion and expenditures of LF 103.7 billion.

STATISTICAL ANNEX

Belgium – Selected background statistics

	Average 1980-89	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
A. Per cent changes from previous year											
Private consumption ¹	1.3	1.9	-0.9	1.4	-1.6	1.1	2.0	2.7	2.9	2.4	3.6
Gross fixed capital formation ¹	1.1	4.6	-15.9	-2.0	-4.5	1.8	0.6	4.4	5.2	16.0	14.3
Public investment ¹	-5.6	3.0	-8.4	-8.8	-3.2	-11.3	-11.2	-7.7	-3.9	0.8	-6.9
Residential ¹	-1.3	-1.2	-41.6	-5.8	-1.6	-0.4	4.6	4.6	7.6	22.3	22.0
Non-residential ¹	4.4	8.7	-4.2	1.5	-5.8	6.6	2.5	7.0	6.2	16.6	14.9
GDP ¹	1.8	4.1	-0.9	1.5	0.4	2.1	0.9	1.8	2.0	4.3	4.2
Implicit price index:											
of GDP	4.5	3.7	4.8	7.1	5.6	5.4	6.0	3.5	2.0	1.9	3.8
of exports of goods and services	4.8	9.2	9.3	13.1	7.3	8.0	2.9	-8.1	-3.7	2.8	6.8
of imports of goods and services	5.1	13.7	13.9	13.4	7.4	8.0	2.1	-12.2	-4.3	2.7	6.8
of total domestic demand	4.6	6.6	7.9	7.5	5.6	5.4	5.5	0.6	1.3	1.7	3.4
Industrial production	1.3	-1.4	-2.7	0.0	2.0	2.4	2.4	1.0	2.1	6.0	3.6
Employment	-0.1	-0.1	-1.9	-1.3	-1.0	-0.2	0.6	0.7	0.5	1.5	1.3
Compensation of employees (current prices)	5.0	8.6	5.3	5.1	3.4	6.9	5.4	4.7	2.8	3.2	6.3
Productivity (GDP ¹ / employment)	1.9	4.3	1.0	2.8	1.4	2.2	0.3	1.1	1.5	2.8	2.9
Unit labour costs (compensation / GDP ¹)	3.2	4.2	6.3	3.6	3.0	4.7	4.5	2.8	0.8	-1.0	2.0
B. Percentage ratios											
Gross fixed capital formation as % of GDP at constant prices	16.4	19.6	16.7	16.1	15.3	15.3	15.2	15.6	16.1	17.9	19.7
Stockbuilding as % of GDP at constant prices	0.1	0.9	-0.2	0.1	-0.5	0.6	-0.7	-0.3	0.3	0.6	0.7
Foreign balance as % of GDP at constant prices	-0.4	-5.6	-1.7	-0.9	2.0	1.8	2.1	0.8	-0.8	-0.9	-1.7
Compensation of employees as % of GDP at current prices	56.0	58.8	59.6	57.6	56.2	55.9	55.1	54.7	54.0	52.5	51.6
Direct taxes as per cent of household income	14.9	14.9	14.6	15.6	15.0	15.3	15.3	14.8	14.7	14.2	13.4
Household savings as per cent of disposable income	13.7	16.2	16.2	13.6	14.7	13.4	11.1	13.1	11.9	13.3	14.1
Unemployment as per cent of civilian labour force	11.3	7.9	10.2	11.9	13.2	13.2	12.3	11.6	11.3	10.3	9.3
C. Other indicator											
Current balance (BLEU) (billion dollars)	-0.2	-4.9	-4.2	-2.4	-0.4	0.0	0.7	3.1	2.7	3.5	3.8

1. At constant 1985 prices.

Source: OECD estimates.

Table A. Belgium – Gross domestic product¹

Fr. billion

	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Current prices								
Private consumption	2 397.8	2 622.6	2 761.5	2 958.7	3 198.3	3 303.1	3 463.9	3 608.8	3 874.7
Public consumption	696.6	734.2	756.9	792.4	849.1	881.4	893.2	899.8	930.1
Gross fixed capital formation	644.8	672.3	668.2	708.8	741.0	783.6	836.4	969.1	1 154.1
Change in stocks ²	-4.4	8.2	-25.7	19.4	-32.7	-21.6	11.6	29.5	31.6
Total domestic demand	3 734.9	4 037.2	4 160.8	4 479.0	4 755.7	4 937.5	5 208.0	5 504.1	6 002.5
Exports of goods and services	2 286.2	2 640.0	2 923.6	3 336.6	3 479.1	3 366.9	3 476.7	3 899.9	4 498.0
Less: Imports of goods and services	2 356.9	2 693.9	2 863.7	3 276.9	3 379.0	3 187.0	3 334.1	3 719.4	4 320.4
Gross domestic product at market prices	3 664.2	3 983.3	4 220.7	4 538.7	4 855.8	5 117.4	5 350.6	5 684.6	6 180.1
	1985 prices								
Private consumption	3 108.1	3 151.3	3 101.3	3 135.5	3 198.3	3 281.6	3 382.2	3 478.1	3 611.2
Public consumption	841.8	828.4	828.1	829.0	849.1	864.0	871.1	867.2	860.7
Gross fixed capital formation	772.3	756.9	722.6	735.7	741.0	774.8	819.8	929.4	1 055.6
Change in stocks ²	-9.5	7.2	-24.5	28.1	-32.7	-23.5	16.7	29.0	41.4
Total domestic demand	4 712.7	4 743.8	4 627.5	4 728.3	4 755.7	4 896.9	5 089.8	5 303.7	5 568.9
Exports of goods and services	3 081.8	3 147.9	3 248.3	3 433.0	3 479.1	3 666.3	3 926.7	4 281.4	4 605.6
Less: Imports of goods and services	3 161.3	3 190.8	3 156.1	3 345.9	3 379.0	3 628.0	3 965.8	4 302.8	4 679.0
Gross domestic product at market prices	4 633.2	4 700.9	4 719.7	4 815.4	4 855.8	4 935.2	5 050.7	5 282.3	5 495.5

1. Includes a statistical discrepancy.

2. Includes adjustment in connection with gross fixed capital formation.

Source: OECD, *National Accounts*.

Table B. Belgium – Income and expenditure of households and private non-profit institutions
Frs. billion

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Compensation of employees	2 079.0	2 158.4	2 287.8	2 395.3	2 542.6	2 671.8	2 814.0	2 880.6	2 995.2	3 152.8
Income from firms received by individuals	397.1	408.0	432.0	462.4	493.8	521.7	568.2	594.7	660.8	727.5
Household property income	434.6	519.4	600.7	662.4	753.4	839.2	880.6	918.3	973.2	1 095.6
Current transfers from government	734.6	825.0	889.2	959.2	1 010.1	1 054.2	1 088.1	1 140.2	1 163.8	1 230.5
Current transfers from the rest of the world	20.9	24.0	27.0	29.3	31.4	36.5	33.2	39.4	50.7	58.7
Household income	3 666.2	3 934.8	4 236.7	4 508.6	4 831.3	5 123.4	5 384.1	5 573.2	5 843.7	6 265.1
<i>Less:</i> Direct taxes	541.8	567.7	655.3	667.8	732.9	776.2	791.9	809.8	818.3	821.6
Social security contributions by wage-earners and self-employed	437.7	464.7	505.2	557.5	635.1	698.8	744.1	792.0	823.6	859.1
Current transfers to the rest of the world	31.8	39.3	38.1	38.5	41.4	44.0	42.8	43.8	49.2	57.0
Disposable income	2 654.9	2 863.1	3 038.1	3 244.8	3 421.9	3 604.4	3 805.3	3 927.6	4 152.6	4 527.4
Household savings	430.0	465.2	415.5	483.3	463.2	406.0	502.2	463.7	543.8	652.7

Source: Service d'Études et de Documentation du Ministère des Finances, *Note de conjoncture*.

Table C. Belgium – Income and expenditure of enterprises

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 ¹
	Billion francs									
1. Gross operating surplus before subsidies	358	331	406	545	647	755	826	860	999	1 109
2. Subsidies	50	55	53	58	66	69	71	61	74	77
3. Gross operating surplus (1 + 2)	408	386	459	604	714	824	897	921	1 073	1 186
4. Net property income payable	79	60	57	155	193	211	191	188	250	252
5. Gross primary income (3 - 4)	329	326	402	449	522	613	706	733	823	934
6. Current transfers paid to government	90	88	113	115	133	148	157	164	178	182
7. Disposable income (5 - 6)	240	239	289	334	389	464	549	569	645	752
8. Capital transfers received	99	131	132	145	114	145	117	111	87	69
9. Capital resources (7 + 8)	339	370	417	479	505	608	696	710	751	821
10. Gross capital formation	335	305	349	315	402	377	414	479	585	695
11. Net lending (9 - 10)	3	65	71	164	101	232	252	201	148	126
	Percentage of GNP									
Gross operating surplus	11.6	10.6	11.7	14.5	15.9	17.2	17.7	17.4	19.1	19.6
Disposable income	6.8	6.6	7.3	8.0	8.7	9.7	10.8	10.8	11.5	12.4
Capital resources	9.7	10.2	10.6	11.5	11.2	12.7	13.7	13.5	13.4	13.6
Gross capital formation	9.6	8.4	8.9	7.6	8.9	7.9	8.2	9.1	10.4	11.5
Net lending	0.1	1.8	1.8	3.9	2.2	4.8	5.0	3.8	2.6	2.1

1. Estimates.

Source: Banque Nationale de Belgique, *Rapport 1989*.

Table D. **Belgium – Government revenue and expenditure**
Frs. billion

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Current revenue	1 293.6	1 303.1	1 435.6	1 485.8	1 630.7	1 717.6	1 738.2	1 870.7	1 947.7	2 008.2
Income from property and firms	20.4	27.4	41.4	18.1	28.4	36.2	28.9	34.9	36.1	55.5
Less: Interest on public debt	-211.5	-285.2	-362.3	-391.2	-441.6	-510.5	-569.6	-562.4	-572.8	-639.1
Indirect taxes	412.1	437.6	478.6	513.1	535.4	560.7	578.1	617.3	658.0	722.6
Direct taxes on households	541.8	567.6	655.3	667.8	732.9	776.2	791.9	809.8	818.3	821.6
Social security contributions by wage-earners and self-employed	437.7	464.7	505.2	557.5	635.1	698.8	744.1	792.0	823.6	859.1
Direct taxes on companies	89.7	87.5	112.9	115.0	132.7	148.4	156.6	164.3	177.7	182.0
Current transfers from the rest of the world	3.4	3.4	4.5	5.5	7.8	7.8	8.2	14.8	6.8	6.5
Current expenditure	1 454.5	1 608.9	1 715.3	1 814.6	1 903.9	1 999.4	2 071.4	2 140.2	2 197.5	2 296.3
Public consumption	643.6	696.6	734.2	756.9	792.4	849.1	881.4	893.3	899.8	930.1
Subsidies	50.3	55.3	53.4	58.4	66.4	69.4	73.0	59.6	72.9	69.9
Social security transfers to wage-earners and self-employed	655.7	734.8	797.7	866.6	907.4	943.2	976.8	1 021.8	1 037.6	1 093.2
Other current transfers (net) to households	78.9	90.2	91.5	92.6	102.7	111.0	110.3	118.4	126.2	137.3
Current transfers to the rest of the world	26.0	32.0	38.5	40.1	35.0	26.7	28.9	47.1	61.0	65.8
Savings of general government	-160.9	-305.8	-279.7	-328.8	-273.2	-281.8	-333.2	-269.5	-249.8	-288.1

Source: Service d'Études et de Documentation du Ministère des Finances, *Note de conjoncture*.

Table E. Belgium – Area breakdown of foreign trade
Millions US \$

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Exports, fob										
World	64 499	55 476	52 406	51 842	51 704	53 667	68 731	83 038	91 990	99 992
OECD	54 969	46 482	44 297	43 784	43 636	45 612	59 804	73 070	80 753	87 101
EEC	46 314	38 809	36 979	36 279	35 628	37 061	49 038	59 739	65 751	70 599
Germany	13 718	11 148	10 719	10 964	10 195	9 972	13 561	16 463	17 877	18 895
France	12 522	10 650	10 161	9 444	9 525	10 179	13 763	16 979	18 372	20 406
Netherlands	9 801	8 202	7 433	7 380	7 202	7 645	10 323	12 481	13 543	13 711
United Kingdom	5 471	4 778	5 062	5 107	5 126	5 251	5 980	6 991	8 581	9 393
Italy	3 562	2 819	2 643	2 421	2 656	2 921	4 010	5 291	5 722	6 371
USA	2 160	2 345	2 306	2 667	3 137	3 402	3 640	4 319	4 577	4 815
Other	6 495	5 328	5 012	4 838	4 872	5 149	7 126	9 011	10 425	11 687
Non-OECD	9 044	8 414	7 573	7 541	7 632	7 605	8 371	9 345	10 628	12 152
COMECON	1 347	1 142	926	1 104	963	1 085	1 049	1 077	1 171	1 277
OPEC	2 986	2 928	2 323	2 075	1 913	1 715	1 600	1 482	1 515	1 650
Other	4 710	4 343	4 324	4 363	4 756	4 805	5 723	6 787	7 942	9 225
Unspecified	486	580	536	516	436	450	555	623	609	739
Imports, cif										
World	71 679	61 852	57 829	54 097	55 252	56 049	68 617	83 304	92 296	98 452
OECD	58 003	49 455	46 381	45 975	45 937	47 584	59 899	72 587	80 296	84 384
EEC	45 255	37 887	36 527	36 457	36 918	38 177	48 569	58 950	65 621	68 551
Germany	14 094	11 702	11 568	11 383	11 012	11 789	15 877	20 242	22 554	23 156
France	10 356	8 488	8 039	7 745	8 082	8 457	10 872	13 066	14 202	14 684
Netherlands	11 737	10 447	10 179	9 977	10 377	10 229	12 257	14 287	16 385	17 315
United Kingdom	5 787	4 607	4 070	4 697	4 843	5 014	5 727	6 542	7 044	7 765
Italy	2 572	2 086	2 080	2 023	1 978	2 002	2 910	3 547	3 928	4 174
USA	5 493	4 439	4 067	3 530	3 326	3 185	3 463	3 955	4 092	4 537
Other	7 254	7 129	5 788	5 988	5 693	6 223	7 867	9 683	10 583	11 297
Non-OECD	13 626	12 368	11 408	8 083	9 031	8 237	8 567	10 381	11 941	14 011
COMECON	1 656	1 461	1 861	1 546	2 252	1 689	1 553	1 865	1 874	1 799
OPEC	6 588	6 177	4 880	2 363	2 312	1 841	1 837	2 150	2 329	2 945
Other	5 382	4 730	4 666	4 175	4 467	4 707	5 177	6 366	7 738	9 267
Unspecified	50	29	40	39	284	228	151	336	59	57

Source: OECD, *Foreign Trade Statistics, Series A*.

Table F. Belgium - Commodity breakdown of foreign trade

Millions US \$

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Exports, fob	56 083	63 960	55 238	51 747	51 676	50 968	53 316	68 649	82 951	92 313
SITC sections										
0. Food and live animals	4 593	5 347	5 274	5 025	4 576	4 757	4 624	6 116	7 460	7 775
1. Beverages and tobacco	356	404	388	408	402	375	415	544	686	672
2. Crude material, inedible, except fuels	1 586	1 669	1 506	1 352	1 339	1 497	1 490	1 716	2 077	2 449
3. Mineral fuels, lubricants and related materials	3 580	5 369	5 021	4 507	4 370	4 068	3 535	3 388	3 148	3 233
4. Animal and vegetable oils and fats	231	233	254	254	264	387	423	343	337	384
5. Chemicals	6 644	7 422	6 477	6 173	6 216	6 449	6 882	8 597	10 444	13 016
6. Manufactured goods classified chiefly by material	19 246	22 054	17 603	15 746	15 950	15 972	16 560	20 533	24 444	30 014
7. Machinery and transport equipment	12 930	13 919	12 093	11 866	11 668	10 757	12 429	17 784	22 447	23 853
8. Miscellaneous manufactured articles	3 754	4 465	3 887	3 661	3 756	3 709	3 883	5 377	6 753	7 056
9. Others	3 162	3 077	2 733	2 756	3 134	2 997	3 075	4 250	5 154	3 861
Imports, cif	60 186	71 186	61 448	57 367	53 654	54 386	55 561	68 025	82 598	91 883
SITC sections										
0. Food and live animals	5 919	6 434	5 851	5 736	5 094	5 184	4 973	6 272	7 335	8 044
1. Beverages and tobacco	768	837	678	655	648	621	641	840	1 027	1 047
2. Crude material, inedible, except fuels	4 296	5 172	4 476	3 864	4 010	4 056	4 169	4 282	5 221	6 153
3. Mineral fuels, lubricants and related materials	8 580	12 393	12 560	11 956	9 501	10 232	9 323	7 284	7 739	6 696
4. Animal and vegetable oils and fats	351	323	293	283	272	365	353	290	273	334
5. Chemicals	5 376	5 972	5 235	5 144	5 184	5 437	5 735	7 119	8 698	10 613
6. Manufactured goods classified chiefly by material	13 585	15 786	12 145	11 326	11 115	11 386	11 442	14 876	17 976	22 155
7. Machinery and transport equipment	14 740	16 044	13 245	12 501	12 150	11 773	12 976	19 129	24 431	21 991
8. Miscellaneous manufactured articles	5 423	6 136	5 066	4 723	4 390	4 229	4 515	6 481	8 469	9 392
9. Others	1 148	2 088	1 898	1 179	1 289	1 102	1 434	1 452	1 429	5 458

Source: OECD, Foreign Trade Statistics, Series C.

Table G. Belgium - BLEU Balance of payments
Millions US \$¹

	1979	1980	1981	1982	1983	1984	1985	1986 ³	1987	1988
Exports, fob ²	51 291	57 137	50 585	48 013	47 612	48 006	48 719	62 168	79 220	88 489
Imports, fob ²	55 419	62 138	54 646	50 904	48 836	48 843	48 910	61 022	78 430	86 612
Trade balance	-4 128	-5 001	-4 061	-2 891	-1 224	-837	-191	1 146	790	1 877
Services, net	2 047	1 378	1 174	1 711	1 954	1 674	1 588	2 932	3 478	3 462
Balance on goods and services	-2 081	-3 623	-2 887	-1 180	730	837	1 397	4 078	4 268	5 339
Private transfers, net	-345	-376	-412	-241	-180	-173	-125	-215	-115	46
Official transfers, net	-624	-937	-889	-991	-982	-708	-579	-759	-1 384	-1 857
Current balance	-3 050	-4 936	-4 188	-2 412	-432	-44	693	3 104	2 769	3 528
Long-term capital (excluding special transactions)	-150	3 394	3 880	2 455	-262	-50	-54	-3 762	-1 245	-2 877
a) private	-1 081	919	1 365	322	-624	-1 390	-735	-3 480	-498	-2 597
b) official	931	2 475	2 515	2 133	362	1 340	681	-282	-747	-280
Basic balance	-3 200	-1 542	-308	43	-694	-94	639	-658	1 524	651
Non-monetary short-term private capital	-1 283	-1 976	-2 956	-810	-252	-237	-520	-770	246	1 221
Non-monetary short-term official capital	307	571	1 220	1 037	68	253	-747	1 222	977	2 657
Errors and omissions	-379	352	-746	-260	-409	-165	-125	206	56	-139
Balance on non-monetary transactions	-4 555	-2 595	-2 790	10	-1 287	-243	-753	0	2 803	4 390

1. Exchange rate: 1979: 1\$ = 29.31BF; 1980: 1\$ = 29.25BF; 1981: 1\$ = 37.14BF; 1982: 1\$ = 45.70BF; 1983: 1\$ = 51.13BF; 1984: 1\$ = 57.76BF; 1985: 1\$ = 59.43BF; 1986: 1\$ = 44.69BF; 1987: 1\$ = 37.34BF; 1988: 1\$ = 36.77BF.

2. Including commission processing and non-monetary gold.

3. Figures have been revised from 1986 on.

Source: OECD estimates.

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STRUCTURAL ANNEX

Belgium – Structure of output and performance indicators

	1970	1980	1985	1986	1987	1988	1989	1970	1980	1985	1986	1987
	Share of GDP							Share of total employment				
A. Structure of output (constant prices)												
Agriculture, hunting, forestry and fishing	2.6	2.1	2.3	2.4	2.1	2.2	2.1	4.4	2.8	2.7	2.6	2.5
Mining and quarrying	1.5	0.6	0.5	0.4	0.4	0.3	0.3	1.4	0.8	0.7	0.6	0.6
Manufacturing	22.2	21.7	23.1	22.6	22.6	22.9	23.0	34.6	27.7	25.3	24.8	24.3
Electricity, gas and water	1.9	3.5	3.6	3.5	3.7	3.6	3.6	0.9	0.9	0.9	0.9	0.9
Construction	8.0	7.6	5.2	5.3	5.3	5.6	5.8	8.2	7.8	5.7	5.7	5.7
Tradeable services ¹	40.0	39.1	39.2	39.8	40.2	40.0	39.7	18.9	20.0	20.1	20.0	20.2
Non-tradeable services ²	13.4	14.1	15.3	15.5	15.7	16.2	17.0	18.6	24.6	28.4	28.9	29.9
Total market sector	89.6	88.7	89.2	89.5	90.0	90.7	91.5	86.9	84.5	83.7	83.6	84.0
Non-market sector	13.2	14.3	14.0	14.0	13.7	13.2	12.8	13.1	15.5	16.3	16.4	16.0
	Share of total investment							Productivity growth				
B. Economic performance (constant prices)												
Agriculture, hunting, forestry and fishing	2.3	2.1	2.4	2.5	2.6	2.1	1.9	5.2 ³	5.8 ⁴	-0.2	6.6	-5.1
Mining and quarrying	0.6	0.4	0.5	0.5	0.2	0.4	0.3	0.2 ³	-2.7 ⁴	-0.6	-10.0	12.3
Manufacturing	20.4	14.5	21.3	22.7	23.1	23.6	25.9	5.4 ³	5.4 ⁴	1.9	0.6	3.9
Electricity, gas and water	5.5	5.5	6.5	5.3	4.6	3.9	3.7	10.6 ³	1.2 ⁴	5.4	-0.5	7.2
Construction	2.3	1.7	1.7	1.9	1.8	2.4	2.6	2.6 ³	0.1 ⁴	0.2	2.6	2.5
Tradeable services ¹	46.4	52.4	48.4	48.4	49.5	49.4	49.3	2.5 ³	1.6 ⁴	1.5	2.6	2.4
Non-tradeable services ²	3.2	5.4	6.2	7.1	7.6	8.4	8.8	0.7 ³	1.1 ⁴	-3.3	0.6	0.1
Total market sector	80.7	82.0	87.1	88.3	89.4	90.2	92.6	3.4 ³	2.2 ⁴	0.3	1.4	2.1
Non-market sector	18.9	18.0	12.9	11.7	10.6	9.8	7.4	2.4 ³	-0.5 ⁴	2.3	0.5	1.9
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
C. Other indicators (current prices)												
R & D as % of value added in manufacturing sector	3.1	...	3.2	...	3.8	...	4.1	...	4.5	4.8	5.0	5.0
Total R & D expenditure as % of total GDP	1.3	...	1.3	...	...	...	1.6	1.6	1.7	1.8	1.8	1.8
Government-funded R & D as % of total	...	...	32.0	...	...	...	33.4	31.8	31.6	31.4	30.4	28.7
Breakdown of R & D workforce by size of establishment ⁵ :												
0 to 99							14.9	14.3	13.4	14.1	15.9	17.3
100 to 499							15.4	14.8	14.9	15.0	18.3	18.7
500 to 999							11.0	11.1	10.9	10.8	8.8	9.1
More than 1 000							58.7	59.9	60.8	60.1	57.1	54.9
Total Workforce							100.0	100.0	100.0	100.0	100.0	100.0
							18 393	18 762	20 107	21 363	22 062	22 044

- Wholesale and retail trade, restaurants and hotels, transports, storage and communications, finance, insurance and real estate affairs.
- Business services, community, social and personal services.
- 1970-79 average.
- 1980-84 average.
- In persons-years.

Sources: Bureau du Plan; OECD, *Annual National Accounts and Main Science and Technology Indicators*.

Belgium – Labour market indicators

	A. Trend						
	Peak	Trough	1985	1986	1987	1988	1989
Standardised unemployment rate	1982: 12.6	1970: 2.1	11.3	11.2	11.0	9.7	8.1
Unemployment rate							
Total	1983: 13.2	1970: 2.1	12.3	11.6	11.3	10.3	9.3
Male	...	...	7.1	6.9	7.0	6.7	6.0
Female	...	...	16.1	16.1	15.6	13.1	12.0
Youth ¹	...	...	34.3	33.9	32.6	24.2	22.2
Share of long-term unemployment ²	1988: 77.5	1975: 35.9	69.8	70.5	74.9	77.5	...
Unfilled vacancies (thousands)	1970: 23.8	1977: 3.4	18.3	17.7	14.7	21.6	23.3
	B. Structural and institutional features						
	1970	1980	1985	1986	1987	1988	1989
Labour force (% change)	0.7 ⁶	0.4 ⁷	-0.5	-0.1	0.2	0.3	0.5
Participation rate ³							
Overall	62.0	63.0	62.0	61.8	61.8	62.0	62.4
Male	84.4	78.9	74.6	73.6	73.0	72.5	...
Female	39.8	47.0	49.3	49.9	50.6	51.4	...
Employment/population from 15 to 64 years	60.8	58.0	54.3	54.6	54.8	55.6	56.6
Employers, self-employed and family workers (as % of total)	18.3	16.2	17.6	17.7	17.7	17.7	17.6
Employees (as % of total)	81.7	83.8	82.4	82.4	82.3	82.3	82.4
Civilian employment by sector (% change)							
Agriculture	-4.0 ⁶	-2.1 ⁷	-0.9	-1.8	-1.9	-2.9	...
Industry	-1.8 ⁶	-3.7 ⁷	-1.5	-1.2	-2.0	-0.5	...
Services	1.9 ⁶	0.6 ⁷	1.6	1.7	1.7	2.5	...
Of which: General government	3.3 ⁶	0.9 ⁷	1.7	2.7	-2.9	1.6	...
Total	0.2 ⁶	-0.9 ⁷	0.6	0.7	0.5	1.5	...
Civilian employment by sector (as % of total)							
Agriculture	4.9	3.2	3.1	3.0	3.0	2.8	...
Industry	42.6	34.7	30.2	29.6	28.9	28.3	...
Services	52.5	62.1	66.7	67.4	68.2	68.9	...
Of which: General government	14.0	19.2	20.7	21.1	20.4	20.4	...
Total	100.0	100.0	100.0	100.0	100.0	100.0	...
Non-wage labour costs ⁴	13.4	13.8	15.8	15.8	16.6	16.7	...
Unemployment insurance benefits ⁵	48.0 ⁸	34.1	28.6	30.8	31.2	32.4	...

1. 15-24 years old.

2. People looking for a job for one year or more as a percentage of total unemployment.

3. Labour force as a percentage of the corresponding population aged between 15 and 64 years.

4. Employers' social-security contributions as a percentage of total wages.

5. Unemployment benefits per unemployed worker compensated as a percentage of compensation per employee.

6. 1970-1979 average.

7. 1980-1984 average.

8. 1975 figure.

Sources: Bureau du Plan; INS, *Annuaire statistique de la Belgique*; OECD, *Labour Force Statistics, Main Economic Indicators* and OECD estimates.

Belgium – Public sector

	1960	1970	1980	1985	1986	1987	1988	1989
Budgetary indicators: general-government accounts (% of GDP)								
Primary receipts (excluding interest)	26.3	34.3	42.1	45.1	44.5	44.8	43.7	41.9
Primary expenditure (excluding interest)	27.4	33.3	44.5	43.1	42.1	41.5	40.1	38.3
Primary budget balance	-1.1	1.0	-2.4	2.0	2.4	3.3	3.6	3.6
Net interest (including net capital transfers)	...	-3.1	-6.8	-10.8	-11.4	-10.5	-10.3	-10.1
General-government budget balance	...	-2.1	-9.2	-8.8	-9.0	-7.2	-6.7	-6.5
Structure of expenditure and taxes (% of GDP)								
General-government expenditure	28.4	33.0	47.3	51.7	51.6	50.5	48.7	47.5
Transfers	11.4	14.7	21.6	22.3	21.8	22.2	21.5	21.0
Subsidies	1.3	1.3	1.4	1.4	1.4	1.1	1.3	1.1
General expenditure:	12.8	13.7	18.3	17.5	17.2	16.7	15.8	15.0
Education	3.9	5.2	6.9	6.6	6.4	6.1	5.8	5.6
Tax receipts	27.6	35.5	43.5	46.5	45.8	46.2	45.0	43.1
Personal income tax	5.3	8.6	15.3	15.9	15.4	15.1	14.3	13.2
Corporate tax	1.1	2.4	2.5	3.0	3.0	3.0	3.1	2.9
Social-security contributions	7.2	10.8	13.2	15.4	15.5	15.8	15.4	14.8
Consumption taxes	10.3	12.5	11.4	11.4	11.0	11.4	11.1	11.0
Of which: Value added tax	...	7.4 ¹	7.3	7.3	7.1	7.2	7.2	7.2
Other indicators								
Income tax elasticity	...	2.4 ¹	0.6	1.0	0.4	0.5	0.2	0.1
Income tax as % of total tax	19.1	24.2	35.2	34.2	33.6	32.7	31.6	30.6
Gross general-government debt (as % of GDP)	...	67.5	79.9	122.7	127.2	131.7	133.7	130.8
Net general-government debt (as % of GDP)	...	52.6	69.2	112.2	116.7	121.1	123.0	120.5
Tax rates (%)								
Personal income tax rates			Prior to			After		
Top rate			72	1st January 1989		55		
Lower rate			17	1st January 1989		25		
Number of brackets			13	1st January 1989		7		
Corporate tax rates			43	1st January 1990		41 ²		
VAT rates								
Lower rate			6	1st January 1983		6 ³		
Standard rate			16	1st January 1983		19		
Top rate			30	1st January 1983		33		

1. 1971 figure.

2. As of 1st January 1991, this rate will be lowered to 39 per cent.

3. 1 per cent for gold investment.

Sources: Bureau du Plan; OECD, *Annual National Accounts and Revenue Statistics of OECD Member Countries*.

Belgium – Financial markets

	1970	1975	1980	1985	1986	1987	1988	1989
Sector size								
Sectoral employment ¹ / total employment	...	...	1.8	2.0	2.0	2.1	2.1	...
Non-financial agents' financial flows / GDP	10.9	15.6	18.4	17.3	16.2	16.9	20.7	23.8
Non-financial agents' financial assets / GDP	13.6	16.2	13.9	17.3	20.0	18.3	21.4	23.7
Stock-market capitalisation / GDP	23.6	15.7	9.0	22.3	29.5	25.8	38.6	43.3
Density of banking network ²	33.0	35.9	39.0	38.0	37.0	36.7	36.5	...
Structure of financial flows								
Share of intermediated financing in total financing ³	73.0	65.5	48.5	49.9	70.0	61.6	57.6	57.2
Financial institutions' share of financial assets	67.7	85.1	48.4	57.8	56.5	55.3	39.5	39.9
Securities issues in financial flows of non-financial agents	28.8	39.2	51.8	91.7	71.2	55.3	49.0	35.3
Structure of private non-financial sector's portfolio⁴:								
Deposits	47.6	63.9	36.5	33.2	51.6	46.5	24.1	37.6
Bonds and bills	40.1	35.4	58.5	47.0	23.3	27.0	44.3	25.0
Equities	10.9	4.6	0.3	2.1	8.6	5.1	3.1	18.2
Non-financial corporate financial structure:								
Equity	...	40.2 ⁵	37.4	52.1	56.6	58.0	57.3	...
Short term-debt: Securities	...	...	...	...	...	...	...	...
Other	...	62.0 ⁵	61.8	63.9	66.9	65.1	66.5	...
Long-term debt: Bonds	...	6.4 ⁵	9.5	8.7	7.3	6.2	3.9	...
Other	...	31.6 ⁵	31.8	27.5	25.7	28.6	29.6	...
Internationalisation of markets								
Foreign business of the banking sector⁶:								
Assets	30.6	38.4	46.8	53.6	52.5	51.1	52.4	50.8
Liabilities	37.6	43.6	56.1	64.2	63.3	62.2	63.6	62.1
International banking network:								
Foreign banks in Belgium ⁷	26.0	40.0	51.0	57.0	60.0	58.0	58.0	60.0
Belgian bank branches abroad	...	...	...	...	...	...	146.0	...
Share of cross-border transactions:								
Net purchases of foreign securities by residents ⁸	25.9	25.6	11.7	33.9	62.0	58.9	44.2	66.0
Net purchases of domestic securities by non-residents ⁹	19.0	9.6	32.4	16.0	32.7	36.7	42.4	56.9
Efficiency of markets								
Cost of bank intermediation ¹⁰	...	...	22.6	2.0	2.2	2.0	2.0	1.8
Bank productivity ¹¹	...	...	78.2	66.6	65.2	68.1	62.1	65.8
Interest margins ¹²	...	...	2.0	1.5	1.6	1.5	1.4	1.3
Deviation of domestic interest rates from international levels ¹³	-0.5	-0.3	-0.2	0.0	0.0	0.0	0.0	0.0

1. Only financial institutions.

2. Number of deposit banks' branches and head offices per 100 000 population.

3. Share of financial institutions in total external financing of non-financial corporations.

4. The private non-financial sector includes corporations as well as households and non-profit institutions. The total differs from 100 because certain items, such as loans and trade credit, are excluded but in 1975, these items even made a negative contribution to the financial assets' structure.

5. 1978 figures.

6. As a percentage of deposit banks' balance sheets.

7. Number of branches and subsidiaries.

8. Purchases of foreign bonds and shares, equity participations in foreign enterprises as a percentage of total purchases of domestic and foreign securities by the private non-financial sector.

9. Purchases of Belgian shares, foreign equity participations in Belgian enterprises and purchases of bonds issued by residents as a percentage of domestic securities issues.

10. Gross benefit margins as a percentage of the annual average balance sheet of deposit banks.

11. Operating costs as a percentage of the gross benefit margins of deposit banks.

12. Difference between interest receipts and interest payments divided by the annual average balance sheet of deposit banks.

13. Three-month Euro-Belgian franc interest rate minus three-month Treasury certificates interest rate.

Source: Data provided by the Banque Nationale de Belgique.

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STATISTICAL ANNEX

Luxembourg – Selected background statistics

	Average 1979-88	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
A. Per cent changes from previous year											
Private consumption ¹	2.2	3.5	2.8	1.7	0.4	0.5	1.4	2.7	2.5	4.2	1.9
Gross fixed capital formation ¹	3.0	3.8	12.7	-7.4	-0.5	-11.5	0.5	-6.1	28.7	6.5	3.2
GDP ¹	2.7	2.3	0.8	-0.6	1.1	3.0	6.2	2.9	4.4	2.8	4.3
GDP price deflator	5.1	6.4	7.9	7.2	10.8	6.8	4.4	3.0	1.7	0.9	2.2
Industrial production	3.1	3.2	-3.5	-5.5	2.3	5.5	11.8	6.9	1.7	-0.7	9.1
Employment	1.1	0.5	0.7	0.3	-0.3	-0.3	0.6	1.5	2.6	2.7	3.1
Compensation of employees (current prices)	7.8	8.1	10.5	9.8	6.9	6.7	8.0	5.4	8.5	7.3	6.8
Productivity (GDP ¹ /employment)	1.6	1.8	0.1	-0.9	1.4	3.3	5.6	1.4	1.8	0.1	1.2
Unit labour costs (Compensation/GDP ¹)	3.3	4.2	8.1	9.1	5.8	3.8	0.9	0.6	0.7	1.0	-1.2
B. Percentage ratios											
Gross fixed capital formation as % of GDP at constant prices	23.1	24.3	27.2	25.3	24.9	21.4	20.2	18.5	22.7	23.6	23.3
Stockbuilding as % of GDP at constant prices	0.2	-2.9	-1.8	-0.3	0.2	1.7	2.8	2.4	-0.6	0.1	0.4
Foreign balance as % of GDP at constant prices	0.4	1.7	-3.8	-5.2	-4.9	-1.2	2.2	4.7	4.6	2.4	3.9
Compensation of employees as % of GDP at current prices	54.6	56.1	57.0	57.9	55.2	54.0	52.7	51.8	53.2	54.6	53.9
Number of unemployed	2 110	1 100	1 100	1 600	2 000	2 500	2 700	2 600	2 300	2 700	2 500
Unemployment as % of civilian labour force	1.3	0.7	0.7	1.0	1.3	1.6	1.7	1.6	1.4	1.6	1.4
C. Other indicator											
Current balance (million dollars)	...	...	594.8	460.5	494.6	532.0	592.1	748.8	969.0	870.3	1 289.0

1. At constant 1985 prices.

Sources: STATEC, *Bulletin du STATEC*, No.3, 1990 and OECD estimates.

Table A. Luxembourg – Gross national product

Fr. billion

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Current prices											
Private consumption	65.0	70.6	78.1	86.3	95.8	104.2	112.6	120.5	124.9	132.0	137.9
Public consumption	17.6	19.5	22.2	24.7	26.1	27.6	29.8	32.3	35.5	39.3	41.1
Gross fixed capital formation	27.0	29.8	36.0	36.0	36.7	37.2	39.1	37.9	50.6	55.7	58.5
Change in stocks	1.6	-2.3	-1.6	-0.5	0.6	6.3	9.8	4.9	-2.5	0.1	0.6
Total domestic demand	111.1	117.6	134.7	146.4	159.2	175.2	191.3	195.6	208.4	227.2	238.1
Exports of goods and services	94.0	111.0	117.3	122.5	141.0	157.2	195.5	222.6	224.8	224.3	248.3
Imports of goods and services	92.9	106.5	119.1	127.3	144.4	157.8	193.1	212.9	215.3	225.2	245.1
Gross domestic product at market prices (SNA)	112.2	122.1	132.9	141.7	155.8	174.6	193.7	205.3	217.9	226.2	241.3
Net factor income from abroad	21.3	23.2	28.6	37.3	61.0	73.0	77.3	84.0	81.4	78.3	85.6
Gross domestic product at factor costs (SNA)	133.5	145.3	161.6	179.0	216.8	247.6	271.0	289.2	299.3	304.5	326.9
1985 prices											
Private consumption	105.9	109.7	112.7	114.7	115.2	115.7	117.4	120.5	123.5	128.6	131.0
Public consumption	28.1	28.7	29.6	30.0	30.4	31.0	31.7	32.3	33.4	34.2	35.3
Gross fixed capital formation	42.1	43.7	49.2	45.6	45.4	40.1	40.3	37.9	48.8	51.9	53.6
Change in stocks	0.9	-5.3	-3.3	-0.5	0.3	3.2	5.6	4.9	-1.2	0.2	0.9
Total domestic demand	177.0	176.8	188.3	189.8	191.3	190.0	195.0	195.6	204.4	215.0	220.9
Exports of goods and services	159.9	175.0	171.4	163.6	163.6	172.2	203.2	222.6	231.9	243.8	265.5
Imports of goods and services	161.2	172.0	178.3	173.0	172.5	174.5	198.8	212.9	221.9	238.4	256.5
Gross domestic product at market prices (SNA)	175.7	179.8	181.3	180.3	182.4	187.8	199.4	205.3	214.3	220.4	229.9

Source: STATEC, *Bulletin du STATEC*, No. 3, 1990.

Table B. Luxembourg – Labour market

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Labour force (A + B) ¹	157.5	158.2	159.3	160.3	160.3	160.3	161.4	163.5	167.4	172.3	177.3
A. Unemployed (thousands)	1.2	1.1	1.1	1.6	2.0	2.5	2.7	2.6	2.3	2.7	2.5
B. Total employed (thousands)	156.3	157.1	158.2	158.7	158.3	157.8	158.7	160.9	165.1	169.6	174.8
Agriculture	9.7	9.1	8.7	8.1	7.8	7.5	7.3	7.1	6.9	6.6	6.3
Industry	46.0	44.6	43.5	42.9	42.0	40.5	40.1	40.3	40.3	39.6	38.4
Iron and steel	19.7	18.7	17.7	17.2	16.7	15.1	13.8	13.1	13.0	12.1	10.6
Construction	15.0	15.6	16.4	15.9	15.3	15.1	14.7	13.9	14.2	15.3	16.6
Services	66.9	68.6	69.8	71.7	72.9	74.2	75.7	78.1	81.4	85.2	89.9
General government	18.7	19.2	19.8	20.0	20.3	20.6	21.0	21.6	22.3	22.8	23.6
Employees	133.3	134.9	137.0	138.7	138.7	138.4	139.5	142.1	146.6	151.4	156.8
Self-employed and family helpers	23.0	22.0	21.2	20.0	19.6	19.4	19.2	18.8	18.5	18.2	18.0
Unemployment rate	0.8	0.7	0.7	1.0	1.3	1.6	1.7	1.6	1.4	1.6	1.4
Participation rate	63.7	64.0	64.0	63.8	63.6	63.1	63.3	63.6	64.6	66.0	67.7
Job vacancies, unfilled (monthly average)	263.0	252.0	207.0	150.0	152.0	170.0	198.0	194.0	235.0	245.0	216.0

1. Domestic definition (including border workers, net).

Sources: STATEC, *Bulletin du STATEC*, No. 3, 1990 and *Annuaire Statistique 1988/89*.

STRUCTURAL ANNEX

Luxembourg – Structure of output and performance indicators

	1980	1985	1986	1987	1988	1980	1985	1986	1987	1988
	Share of GDP					Share of total employment				
A. Structure of output (constant prices)										
Agriculture, forestry and fishing	2.7	2.7	2.6	2.5	2.2	5.5	4.4	4.2	3.9	3.6
Energy and water	3.0	2.4	2.3	2.3	2.4	0.9	0.8	0.8	0.8	0.8
Mining, quarrying and manufacturing	29.5	30.1	29.5	28.7	29.8	26.6	24.2	23.6	22.6	21.2
Ores and metals	15.4	13.9	12.9	11.8	12.7	12.4	9.6	9.3	8.5	7.4
Building and civil engineering	6.8	5.4	5.6	5.9	6.2	10.3	8.6	8.6	9.0	9.5
Marketed services ¹	62.4	61.3	62.8	65.6	65.6	44.1	48.6	49.3	50.2	51.4
Financial institutions	25.7	24.8	26.4	28.1	28.9	5.1	6.7	7.2	7.7	8.2
Non-marketed services ²	12.7	12.7	12.4	12.3	12.1	12.5	13.4	13.5	13.5	13.5
Others	-17.1	-14.6	-15.3	-17.2	-18.3	-	-	-	-	-
	Productivity growth					Share of total investment				
B. Economic performance (constant prices)										
Agriculture, forestry and fishing	7.9 ³	3.7	1.4	3.4	-1.2	3.2	3.6	2.3	2.4	2.6
Energy and water	-1.3 ³	5.2	3.3	0.0	4.3	2.6	3.3	2.2	2.1	2.3
Mining, quarrying and manufacturing	4.4 ³	5.1	2.1	1.7	12.2	22.8	24.2	25.3	21.9	23.8
Ores and metals	4.0 ³	11.9	-2.8	-0.1	24.2	13.1	9.1	7.1	6.0	6.6
Building and civil engineering	1.0 ³	1.0	5.7	0.5	2.0	2.6	1.6	1.8	1.7	1.8
Marketed services ¹	-0.3 ³	0.3	2.7	2.6	-1.2	46.6	40.7	46.3	50.6	46.5
Financial institutions	-4.5 ³	-1.1	0.9	-0.5	-2.0	4.5	9.8	9.8	5.5	5.9
Non-marketed services ²	1.6 ³	-2.8	-1.0	-1.0	0.0	22.2	26.7	22.1	21.3	23.1
	1970	1975	1980	1982	1983	1984	1985	1986	1987	1988
C. Other indicators										
Breakdown of employed workforce by size of establishment:										
1 - 19 employees	12.8	12.9	13.6	12.7	13.3	14.5	14.4	13.7	14.1	14.3
20 - 49 employees	7.0	8.3	9.2	10.5	10.3	10.1	10.2	10.3	11.5	12.0
50 - 99 employees	8.6	8.0	8.5	7.5	9.2	9.1	9.2	9.6	10.4	11.1
100 - 249 employees	12.7	14.0	14.3	16.4	15.2	15.2	16.0	16.9	16.2	17.0
250 - 499 employees	6.8	9.5	12.0	10.7	11.3	13.9	11.9	13.1	12.3	11.9
More than 500 employees	52.1	47.4	42.3	42.2	40.7	37.1	38.3	36.4	35.5	33.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Workforce (thousands)	58.4	65.2	57.4	55.0	53.3	52.5	52.0	53.3	53.8	54.0

1. Wholesale and retail trade, restaurants and hotels, transportation, storage and communications, finance, insurance, real estate and business services.

2. Community, social and personal services.

3. 1980-84 average.

Source: STATEC, *Bulletin du STATEC*, No.3, 1990.

Luxembourg - Public sector

	1970	1980	1985	1986	1987	1988
Budgetary indicators: general-government accounts (% of GDP)						
Primary receipts (excluding interest)	33.1	49.3	52.4	51.3	...	...
Primary expenditure (excluding interest)	30.8	51.9	49.4	50.0	...	...
Primary budget balance	2.3	-2.6	3.0	1.3	...	...
Net interest (including net capital transfers)	0.9	2.2	2.3	1.8	...	...
General-government budget balance	3.2	-0.4	5.3	3.1	...	...
Structure of expenditure and taxes (% of GDP)						
General-government expenditure						
Transfers	15.8	25.2	24.2	24.4	...	...
Subsidies	1.3	3.4	4.4	4.4	...	...
General expenditure						
Tax receipts						
Personal income tax	34.8 ¹	46.0	50.3	49.2	49.5	49.7
Corporate tax	9.2 ¹	12.3	13.2	13.0	12.5	12.1
Social-security contributions	6.0 ¹	7.6	9.2	8.2	8.5	8.6
Social-security contributions	9.3 ¹	13.5	12.8	12.6	13.1	12.6
Consumption taxes	7.6 ¹	9.7	12.0	12.0	12.1	12.5
<i>of which: Value added tax</i>	4.1 ¹	4.9	6.5	6.6	6.7	7.1
Other indicators						
Income tax as % of total tax	26.4 ¹	26.8	26.3	26.5	25.3	24.4
Tax rates (%)						
Personal income tax rates						
Top rate		Prior to			After	
Lower rate		57	1st January 1987		56 ²	
Number of brackets		12	1st January 1987		10	
Corporate tax rates		22	1st January 1987		25 ²	
VAT rates						
Low rate		36	1st January 1989		34 ²	
Average rate						
Standard rate		2	1st July 1983		3	
		5	1st July 1983		6	
		10	1st July 1983		12	

1. 1973 figure.

2. On 1st January 1991, the top income tax rate will be reduced to 50 per cent and the number of brackets to 18; as to the corporate tax, its rate will be reduced to 33 per cent.

Sources: OECD, *Annual National Accounts and Revenue Statistics of OECD Member Countries*.

Luxembourg – Financial markets

	1970	1975	1980	1985	1986	1987	1988	1989
Sector size								
Sector employment ¹ / total employment	3.1	3.7	4.8	6.3	6.8	7.5	8.1	8.4
Domestic financial assets / GDP ²	418.8	1 558.1	2 622.2	3 220.8	3 195.4	3 840.2	4 048.3	3 830.1
Stock-market capitalisation / GDP	29.5	35.5	30.9	59.5	73.6	104.7	132.1	125.0
Density of banking network ³	10.9	21.3	30.5	32.2	33.2	34.6	38.9	45.2
Structure of financial flows								
Share of credits granted to non-financial sector in total banking assets	78.8	32.9	35.1	33.4	28.6	25.7	25.2	24.0
Internationalisation of markets								
Foreign business of the banking sector ⁴								
Assets	83.9	...	96.7	96.7	96.4	96.4	96.4	96.4
Liabilities	57.3	...	89.8	86.7	85.8	84.5	84.1	84.6
International banking network:								
Foreign banks in Luxembourg ⁵	13	64	99	106	110	112	127	147
Luxembourg bank branches abroad ⁶	...	...	180	164	176	172	172	171
Efficiency of markets								
Interest margins ⁷	...	...	0.8	1.2	1.1	1.0	0.9	0.8
Bank productivity ⁸	...	...	40.5	27.9	30.8	35.3	38.3	40.9
Cost of bank intermediation ⁹	...	...	0.9	1.4	1.4	1.2	1.2	1.1

1. Financial institutions.
2. Ratio in per cent of total assets to GDP.
3. Number of saving and banking institutions per 100 000 population.
4. As a percentage of deposit banks' balance sheets.
5. Number of foreign saving and banking institutions.
6. Number of regional offices, agencies and branches abroad.
7. Interest margins divided by total assets.
8. Ratio in per cent of operating expenses to gross earnings.
9. Ratio in per cent of gross earnings to total assets.

Sources: IMF, *International Financial Statistics*, various issues; Institut Monétaire Luxembourgeois, *Bulletin trimestriel*, June 1990 and data transmitted to the OECD.

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	0.5	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 which: Machinery and equipment	% 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
Residential construction	% 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	7.8 (87)	8.9	9.3	9.3 (85)	9.3	7.9	..
Average annual volume growth over previous 5 years	%	1988	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	4.1 (87)	4.8	17.3 ⁹	3.3 (85)	4.0	4.8	..
Gross saving ratio ⁴	% of GDP	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	..
General government																											
Current expenditure on goods and services	% 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	..
Current disbursements ⁵	% 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 receipts	% 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	..
Net official development assistance	% of GNP	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	..
Indicators of living standards																											
Private consumption per capita using current PPP's	US \$	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	..
Passenger cars, per 1 000 inhabitants	Number	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*
Telephone sets, per 1 000 inhabitants	Number	1985	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)
Doctors, 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)
Infant mortality, per 1 000 live births	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)
	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)
	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	..	..	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	..	..	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	..	..	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	..	..	10.4	6.5	11.4	14.2	15.8	11.9	14.1	8.9	13.7	11.3	6.0
Total official reserves⁶																											
As ratio of average monthly imports of goods	ratio	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
	ratio		3.6	1.8	0.9	1.3	3.7	2.6	1.3	2.1	2.6	1.6	2.9	4.6	..	1.4	3.5	4.9	2.9	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-residential construction.
 SOURCES: Population and Employment: OECD Labour Force Statistics.
 GDP, GFCF, and General Government: OECD National Accounts, Vol. 1 and OECD Economic Outlook, Historical Statistics.
 Indicators of living standards: Miscellaneous national publications.
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The Economics and Statistics Department of the OECD offers challenging and rewarding opportunities to economists interested in applied policy analysis in an international environment. The Department's concerns extend across the entire field of economic policy analysis, both macroeconomic and microeconomic, and it is also responsible for the collection, processing and dissemination of a wide range of internationally consistent statistics. On the economic side, its main task is to provide, for discussion by committees of senior officials from Member countries, documents and papers dealing with current policy concerns. Within this programme of work, three major responsibilities are:

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

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

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

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

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

- d) Interest and experience in analysing questions posed by policy-makers and presenting the results to them effectively and judiciously. Thus, work experience in government agencies or policy research institutions is an advantage.
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- g) The Department works on a tight time schedule and strict deadlines. Moreover, much of the work in the Department is carried out in small groups of economists. Thus, the ability to work with other economists from a variety of professional backgrounds, and to produce work on time is important.

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