



**The Luxembourg
Economy
in 2003 - 2004**
A kaleidoscope

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Foreword

There are several reasons for launching a new publication on Luxembourg's economy and society. STATEC's three main motives are the:

- wish to communicate not only gross figures and databases, but also, and above all, analyses to make the observations intelligible;
- requirement to summarize the studies and research conducted by STATEC or by research institutes, sometimes jointly;
- need to report regularly and comprehensively on the state of Luxembourg's economy and society and the outlook.

This year also offers a special and rare opportunity to launch the first book in this series: that of Luxembourg's Presidency of the European Union, and especially the ratification of the Constitutional Treaty for the European Union, which will be put to a referendum. STATEC wants to make its contribution to the debate by setting the Grand Duchy, which has developed and prospered in a peaceful Europe, in a broader political and economic context.

European economic governance

The Luxembourg presidency of the EU has carried out reforms of economic governance: the reform of the Stability and Growth Pact as well as the relaunch of the Lisbon Strategy. The excessive harshness of the common rules for managing national budgets was justified by the realization of the Economic and Monetary Union, and the introduction of the euro in a currency exchange area which was far from optimal. The reform decided by the European Summit in March 2005 will enable these rules to be applied more intelligently, in particular by taking account of the position of the economy in the business cycle and the nature of the structural reforms that public money is intended to promote. Harmonized budgetary statistics are the responsibility of statisticians who must demonstrate the utmost professionalism and impeccable scientific impartiality in carrying out their work.

The Lisbon Strategy, discredited by its mediocre results, has become more realistic: it is no longer a question of becoming the most competitive economy in the world, but deriving maximum benefit from science and technology to modernize the European social model. Each government is expected to present a National Action Plan, in which it sets realistic targets for growth and employment and presents the policies that it proposes to implement. Sooner or later, it will be necessary to evaluate the effects of these policies and compare the targets announced with the results obtained: there too, harmonized and reliable indicators are required.

Lisbon-Luxembourg

Following on from the report "Une paille dans l'acier" ("A straw in the steel") by Prof. L. Fontagné, STATEC was invited, together with the Competitiveness Observatory, to draw up the "Lisbon" National Action Plan, in particular by setting up a management dashboard of the Luxembourg economy. This management dashboard, which uses data gathered or produced by STATEC, will take account of the social, economic and environmental dimension.

Break in the growth pattern, or minor turbulence?

The year 2004 probably marks the end of a period of an exceptional, clearly perceptible slowdown in the Luxembourg business cycle, which had interrupted an exceptional period of growth. Was this minor turbulence or a break in the growth pattern that we had previously experienced and to which Luxembourg had become accustomed or had even taken for granted? Although the result may be the envy of other European countries, growth remained below its potential, too weak to stem the rising unemployment rate. The system of production, which is still insufficiently diversified, relies on financial activities, the results of which are tied to the fluctuations in share prices and the volatility of the financial markets.

STATEC: statistical office

The Central Statistical and Economic Studies Office (STATEC) is also changing. It should be borne in mind that STATEC has a dual mission: the production of statistics on the one hand, and analysis and forecasting on the other. The first function, that of a statistical office, has developed very strongly to comply with the injunctions of Community regulation: the European Commission and the Central Bank have developed a growing appetite for data, which they request in ever-greater volume and at more frequent intervals. The production of quarterly national accounts, a difficult and delicate exercise for a small economy, is an illustration of this development.

STATEC: research centre

The second function, analysis and forecasting, is just as important, because it enables the mass of data collected to be understood, and made intelligible for use in determining economic policy. STATEC has improved its annual forecasting instruments, and is working on producing infra-annual macro-econometric models. Models for long-term forecasting of the country's population and economic potential have been developed. These tools and results are decisive in explaining, for instance, the financial sustainability of our welfare state, or land-use planning. Advances in econometrics and information technology are facilitating the analysis of rich individual data on businesses and households. Many projects are ongoing – often in partnership with research centres and universities – in the field of labour and social cohesion as well as productivity and new information and communication technologies or entrepreneurship.

This publication is intended for a wide audience, and is distributed as a book illustrating the way in which the economy is working in the short term, as well as its strengths and weaknesses, the opportunities and hazards. The book attempts to avoid the esoteric jargon used by economists, the technical terminology of statisticians, and the hollow language of technocrats, while making no concessions in terms of scientific rigour.

I hope you enjoy reading it, and invite your comments.

Dr S. Allegrezza

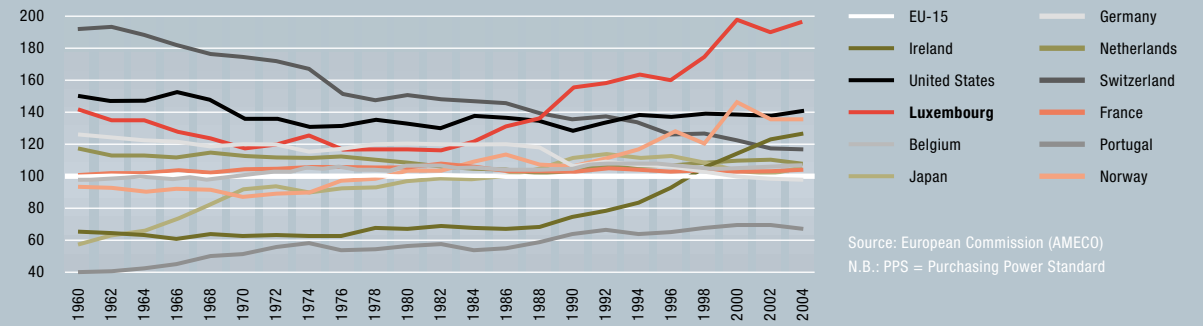
Background:

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elements

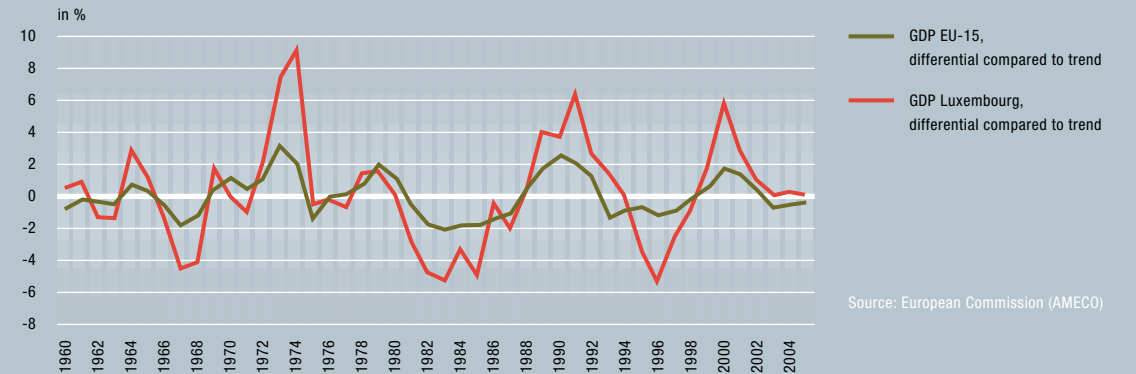
Exceptional growth from 1985 to 2000

Graph 1.1.1
GDP per capita in PPS, 1960-2004 (EU-15 = 100)



Source: European Commission (AMECO)
N.B.: PPS = Purchasing Power Standard

Graph 1.1.2
Differential of Luxembourg cycle compared to European cycle, 1960-2005



Source: European Commission (AMECO)

The reversal in the economic cycle in 2001 – GDP growth fell from 9% in 2000 to a little more than 1.5% in 2001 – should not overshadow the fact that the average growth of the Luxembourg economy from 1985 to 2004 was more than 5% per year, exceeding by far the growth of the other countries of the EU-15, except for Ireland.

The graph 1.1.1 indicating the change in the level of GDP per capita in PPS from 1960 to 2004 (EU-15 = 100) provides a synthetic picture of the long-term economic trend of the Luxembourg economy and of some industrialized countries. Particularly noteworthy are the:

- quite exceptional nature of Luxembourg's growth from the mid-1980s on; this growth reinforces a level of GDP that was already higher at the time than most of the other industrialized countries of Europe;
- effects of the economic slowdown in Luxembourg from 1992 to 1996 and of the reversal in the economic cycle of 2001 (and less impressive growth from 2002-2004) which are illustrated by the stagnation of the level of GDP per capita of Luxembourg in comparison with the EU-15.

→ fact that during the 1960s – and to a lesser extent in the 1970s – the growth of the Luxembourg economy does not seem to have been able to keep pace with the average of the EU-15; this resulted in a fall in the level of GDP per capita in comparison with the EU average and helps explain both the slight growth in real wages in Luxembourg in comparison with the EU-15 (see p. 192) and increased efforts made to diversify the Luxembourg economy in the 1960s. In addition, this phase of Luxembourg's economic history increases awareness of the fact that such a scenario could occur again...;

→ level of GDP of the EU-15 rising to that of the United States from 1960 to the mid-1970s and the decline in the level of GDP per capita of the EU-15 in comparison with the United States beginning in the 1990s. Nevertheless, from a very long-term perspective this trend does not mean as much lost ground as is frequently attributed to it;

→ economic performance of Ireland, and to lesser extent, that of Norway, beginning in the mid-1980s;

→ effect of the reunification of Germany, which led to a sharp decline in the GDP of reunited Germany in comparison with the EU. Subsequently, the GDP per capita continues to fall slowly but steadily in comparison with the EU average, which explains current concerns in German economic and political circles;

→ fact that the level of GDP per capita in France was slightly higher than the EU average from 1960 to 2004 without the sharp changes experienced in most other European countries.

One of the principal characteristics of the growth of the Luxembourg economy is its volatility. In general, the economic cycle in Luxembourg follows that of the other European countries, but with a greater range of variation in GDP (see graph 1.1.2 indicating the differential of the Luxembourg cycle compared with the European cycle). This is characteristic of a smaller economy open to outside influences, which makes it more vulnerable to external shocks.

The GDP per capita is often used as an approximate measure of the average standard of living of a country, for international comparisons, among other things. It can be expressed in PPS (Purchasing Power Standard), which neutralizes differences in price levels. However, GDP per capita is only a very rough estimate of the change in the standard of living. For instance, one of the reasons behind the higher level of the per capita GDP index in Luxembourg is the significant number of cross-border workers employed in the country. Cross-border workers represent almost 40% of salaried employment and about one-third of all employment. These workers contribute to GDP and are part of the labour market, but they are not included in the population and consequently are not included in the denominator of the GDP/population ratio.

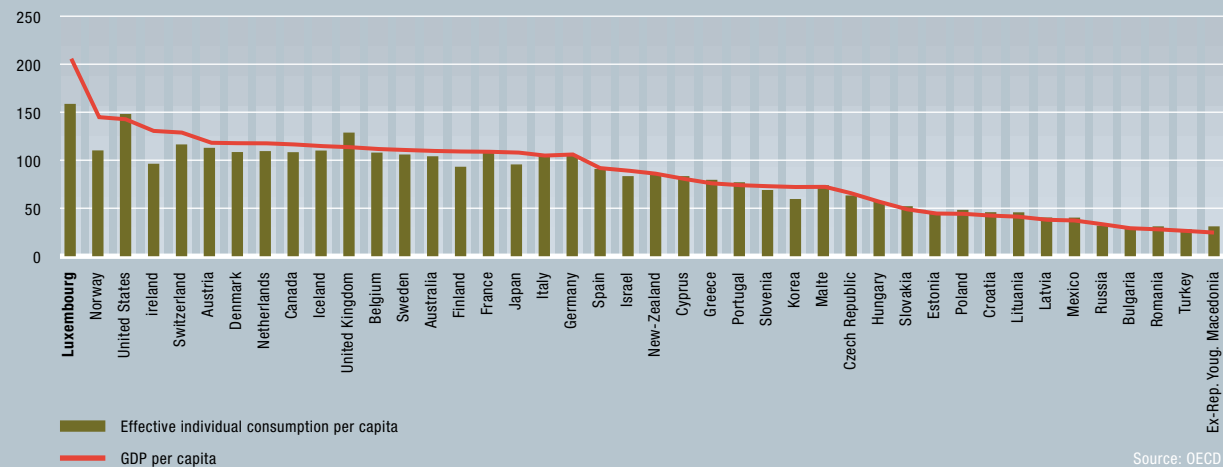
In addition, the GDP per capita includes categories of expenditures, such as gross fixed capital formation, that only indirectly characterize the economic well-being of households. To this is added that the general price level is a reflection not only of the price of the goods and services consumed by inhabitants of the country, but also includes capital goods, collective public services, etc.

The first bias resulting from the significant number of cross-border workers in the total workforce can be partially eliminated by using "gross national income" (GNI), which takes into account the flow of factors between Luxembourg and abroad, that is, in particular, pay that is "exported" by cross-border workers into neighbouring countries. For example: in terms of nominal value, GDP at current prices in Luxembourg was EUR 23,956 million in 2003, while the GNI was just EUR 21,206 million during that same year.

But using GNI does not eliminate the second bias mentioned above, that is, the fact that it includes, like GDP, categories of expenditures, such as gross fixed capital formation, that only indirectly characterize the economic well-being of households. However, it must be remembered that these investments constitute a basis for future well-being. Still, individual effective consumption seems a more appropriate measure of average economic well-being of households at a given time. This consumption includes expenditures for household final consumption expenditure as well as expenditures for individual consumption by public administrations, which is composed of public services that benefit households individually, such as state-funded medical services.

Graph 1.1.3

GDP per capita and effective individual consumption per capita, 2002 (OECD = 100)



Source: OECD

1.2

Job-intensive growth

Some countries, such as the United Kingdom and the United States, have an effective individual consumption index significantly higher than the GDP per capita (see graph 1.1.3). By way of example, in the United Kingdom the GDP per capita in 2002 was 13% above the OECD average, while per capita consumption was more than 27% above that average. These figures reflect a structure of spending characterized by a substantially lower than average volume of investment per capita and substantially higher than average individual consumption.

In other countries, such as the Netherlands, Denmark, Ireland, Norway, and especially in Luxembourg, the situation is reversed: the individual consumption index is lower than the index of GDP per capita. In the case of the Netherlands, this differential is explained by the significant volume of collective consumption by the public administration. In the case of Ireland, and even more so for Luxembourg, a very important factor is the volume of investment per capita, which is 39% above the OECD average in Ireland and 103% above that average for Luxembourg (as regards the development of gross fixed capital formation in Luxembourg, see also p. 118).

This explains why the index of GDP per capita in these countries exceeds by far the OECD average (index of 205 for Luxembourg and 129 for Ireland), but the differential between the individual consumption index and the OECD average is much less. This index is 159 (OECD = 100) in Luxembourg. In Ireland, it even falls below the OECD average, and was at 96 in 2002.

In summary, the differential in the standard of living of Luxembourg in comparison with other EU and OECD countries as suggested by GDP per capita is reduced to more equitable proportions if reference is made to more appropriate measures, such as effective individual consumption. In addition, the aggregate statistics do not allow for detailed analysis of differences in standard of living within countries and refined comparisons between countries. Comparative results of harmonized surveys of income in European countries provide a wealth of supplementary information, especially regarding inequality and poverty (see chapters 1.12 and 3.12).

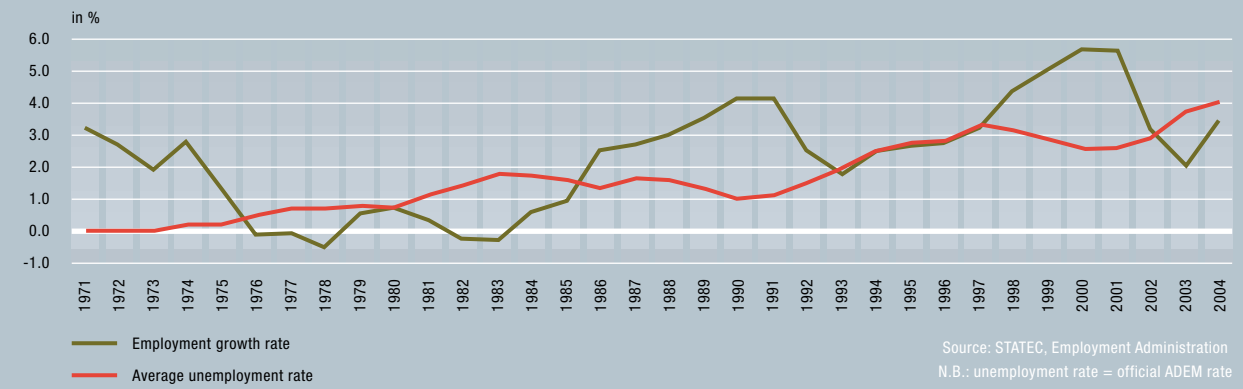
In Luxembourg, economic growth obviously had a positive impact on employment trends (see comparative graph 1.2.2 on employment trends and GDP from 1985 to 2004). Nevertheless, the intensive nature of employment in growth in Luxembourg should be noted. The average annual rate of job growth from 1985 to 2004 in Luxembourg was 3.2%, compared with under 1% in the EU-15. The number of jobs in the Luxembourg economy rose from 161,000 in 1985 (of which 147,200 were salaried positions) to 293,500 (of which 273,600 were salaried positions) in 2003. In December 2004, total domestic employment numbered 303,546 people.

The variations in the job growth rate (see graph 1.2.1) reflect the economic trend, namely:

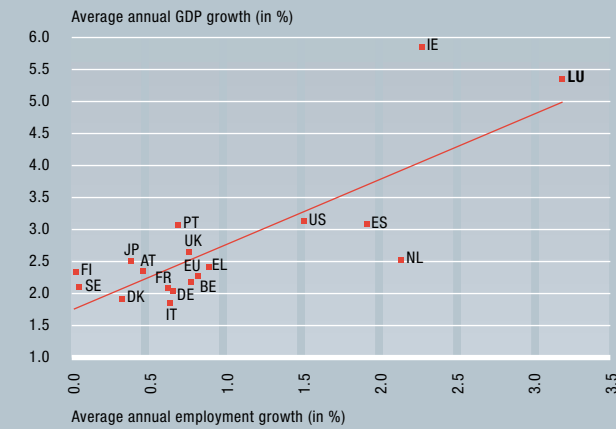
- the crisis of 1975-1985, during which period the Luxembourg economy even lost jobs at certain times; this loss of jobs primarily hit the manufacture of basic iron and steel in the midst of a crisis during this period;
- a continuous increase in the job growth rate beginning in 1984, peaking - with a rate of 4.1% - in 1990 and 1991, before returning to less spectacular increases during the economic slowdown of 1992-1996; this downturn was accompanied by a major increase in the unemployment rate

- a spectacular acceleration in the rate of job creation between 1997 and 2001 (a job growth rate of 5.6% in 2000 and again in 2001), parallel to exceptional GDP growth rate from 1997 to 2000 (GDP growth rate of 8%); this acceleration in the rate of job creation was accompanied by a very slight reduction in the unemployment rate;
- a deceleration in job creation beginning in 2002 with a gap of approximately one year compared to the economic turnaround of 2001 and which was accompanied by an increase in the unemployment rate;
- an increase in the job growth rate in 2004 which means an acceleration in economic growth; the GDP growth rate rose from 1.5% in 2001 to 2.5% in 2002, 2.9% in 2003 and to above 4% in 2004.

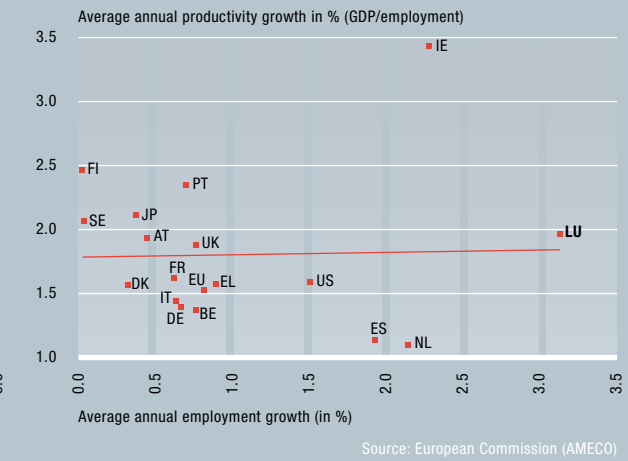
Graph 1.2.1
Rate of change in employment and unemployment rate, 1971-2004



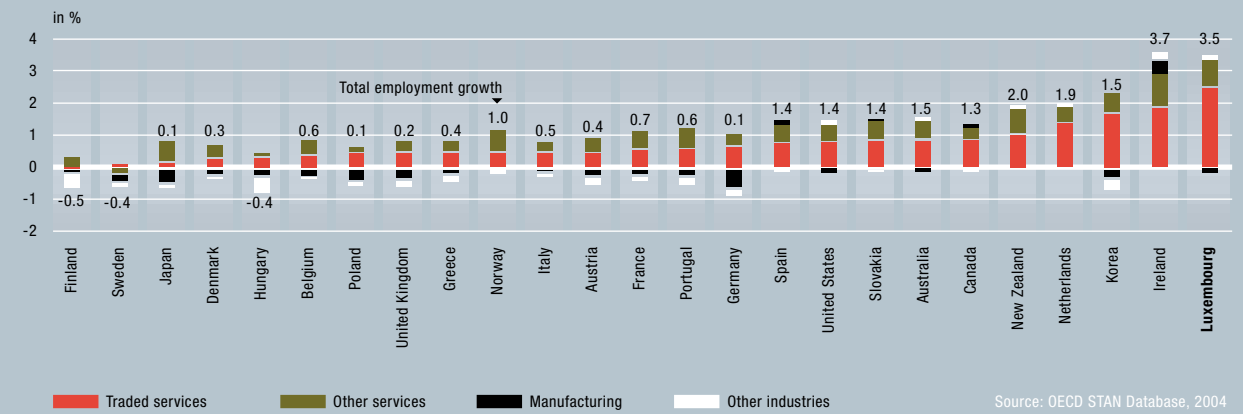
Graph 1.2.2
Economic and employment growth, 1985-2004



Graph 1.2.3
Productivity and employment growth, 1985-2004



Graph 1.2.4
Contribution by economic sector to job growth, 1990-2002
(annual average contribution in %)



It should also be noted that the Luxembourg economy continued to create many jobs in 2002 and 2003, in contrast with most other European countries experiencing economic difficulties. This development, favourable all in all, did not however offset the increase in the unemployment rate, which rose from 3.0% in January 2002 to 3.7% in January 2003 and to 4.4% in January 2004. In spite of an acceleration in the rate of increase in jobs, the unemployment rate continued to increase in 2004 – admittedly at a slower pace than during the two previous years – reaching 4.7% in January 2005. Generally, the upwards structural trend in unemployment should be noted. Even in a period of exceptional economic growth, like that between 1997 and 2000, unemployment did not fall to the low level of the beginning of the 1990s (as regards the question of unemployment, see also pp. 123 and 127).

The comparison of Luxembourg with the other OECD countries (see graph 1.2.4) shows the key contribution of services – principally traded services – to the significant job growth in Luxembourg. This only confirms a fact that was already well known. However, the comparative graph 1.2.4 indicating the contribution of various economic sectors to job growth shows a frequently neglected aspect: Luxembourg industry lost fewer jobs from 1990 to 2002 than other countries such as Belgium, Germany, Austria, Japan, Sweden and the United Kingdom. In some countries, job growth in services was also offset by a reduction in manufacturing employment, and as a result the overall job growth was very weak (e.g. in Germany, the United Kingdom and Japan) or even negative (e.g. in Finland and Sweden).

From 2001 to 2004: reversal in the economic cycle and recovery

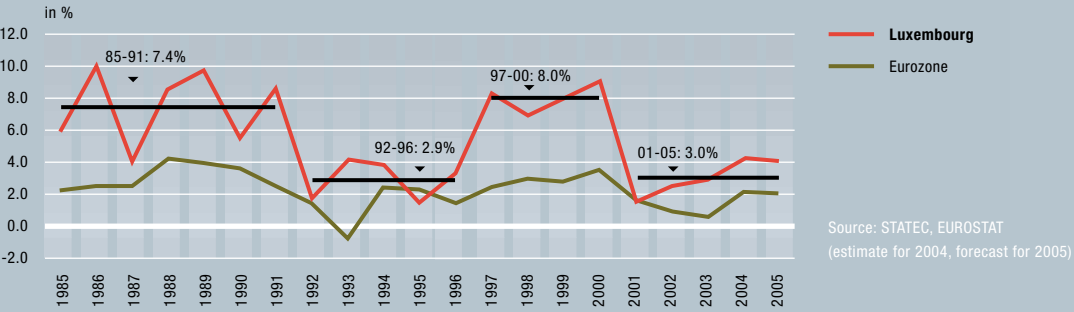
The majority of the world's economies saw exceptionally high economic expansion during the second half of the 1990s. Economic activity grew by an annual average of 4% in the United States from 1996 to 2000; the figure for Europe during that same period was 2.7%. This growth reduced unemployment, which fell from 10.5% in the EU-15 in 1994 to 7.4% in 2001. In the United States, unemployment began to decline in 1992 (from 7.5%), falling to 4% in 2000. This growth generally occurred in a non-inflationary environment: apart from 1995, the rate of increase in consumer prices never exceeded 2.5% during the second half of the 1990s, neither in the US nor in the EU-15 taken as a whole.

Luxembourg largely followed this growth pattern. Its GDP growth rate averaged 8% annually from 1997 to 2000. This growth surge was largely, but not exclusively, driven by the strong expansion of the financial sector. Three other sectors also saw above-average expansion during this period: trade and repair, transport and communications, and health services.

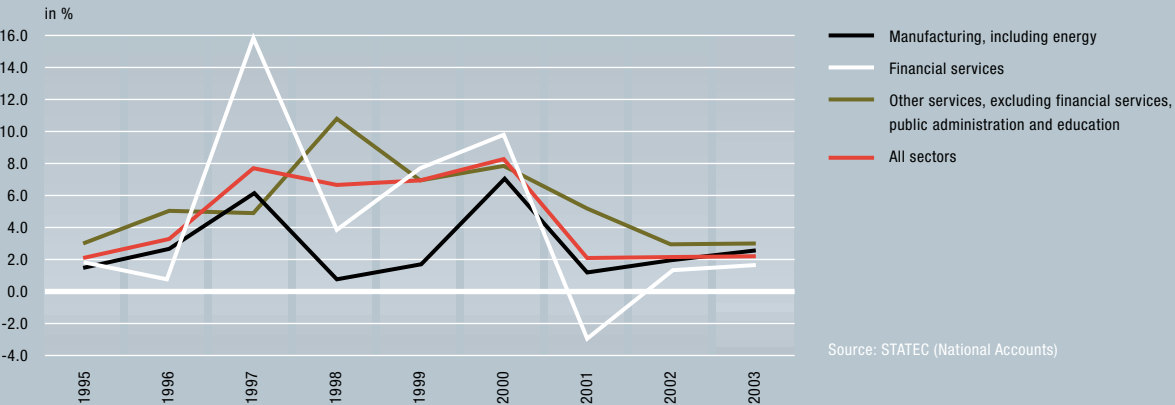
The peaks in total value added growth of the Luxembourg economy correspond to the combination of exceptional value added growth rates in financial services, as well as in other services (trade, transport and telecommunications, business services, etc.) and in manufacturing. It should also be noted that in 1998, the significant decrease in the value added growth of financial services (banks) and manufacturing was almost entirely offset by the very solid growth rates of non-financial services.

Luxembourg also slowed when the economies on which it depends began to slow in 2001. This trend was emphasized by the poor state of the financial markets. A decline in the value added of financial services (negative growth rate), which is the driving sector of the Luxembourg economy followed in 2001. Banks and other financial organizations respond to lower revenues by cutting costs (personnel, overheads, investment), which acts as a brake on the other domestic sectors that depend on the financial sector, such as business services (cleaning, security, etc.). The value added growth rate in the volume of business services fell from 9.4% in 2000 to 3.1% in 2001. Nevertheless, the expansion of certain other services, such as wholesale trade, retail trade, and transport and communications remained strong, cushioning somewhat the drop in 2001.

Graph 1.3.1
GDP growth rate in terms of volume, 1985-2005



Graph 1.3.2
Trend of gross value added in terms of volume, 1995-2003



Nevertheless, the overall decrease was spectacular. In 2002 and 2003, the value added growth of financial services became positive again, although the growth rate is not comparable to the veritable explosion in value added in 1997 and 1999-2000. In addition, the pace of growth in manufacturing and non-financial services remained very solid in 2002 and 2003, but did not reach the peaks of 1997 and 2000 (for manufacturing) and 1998 and 2000 (for non-financial services). The result was rather sluggish growth (at least in comparison with 1997-2000), with no economic sectors providing the impulse necessary to drive growth rates up sharply.

The comparison of GDP growth rates in Luxembourg and in the eurozone between 1985 and 2005 calls for a few additional remarks:

- Luxembourg economic growth is extremely volatile, that is, it is subject to major fluctuations; this is characteristic of an economy that is largely exposed to external shocks;
- in the past 20 years, during periods of strong economic expansion (1985-1991 and 1997-2000), growth in Luxembourg was around 2.5 times higher than average growth in the eurozone: between 1985 and 1991, growth averaged 3.1% in the eurozone versus 7.4% in Luxembourg; between 1997 and 2000, 8% in Luxembourg versus 2.9% in the eurozone;
- even during periods of economic slowdown (1992-1996 and 2001-2005), the Luxembourg economy grew at a pace double that of the eurozone: between 2001 and 2005, the average GDP growth rate in Luxembourg will in all likelihood reach 3%, while in the eurozone the average rate will probably not be more than 1.4 to 1.5%.

Labour productivity and employment: contrasting trends

Measuring productivity poses more acute problems than it may seem. During the 1990s, productivity growth was higher in manufacturing than in services in most developed countries. Some attribute this imbalance to measurement problems, especially in the way value added at constant prices is calculated. It is not easy to distinguish between price effects resulting from changes in quality or in the range of services on the one hand, and pure price variations on the other hand.

Even if measurement problems are disregarded, the reciprocal relationship between work productivity trends and employment trends are more complex than the relationship between economic growth and employment. The data used in the graph 1.2.3 on p. 17 indicating average growth in labour productivity (GDP/employment) and employment between 1985 and 2004 does not provide information on trends in the hourly productivity of labour. We shall return to this topic later in this chapter. In fact, hourly productivity developed more positively in Europe, compared with the United States, than the average growth rate of productivity per job indicates. This characteristic must be associated with the reduction in working time and the development of part-time employment in Europe. The Netherlands are further advanced in the development of part-time employment, which partially explains the high level of job creation in that country. In 2002, part-time employment represented 44% of the total employment in the Netherlands, while in Luxembourg it was just 11%.

The graph 1.2.3 on p. 17 indicating growth in labour productivity (PIB/employment) and employment growth between 1985 and 2004 shows that in the medium term, job-intensive growth seems to correspond to relatively weak labour productivity growth rates, at least in Europe. However, productivity and employment are not in opposition. In the United States, beginning in 1995, a rather high labour productivity growth rate is accompanied by a considerable rate of job creation. The purpose of the Lisbon Strategy (see also chapter 3.1) is to meet the challenge of job-intensive growth accompanied by considerable productivity gains (and competitiveness gains). The distribution and efficient use of ICT and innovation seem to be among the elements that could allow progress in this direction. Strong growth in total factor productivity (TFP) in the United States beginning in 1995 resulted primarily from the effective use of ICT in a large number of services.

Table 1.4.1
Employment by sectors and economic branches, 1985-2003

	1985	2003	1985	2003
	Employment (thousands)		Growth (1985 = 100)	
Agriculture	6.8	3.9	100	57
Manufacturing (including energy)	38.2	34.6	100	91
Construction	14.2	28.5	100	201
Trade, repair of motor vehicles and household goods, hotels and restaurants, transport and communication	46.9	79.3	100	169
Sales; repair of motor vehicles and household goods	27.0	41.2	100	153
Hotel and restaurants services	8.7	13.6	100	156
Transport and communication	11.2	24.5	100	219
Financial intermediation; real estate, renting and business services	19.9	81.7	100	411
Financial services	11.2	33.3	100	297
Real-estate activities	0.9	2.8	100	311
Renting of machinery and equipment without operator	0.3	0.9	100	300
Computer activities	0.3	4.9	100	1633
Other business services, R&D	7.2	39.8	100	553
Other service activities	35.0	65.6	100	187
Government services	11.0	15.3	100	139
Education	7.6	12.8	100	168
Health and welfare services	7.3	19.2	100	263
Other community, social and personal service activities	5.0	11.2	100	224
Domestic services	4.1	7.1	100	173
Total employment	161.1	293.5	100	182

Source: STATEC (National Accounts)

N.B.: Employment = wage earners + self-employed persons

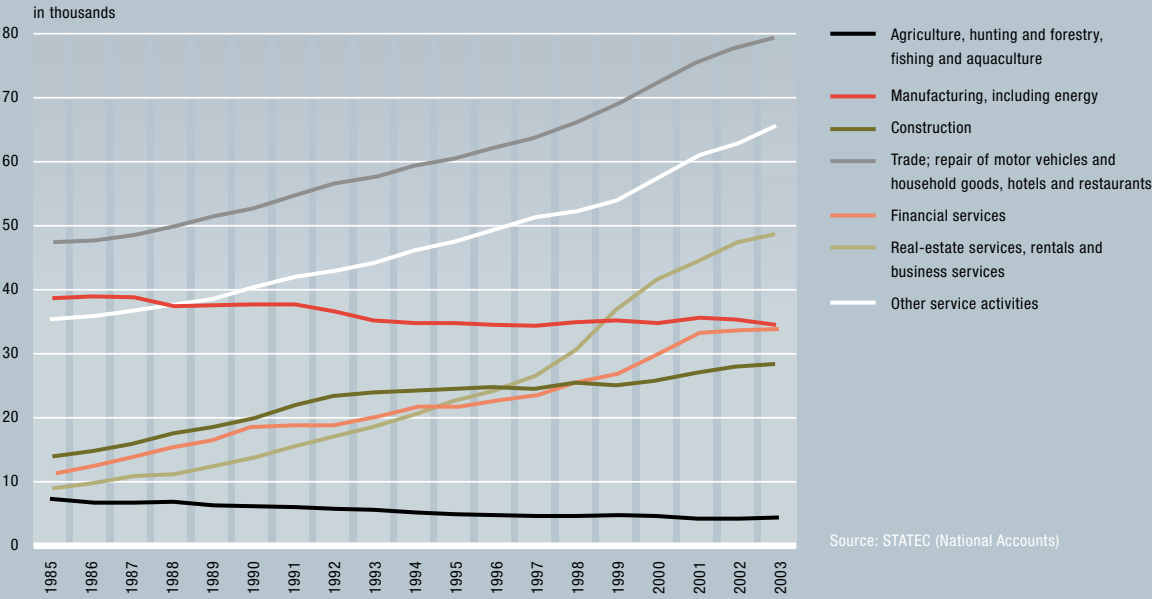
In Europe, Ireland occupies a special position: exceptional job growth is associated with equally exceptional productivity growth. But Luxembourg is also in a very good position: the intensity of job creation is high, and at the same time, productivity growth per worker (GDP/employment) exceeds the EU average. Between 1985 and 2003, the average productivity growth rate was 1.9% in Luxembourg as against 1.5% in the EU-15. This seems all the more surprising since the larger number of jobs was created in sectors which are characterized by productivity growth rates that are rather low, not to say negative, such as in business services and IT (see the table 1.4.1 indicating employment trends by economic sector from 1985 to 2003 and the graph 1.4.3 associating employment and productivity trends in the trade sectors of the Luxembourg economy from 1985 to 2003).

The economic sectors that were able to achieve above-average job growth rates are business services (between 1985 and 2003, employment in these services rose by a factor of 5.5, while overall employment did not even double), computer activities (increased by a factor of 16 during this period), and, to a lesser extent, financial services and health and welfare services. The virtual stagnation in financial services employment beginning in 2001 should be noted. In general, the structure of employment in Luxembourg is much more marked by the predominance of services than in other European countries. In 2003, manufacturing employment (not including construction) was barely 12% of total employment in Luxembourg as against 20% on average in the EU-15, 17% in Belgium and France and more than 20% in Germany.

The explanation for Luxembourg's relatively good productivity performance does not lie so much in the orientation of employment towards highly productive sectors (that is, in the structural transformation of employment) as in internal productivity gains in certain sectors. Highly productive economic sectors (generally characterized by weak job growth or job loss) coexist with sectors with strong job growth (and weak or negative levels or rates of productivity growth).

Graph 1.4.2

Employment by economic sector in Luxembourg, 1985-2003



Among the economic sectors registering consistent productivity increases, the first to be mentioned should be manufacturing as a whole: Average annual productivity growth per job exceeded 4% between 1985 and 2003. Manufacturing employment fell slightly during the same period. Within the manufacturing sector, the manufacture of basic iron and steel should be emphasized: following major investments (e.g. replacement of blast furnaces with the electric steel production during the 1990s) and a drop in employment (from 25,000 in 1985, employment in the manufacture of basic iron and steel fell to around 5,000 in 2004), the industry achieved an average productivity growth rate of 8%.

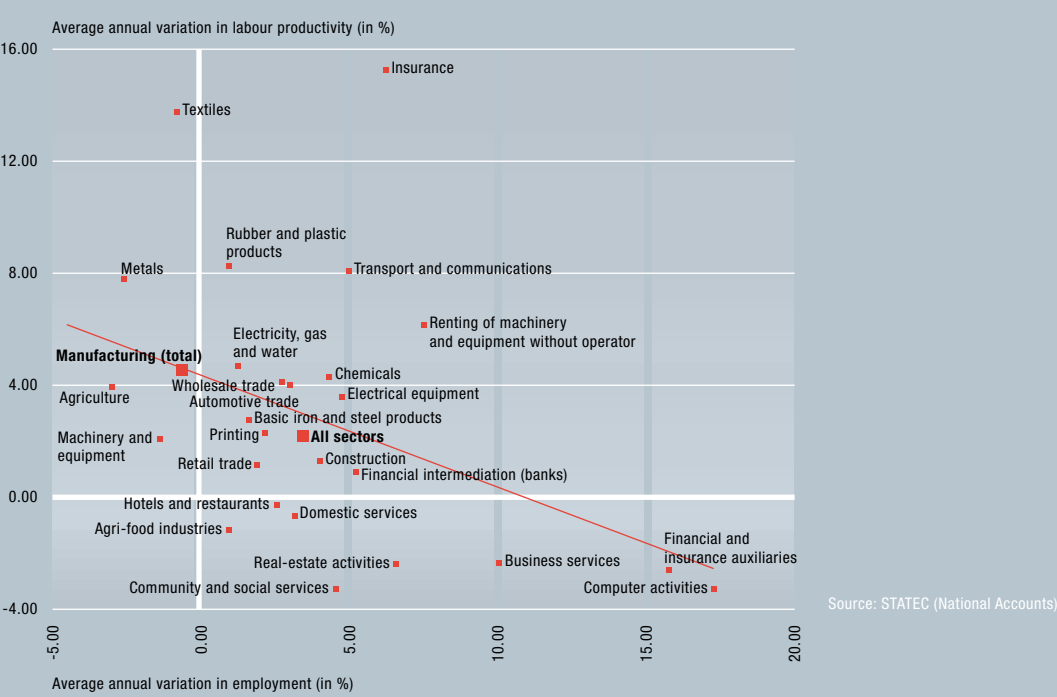
At constant 1995 prices, gross value added (GVA) in the textile industry grew from 29.2 to 193.8 million euros between 1985 and 2003, while employment in this industrial sector remained virtually the same, at around 1,000 people. In 2001, the level of apparent labour productivity (GVA at current prices/employment) in the textile industry was EUR 126,200 per job in Luxembourg, as against EUR 45,200 in Belgium, 38,700 in Germany and 35,000 in France. This expansion is not that of traditional textiles. It is rather in the production of synthetic fibres, such as highly resistant Tyvar (in carpets) and the polyethylene thermal Tyvek, products of Dupont de Nemours.

Even in more traditional manufacturing sectors, such as metals and metallurgy (that is, the manufacture of basic iron and steel, where major productivity gains have been mentioned), the level of apparent labour productivity exceeds that of the majority of other European countries. In metallurgy, the value added per person employed was EUR 74,000 in Luxembourg in 2001, compared to EUR 64,100 in Belgium, EUR 60,300 in Germany, EUR 52,100 in France and EUR 63,700 in the Netherlands.

There are also highly productive sectors in the area of services in Luxembourg. The productivity growth rate per worker in wholesale trade, for example, averaged more than 5% during the years 1985 to 2003. In 2001, the level of productivity (GVA per job) in this sector was EUR 74,400 per person employed, as against EUR 63,100 in Belgium, EUR 57,600 in Germany and 53,200 in France. Similarly, in the *communications* sector, productivity growth per employee is at a high level, at more than 7% annually on average. In 2001, the value added per person employed in *telecommunications* in Luxembourg was EUR 762,900 per person employed, as against EUR 119,600 in Belgium, EUR 168,600 in Italy and EUR 106,400 in France.

Graph 1.4.3

Trends in productivity and employment of the business sectors in Luxembourg from 1985 to 2003



Even in *post and courier activities*, the level of value added per person employed exceeded that of other European countries: EUR 81,200 in Luxembourg in 2001, as against EUR 33,900 in Germany, EUR 35,500 in Belgium and EUR 37,200 in France.

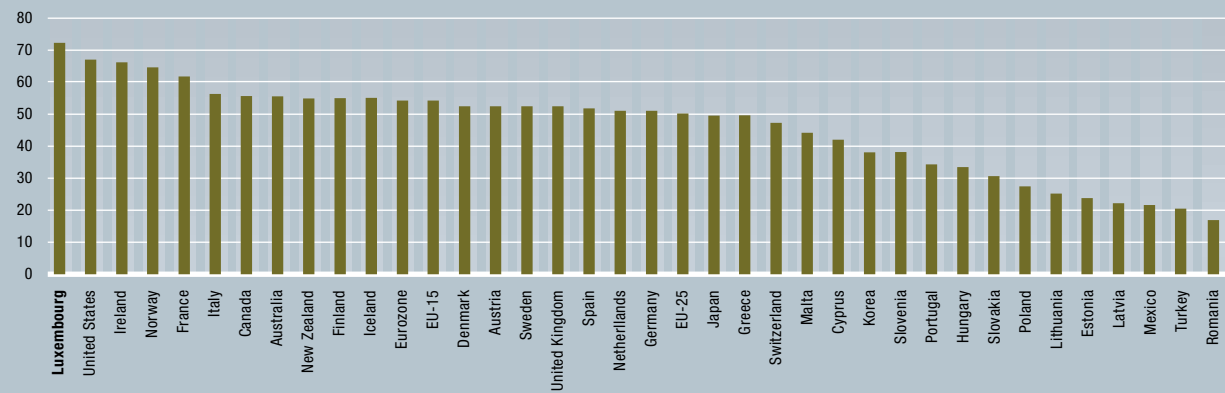
It should also be noted that a certain number of economic sectors registering major productivity growth rates are dominated or strongly marked by multinational companies that are among the global leaders in their areas, namely Arcelor in the manufacture of basic iron and steel, DuPont de Nemours in textiles and SES (*Société Européenne de Satellites*) in telecommunications.

As regards the driving sector of the Luxembourg economy, that is, financial services, which represented some 30% of the value added of the economy in 2003, we notice an elevated *level* of productivity: in 2003, the gross value added at current prices per person employed was EUR 246,900, versus an average of EUR 91,000 in the Luxembourg economy as a whole. On the other hand, the productivity growth rate in this sector has been rather weak since 1985.

Among sectors that performed less well (relatively weak growth in both employment and productivity), we should especially note the agri-food sector, and to a lesser degree, hotels and restaurants. The National Accounts data on the agri-food sector reflect the current difficulties experienced by certain companies in this sector.

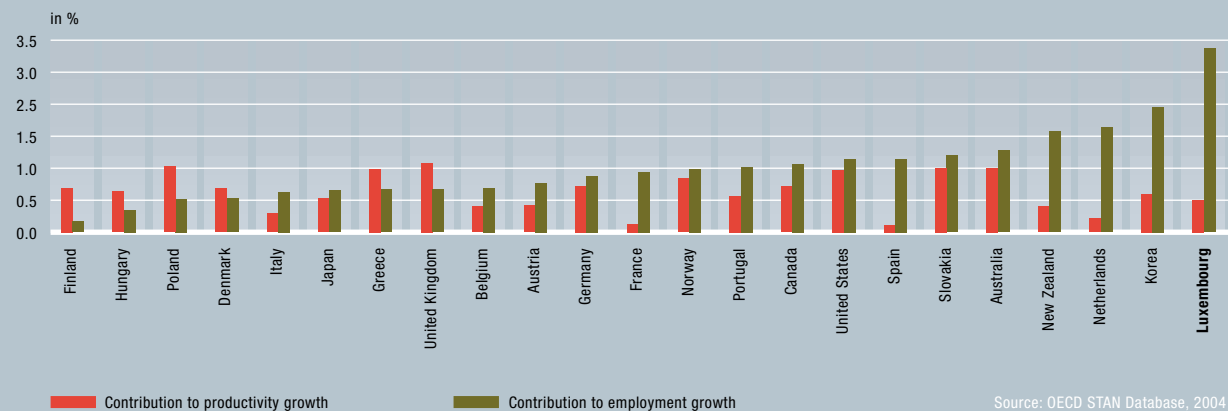
In comparison with other European countries, the level of total productivity (total value added, or GDP per person employed) is high in Luxembourg (see graph 1.4.4). In 2003, the GDP per person employed was EUR 81,000 in Luxembourg, EUR 74,200 in Ireland, EUR 70,300 in the Netherlands, EUR 65,800 in France, EUR 65,100 in Belgium, EUR 55,700 in Germany and around EUR 56,000 in the EU-15. The level of hourly productivity is also high among industrialized countries, even if the economic turnaround is being felt (for more on this subject, see graph 3.2.2 on p. 134).

Graph 1.4.4
Level of productivity: GDP per job in 2003 (1,000 PPS)



Source: European Commission (AMECO)

Graph 1.4.5
Contribution of services to productivity and employment growth, 1990-2002
(annual average contribution %)



Source: OECD STAN Database, 2004

The comparative graph 1.4.5 indicating the contribution of services to productivity and employment in certain OECD countries confirms the decisive role played by these services in employment growth in Luxembourg. Their impact on productivity growth in the Luxembourg economy is substantially less. However, while far from the levels of countries such as the United States, the United Kingdom and Canada, the performance of the services sector in its contribution to productivity growth is better in Luxembourg than in Italy, Belgium, France, Spain and the Netherlands.

The *annual* variations in productivity are only a limited indicator for a country like Luxembourg, which is characterized by major variations in value added (and in GDP). In the case of non-adaptation of employment in the very short term (and a certain time is generally required for the labour factor to adjust to economic growth), variations in GVA result in annual productivity variations that are just as large. It is thus better to refer to averages.

In the comparative table 1.4.6 indicating the variation in hourly productivity (calculated by the OECD), it is intentional that the averages over different periods of time for the 1990-2003 period are presented. It can be observed that, depending on the period taken into consideration, the possible interpretations diverge greatly. For example, if reference is made to the years 1990-2000, the performance of the EU-15 in the area of hourly productivity growth seems good in comparison with the United States (2.1% in the EU-15 as against 1.7% in the United States). However, this average conceals a more subtle reality: the high rate of growth of the EU-15 for the period 1990-2000 can be credited entirely to the first half of the 1990s (2.4% annual average growth in hourly productivity in the EU as against 1.2% in the United States between 1990 and 1995), while during the second half of the 1990s, Europe lagged behind (1.7% in the UE as against 2.2% in the United States). Because of the economic slowdown in Europe since 2001, it would seem that this negative differential for the EU cannot be absorbed. On the contrary: during the period 1995-2001, the average hourly productivity growth rate in Europe was 1.7% in the EU-15 (as against 2.1% in the United States); the European rate fell to 1.5% for the years 1995-2003 (as against 2.4% in the United States).

As regards the hourly productivity trend in Luxembourg, two characteristics can be noted:

- the hourly productivity growth rate in the period 1990-1995 – marked by the economic slowdown of the years 1992-1996 – is much weaker than in the EU-15 (1.7% as against 2.4%), while it is much higher in the years 1995-2000, when GDP growth surged in Luxembourg (3.2% average growth in hourly labour productivity in Luxembourg between 1995-2000, as against 1.7% in the EU-15);
- disregarding the period 1990-1995, the average productivity growth rates of the Luxembourg economy compare favourably to the average rates of the EU-15 and to the rates of many other European countries taken individually, without, however, really distinguishing itself from the European pack.

We mentioned above that in general, hourly productivity developed more positively in Europe, compared with the United States, than the average growth rate of productivity per job suggests.

First it should be noted that during the entire period 1990-2003, countries such as Finland, Sweden, the United Kingdom, obviously Ireland, but also France, and, to a certain extent Luxembourg (if the years 2002-2003 are excluded), rivaled the United States in the area of hourly labour productivity growth. Between 1980 and 1995, a substantial catching-up process was observed in Europe compared to the United States. In 1980, the GDP per hour worked corresponded to 83% of the level in the United States. In 1995, this rate was at 96.5%, before falling to 93% in 2001.

At the same time, working time decreased sharply in Europe. In 1980, the number of hours worked per worker in the EU corresponded to 95% of the number of hours per worker in the United States; in 2001 this proportion was not more than 85%. According to the "Total Economy database" of the "Groningen Growth and Development Centre", between 1980 and 2004, the annual number of hours worked per worker fell in France from 1,696 to 1,398 hours, in Belgium from 1,736 to 1,565 hours, in Germany from 1,696 to 1,446 hours, in the Netherlands from 1,569 to 1,338 hours (this is also an effect of the significant development of part-time employment in this country), and in Luxembourg from 1,731 to 1,560 hours. In the United States, the number of hours worked fell only very slightly, from 1,853 hours in 1980 to 1,817 hours in 2004. In addition, the rate of activity is weaker in Europe: it was 62% in Europe in 2002, as against 73% in the United States.

Table 1.4.6

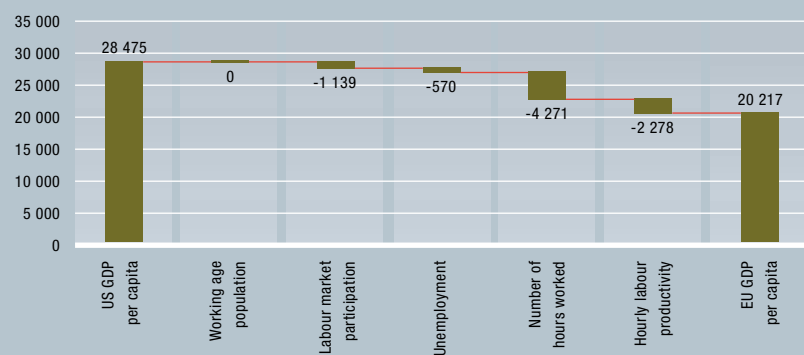
Average variation in hourly labour productivity, 1990-2003 (GDP per hour worked, average annual variation in %)

	DK	FI	FR	DE	EL	IE	IT	JP	LU	NL	NO	PT	ES	SE	CH	UK	US	EU-15
1990-2000	1.5	2.8	2.0	2.3	1.8	4.5	1.6	2.2	2.5	1.6	2.9	3.5	1.2	2.3	0.5	2.5	1.7	2.1
1990-2001	1.5	2.6	2.0	2.2	2.0	4.4	1.5	2.2	2.0	1.4	3.0	3.2	1.2	2.1	0.6	2.4	1.7	2.0
1990-2002	1.5	2.5	2.1	2.2	2.1	4.5	1.3	2.1	1.8	1.5	3.0	2.9	1.2	2.2	0.6	2.4	1.8	1.9
1990-2003	1.5	2.5	2.0	2.1	2.2	4.5	1.2	2.2	1.8	1.2	2.9	2.8	1.2	2.3	0.6	2.4	2.0	1.8
1990-1995	2.0	2.9	1.8	2.8	0.7	3.6	2.3	2.3	1.7	2.4	3.5	3.8	1.9	2.1	-0.6	2.8	1.2	2.4
1995-2000	1.1	2.7	2.1	1.8	2.9	5.5	1.0	2.1	3.2	0.8	2.3	3.2	0.5	2.5	1.6	2.3	2.2	1.7
1995-2001	1.2	2.3	2.1	1.8	3.1	5.1	0.9	2.1	2.2	0.5	2.6	2.6	0.5	2.2	1.6	2.1	2.1	1.6
1995-2002	1.2	2.2	2.2	1.7	3.2	5.1	0.6	2.0	1.9	0.8	2.6	2.3	0.6	2.3	1.5	2.1	2.2	1.6
1995-2003	1.3	2.3	2.0	1.6	3.2	5.1	0.5	2.1	1.8	0.5	2.4	2.1	0.7	2.4	1.3	2.1	2.4	1.5

Source: OECD

Graph 1.4.7

GDP per capita in the EU-15 and in the United States and the contributions of different factors to the gap (2002, in PPS)



Source: Bowen H. Sleuwaegen L., European integration: the third step, Vlerick Leuven Gent Management School, Working Paper Series 2004/19, 2004
 N.B: Based on the "Total Economy database" of the "Groningen Growth and Development Centre" (<http://www.ggdc.net/>)

Responsibility for the "standard of living deficit" in comparison with the United States is frequently attributed to Europe's lagging productivity. Yet this view is too simplistic. In the graph 1.4.7 indicating the contributions of different elements – productivity, number of hours worked, working age population, participation in the labour market, unemployment – it is quite clear that the productivity differential contributes to the GDP per capita gap between Europe and the United States (about 28% of the total gap). But the gap is primarily a consequence of the differential in the number of hours worked (52% of the total gap).

Economist Olivier BLANCHARD (*"The Economic Future of Europe"*, NBER Working Paper, No. 10310, 2004) maintains that the lower number of hours worked in Europe is an expression of a more marked preference in Europe for leisure time. Edward PRESCOTT (*Why do Americans work so much more than Europeans?*, Federal Reserve Bank of Minneapolis Research Department Staff Report 321, November 2003) has argued that all of the decrease in hours worked in Europe could be attributed to the increase in taxes on labour. The services of the European Commission (*"European Competitiveness Report 2003 Edition"*, 2003) attributes this characteristic also to institutional and cultural factors that "compel" people's choice to work less (in terms of hours worked or participation in the labour market) and which have a "negative" impact on the rate of activity and on the number of hours worked. Among these institutional factors, of special note are labour market regulations that restrict part-time work, legal norms regarding holidays and working times, etc. The most precise interpretation, however, is probably somewhere in between these views.

1.5

Use of foreign labour: cross-border workers and immigrants

The job-intensive growth of the Luxembourg economy is accompanied by increasing use of foreign workers. From the beginning of its industrialization, Luxembourg has counted on immigration to satisfy the demand for labour of companies. The first immigrants were Germans, followed by Italians, during the take-off of the manufacture of basic iron and steel at the end of the 19th century and in the 20th century.

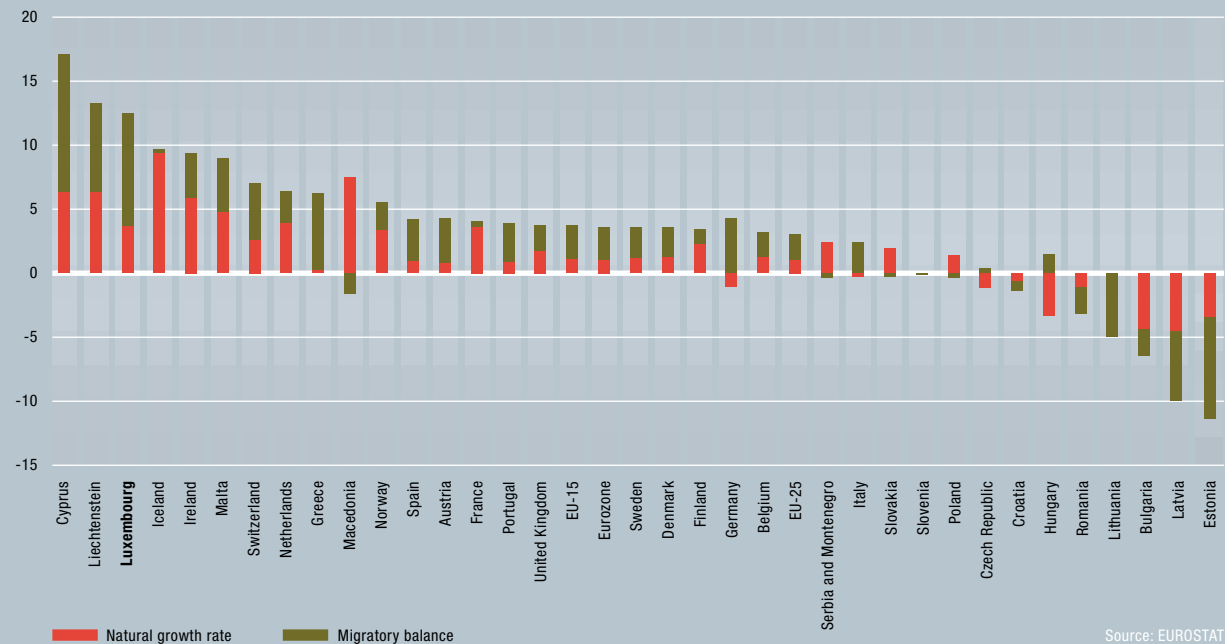
In 1913, foreigners already made up 15% of the population. The periods of growth in the 1920s, then after the Second World War until 1974 (global economic crisis), and again beginning in 1985, were marked by high net migration. Beginning at the end of the 1960s, Portuguese citizens began to replace Italians as the primary component of immigration. In contrast with previous migrations (which could be considered "migrations of rotation"), however, this is one of family immigration, which has major repercussions on the demographic structure, especially in the age structure of the country's population (see also chapter 3.10).

The graph 1.5.1 indicating the contributions of natural and migratory fluctuations in the demographic growth of European countries between 1990 and 2003 also shows the demographic "dynamism" (remaining) of the majority of these countries is largely attributable to net migration.

This is particularly true for the countries of Southern Europe (Italy, Spain, Portugal, Greece), but also for Germany, Austria, Denmark, Switzerland and Luxembourg. It should be noted that the natural demographic growth in Germany was actually negative. As regards the details of Luxembourg, it should be indicated that Luxembourg has a significantly higher level of net migration than other European countries (except Cyprus), as well as a level of natural demographic growth that, while not reaching the levels of Ireland, Iceland or Malta, is nevertheless quite high when compared with other European countries. This point brings us back to the age structure of the Luxembourg population mentioned above.

The foreign component in the total population of Luxembourg rose from 18% in 1970 to nearly 39% in 2004. In comparison, the foreign component in the population of Switzerland is around 20%, and in practically all other countries it does not exceed 10%. Of the 451,600 residents of Luxembourg on 1 January 2004, there were 174,200 foreigners, among them 63,760 Portuguese, 21,880 French and 18,890 Italians. During the 1990s, net migration to Luxembourg reached 10‰, as against an average of 2.3‰ in the EU.

Graph 1.5.1
Rate of population growth, 1990-2003
Share of net migration and natural demographic growth
(average annual variation in ‰)



Source: EUROSTAT

Beginning at the start of the 1980s, even immigration could not satisfy the demand for labour in Luxembourg companies (see table 1.5.2). The number of cross-border workers – that is, people who live on the border regions in Germany, Belgium and France and who cross the border to work in Luxembourg – has seen very significant growth since the second half of the 1980s. The average annual growth rate in the number of cross-border wage earners in Luxembourg was nearly 10% between 1988 and 2004, while the average job growth rate for residents (indigenous and immigrant) was only 1.7% during the same period. Total average annual job growth was 3.8% between 1988 and 2004. It should be noted that Luxembourg is, with Switzerland, one of the OECD countries in which the phenomenon of cross-border workers is more developed (see table 1.5.3).

As regards recent trends, it should be highlighted that the number of cross-border workers continued to increase during the period of quite weak growth from 2002-2004, without, however, reaching previous rates. The cross-border employment growth rate was around 4% annually between 2002 and 2004 (as against 9.8% on average between 1988 and 2004). Nevertheless, this 4% corresponds to triple the pace of growth in resident employment, which increased by only 1.1% and 1.2% in 2003 and 2004, respectively. In January 2005, the number of cross-border workers was 113,611, as against 108,239 in January 2004. In addition, during the years 2003 and 2004, the number of German cross-border workers saw the greatest expansion; this trend is related to the major economic difficulties Germany is experiencing.

As regards the employment of residents, the virtual stagnation in the employment of indigenous workers can be observed (90,999 indigenous wage earners in 1988 and 93,561 in 2004), while the number of Community and non-Community wage earners rose from 38,530 to 76,241 during this same period. The absolute number of non-Community citizens remains relatively low (9,318 people in March 2004), but the growth rate is more significant than for citizens of the EU-15. For the years 2003-2004, however, we note a reduction in the job growth rates of foreigners resident in Luxembourg: the growth rate for salaried employment of EU citizens was only 1.7% in 2003 and 2004, as against 4% over the entire period 1988-2004. This trend reflects the drop in net migration following the economic reversal of 2001 (see also p.18)

In summary, residents of Luxembourg nationality represented 33.4% of total salaried employment in March 2004 (as against 60% in 1988), immigrants resident in Luxembourg 27.2% (as against 23.2% in 1988) and cross-border workers 39.4% (as against 15.9% in 1988) of that total employment.

As regards the distribution of salaried employment by sector, nationality and country of residence, the associated graph 1.5.4 indicating the data from March 2004 shows that Luxembourgers are oriented towards jobs in the public sector (administration and education) and para-public sector (energy and water, health and railways), while they are practically absent in the hotel and restaurant sector, and in the construction sector (less than 10% of salaried employment in these industries). Foreigners resident in Luxembourg have a particularly strong presence in hotels and restaurants, as well as in construction, while the component of cross-border workers is very significant in business services and industry, but also in financial services and trade.

Table 1.5.2
Salaried employment by residence and nationality in Luxembourg (as at 31 March of each year)

	1988	1995	2002	2003	2004	Average variation	Variation	
						1988-2004	2002-2003	2003-2004
Luxembourg residents	125 529	141 444	166 020	167 765	169 802	1.7%	1.1%	1.2%
of which Luxembourgers	90 999	87 013	93 006	93 182	93 561	0.2%	0.2%	0.4%
EU-15 countries	35 729	49 169	64 711	65 817	66 923	4.0%	1.7%	1.7%
Non-Community	2 801	5 262	*8 303	*8 766	*9 318	7.8%	3.0%	1.1%
Cross-border workers	24 567	54 156	101 621	105 662	110 404	9.8%	4.0%	4.5%
from Germany	4 366	9 760	19 843	21 022	23 090	11.0%	5.9%	9.8%
France	10 818	27 843	53 839	55 633	57 283	11.0%	3.3%	3.0%
Belgium	9 383	16 553	27 939	29 007	30 031	7.5%	3.8%	3.5%
Total	154 096	195 600	267 641	273 427	280 206	3.8%	2.2%	2.5%

Source: Social Security Inspectorate General (IGSS)

* among the "non-Community workers": 737 from new Member States of the EU 15 in 2002, 973 in 2003 and 1438 in 2004.

Table 1.5.3
Cross-border workers in selected OECD countries, 1996-2002

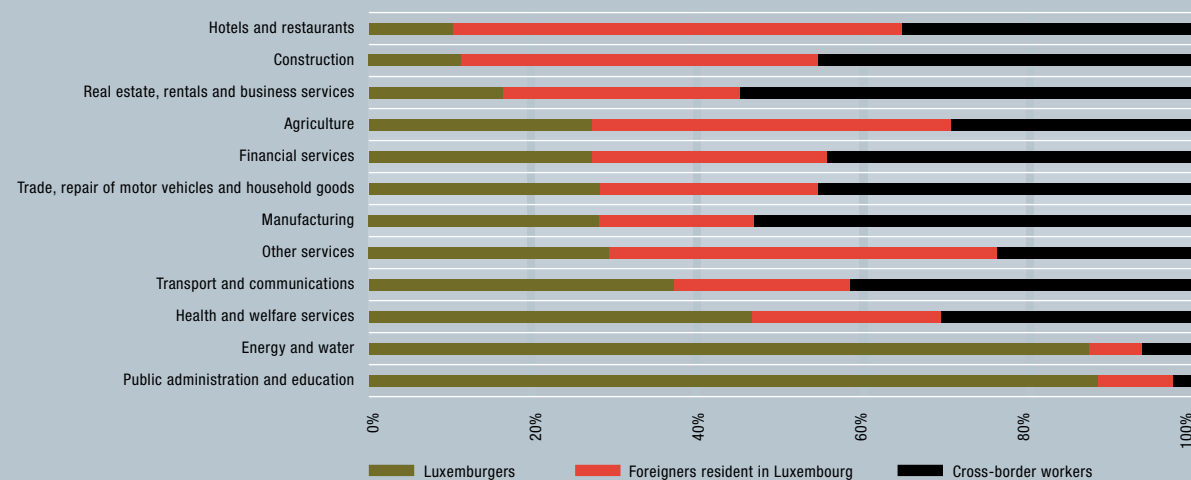
	1996	1997	1998	1999	2000	2001	2002
	in thousands						
Austria*	....	....	2.1	4.0	5.2	5.4	5.7
Belgium	....	....	20.5	22.9	25.0	28.7	30.5
Luxembourg**	59.6	64.4	72.9	90.6	90.7	98.8	103.1
Switzerland	147.0	142.2	142.5	144.8	156.0	168.1	173.2

Source: OECD (SOPEMI)

* Non-EU supply of workers

** end of year data

Graph 1.5.4
Distribution of salaried employment by sector and residence as at 31 march 2004



Source: Social Security Inspectorate General (IGSS)

1.6

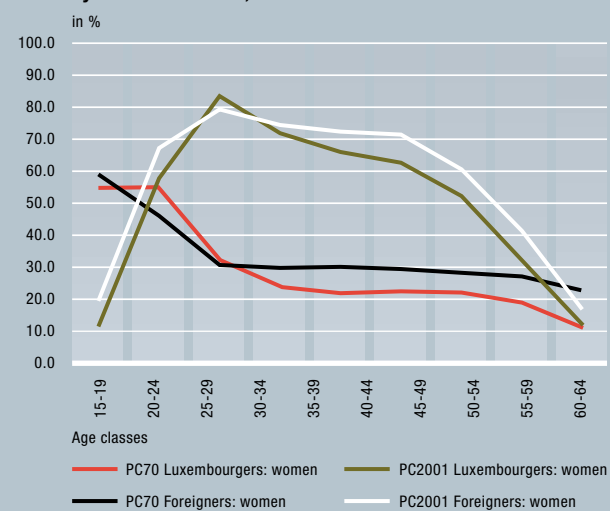
Activity rates: delayed entry into the labour market, early retirement and increase in the female activity rate

The labour supply of inhabitants of Luxembourg is primarily determined by the working-age population (15-64 years). It should first be noted that the number of nationals (indigenous) in the 15-64 age class has remained virtually stable (179,917 people in 1970 and 176,200 in 2001), while the number of foreigners (immigrants) in this age class rose from 41,918 in 1970 to 119,100 in 2001. The growth in total available resident workers can be almost completely attributed to immigration.

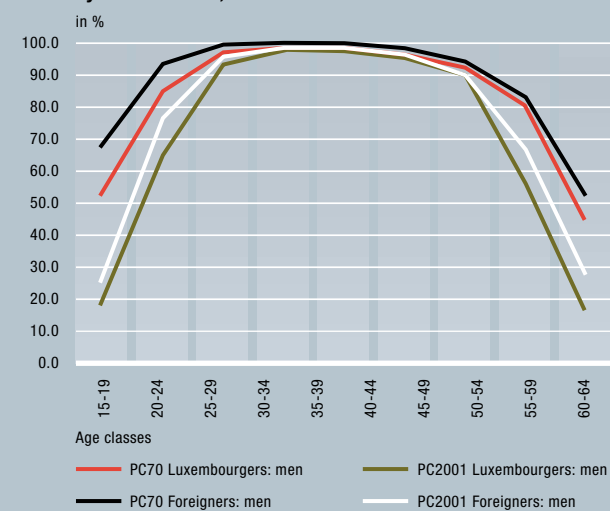
In addition, the degree of participation in the labour market – measured by rates of activity – has seen major changes. The increase in university attendance by men, as with women, has led to a dramatic drop in the activity rate in the age class of 25 and younger. For men of Luxembourg nationality from 15 to 19 years of age, the activity rate fell from 51.9% in 1970 to 18.0% in 2001. This phenomenon also affects foreigners in the same age class, although their rate of activity remains higher than the national rate: between 1970 and 2001, the activity rate of foreigners aged 15 to 19 fell from 67.3% to 24.9%.

At the same time, men are leaving the labour market in increasingly greater numbers between the ages of 55 and 64. This is a particularly clear trend for men of Luxembourg nationality. The activity rate for nationals aged 55-59 fell from 79.1% in 1970 to 52.4% in 2001. In the age class 60-64, the activity rate for men of Luxembourg nationality was not more than 16.2% in 2001, versus 44.8% in 1970. Foreigners resident in Luxembourg follow this trend, although it is less accentuated than for Luxembourgers. In the age class 55-59, for instance, the activity rate of foreign men fell from 81.8% in 1970 to 64.5% in 2001 (as against 52.5% for Luxembourgers in 2001). It should be noted that early retirement from the labour market is more pronounced in Luxembourg than in other European countries. The activity rate and employment rate for those above 55 years are among the lowest for the EU-15 (for more on this subject, see graph 3.1.3 on p. 119).

Graph 1.6.1
Activity rate of women, 1970-2001



Graph 1.6.2
Activity rate of men, 1970-2001



Source: STATEC (PC = Population censuses)

The third element that should be emphasized is the significant increase in the rate of activity of women: the activity rate of women (female working population/number of women aged 15 to 64) rose from 29.4% in 1970 to 54.7% in 2001. As regards the activity rate by female age class, the reduction in the curve beginning in age class 30-34 should, however, be noted (as regards the employment rate of females in comparison with other European countries, see graph 3.1.3 on p. 119).

However, as a result of the double trend characterized by the delayed entry into the labour market and early retirement (particularly for men, for whom the overall rate of activity fell from 84.9% in 1970 to 76.4% in 2001), the significant increase in the rate of activity of females has only a limited impact on the rates of activity for the overall population, which rose only from 57% in 1970 to 65.7% in 2001.

Finally, it should be noted that the activity rates of foreigners resident in Luxembourg are higher than those of Luxembourgers, for virtually all age classes as well as for both men and women.

Structure of value-added: the "weight" of financial services

If the importance of the economic sectors is expressed as their percentage of the sum of value added, we arrive at the obvious conclusion that financial services has a weight that can only be classified as enormous. In fact, financial activities (banks, financial services auxiliaries, insurance) have replaced the manufacture of basic iron and steel – beginning in the 1970s – as the driving sector of the Luxembourg economy.

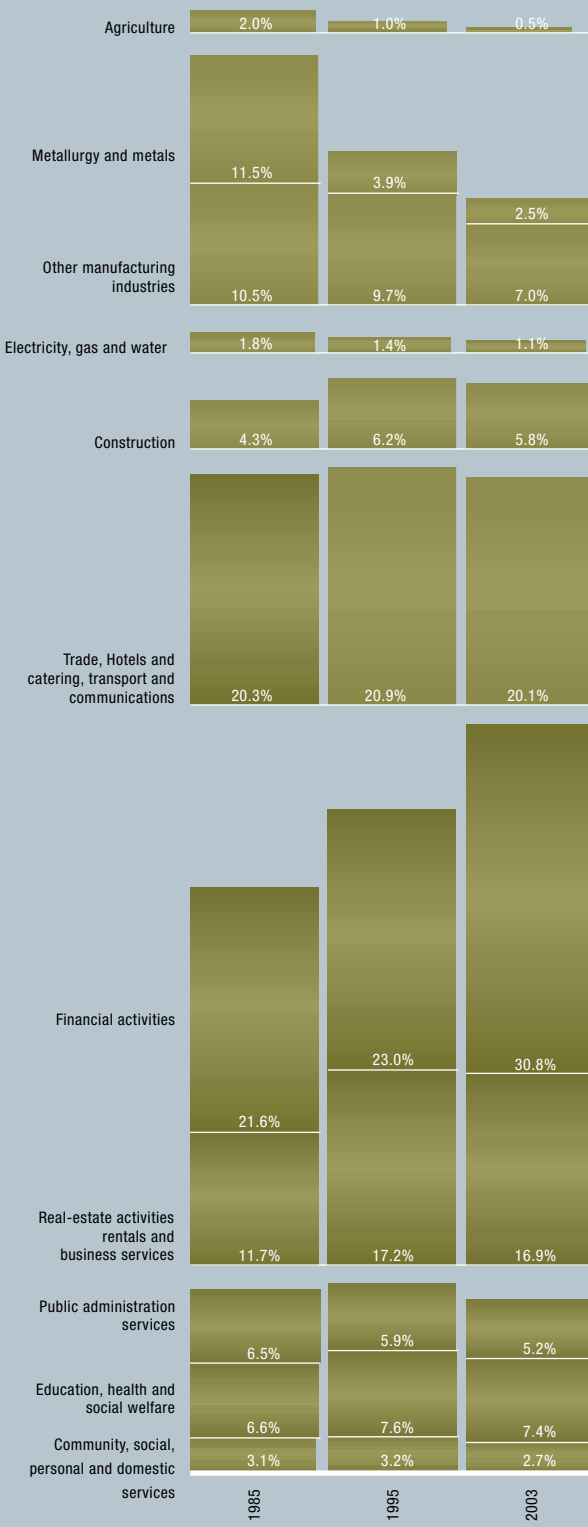
The contribution of the manufacture of basic iron and steel to value added fell from 28% in 1970 to less than 2% in 2003, while the contribution of financial services to the total value added changed from around 2% in 1970 to nearly 31% in 2003. As regards employment, the manufacture of basic iron and steel is falling continuously (from around 25,000 people employed in 1970 to 5,700 in 2003), whereas the number of people employed in financial services has increased sharply, from around 4,300 in 1970 to 33,300 in 2003. It could be added that in the area of external economic relations, financial services and insurance represented more than 70% of the total surplus (net) of the balance of services in 2003.

The aggregated balance sheet of the Luxembourg banks has increased, at current value, from EUR 189.1 billion by the end of 1985 to EUR 695.1 billion by the end of 2004. Their gross income (see graph 1.7.2) increased from EUR 2.735 billion in 1985 to EUR 4.806 billion in 1995 and EUR 8.368 billion in 2002, before falling in 2003 and 2004 (EUR 7.502 billion in 2004). The net profit of banks increased from EUR 328 million in 1985 to EUR 1.512 billion in 1995, EUR 2.676 billion in 2002 and EUR 3.248 billion in 2004. It should be noted that the banking sector went through a phase of mergers and acquisitions beginning in the mid-1990s: the number of banks had almost doubled from 1985 to 1994, increasing from 118 to 222, before dropping sharply to 162 in 2004. The number of bank personnel reached 23,886 in 2001, as against 10,213 in 1985.

The determining influence of financial services on the economic development of Luxembourg has become greater than ever since the economic reversal of 2001. The valued added in volume terms of financial services declined drastically (the rate of change was negative), which caused a drop in the GDP growth rate that was just as significant (see graph 1.3.2 on p. 19, as well as the table 1.7.5 on p. 40 indicating the trend of the indexes of value added in volume terms by sector beginning in 1985). The number of bank personnel decreased for the first time since the beginning of the development of the financial markets: from 23,886 in 2001, the number fell to 23,300 in 2002 and 22,259 in 2003. A slight increase to 22,554 in 2004 should be noted. It could be added that this rationalization trend reflects the decline in the curve of percentage of personnel expenses in the gross profit of banks (see the graph 1.7.2 indicating the change in gross profit of banks).

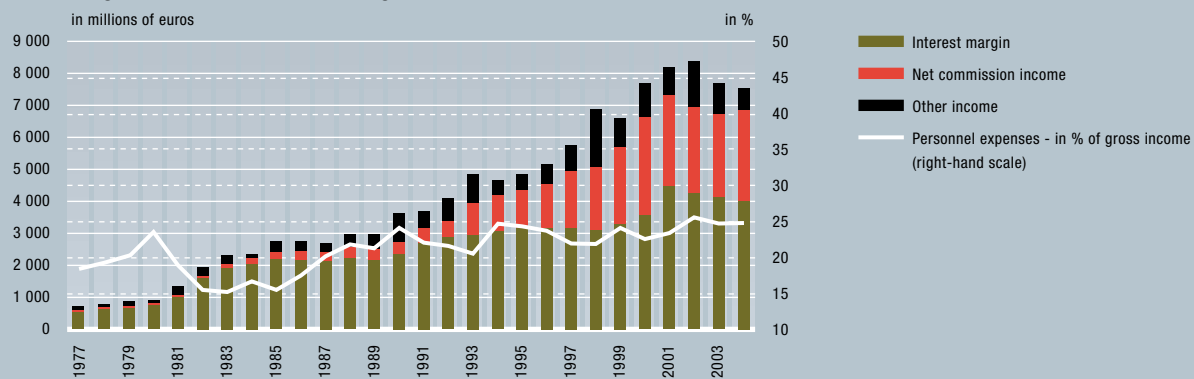
In addition, the weight of financial services in the Luxembourg economy is not limited to financial activities themselves. According to a study of the "Committee for the Development of the Financial Markets" regarding the year 1999, the financial sector directly contributes more than 40% of the receipts of the State Budget. In addition, certain sectors in the area of "business services" (security, cleaning, consulting, etc.), IT and construction depend directly or indirectly on the performance of the financial markets.

Graph 1.7.1
Structure of the sum of value added to base prices (in %)

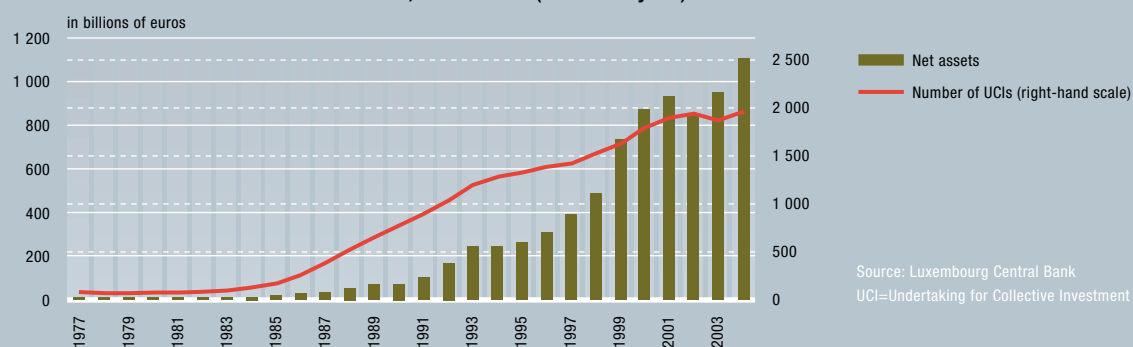


Source: STATEC (National Accounts)

Graph 1.7.2
Trend of gross income of Luxembourg banks, 1977-2004



Graph 1.7.3
Trend of net assets and number of UCIs, 1977-2004 (at end of year)



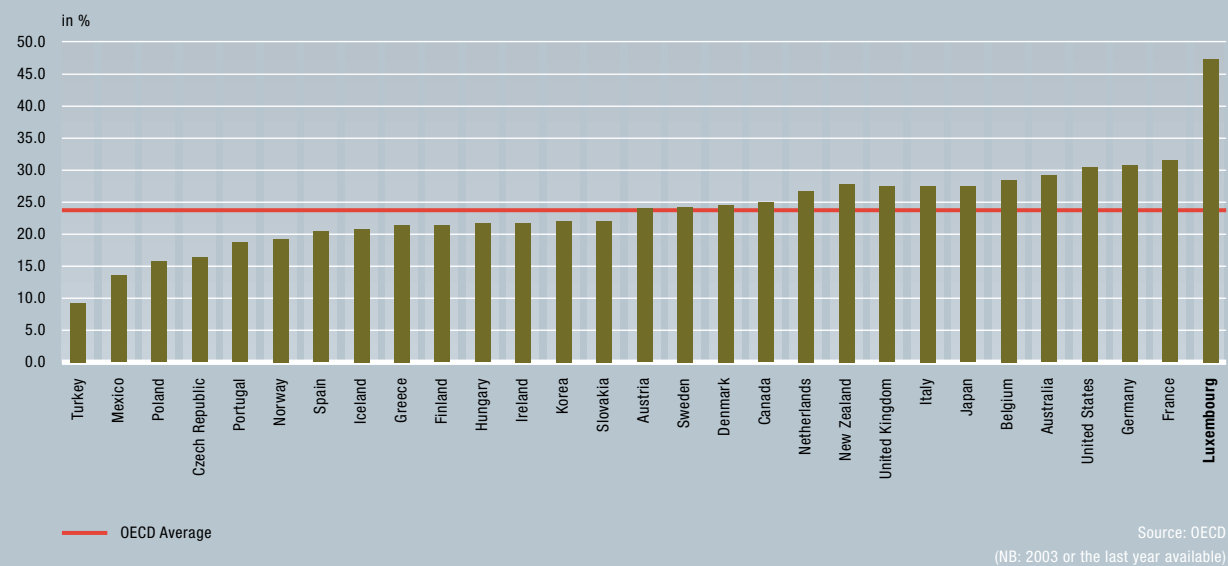
The economic structure of Luxembourg is largely dominated by services. Services as a whole – wholesale and retail trade, transport and communications, hotels and restaurants, financial services, real estate, rentals and business services, general government, health, education and domestic services – represented more than 83% of the value added of the Luxembourg economy. This rate was just 73% in Belgium 74% in France, 73% in the Netherlands and 70% in Germany. Even in the United States this percentage is only around 76%. However, it should be noted that the difference in comparison with other countries derives almost exclusively from the sector "banks, real estate, rentals and business services". The contribution of this sector to the value added of Luxembourg exceeds 47%, while the average for OECD countries is a rate of around 24% (see the graph 1.7.4). The contributions of other service sectors in the value added of the Luxembourg economy are more along the lines of the average for OECD countries.

This broad outline conceals a more subtle trend; this is all the more evident because financial services are a sector with a great deal of value added, which automatically makes the other sectors appear relatively less important. Therefore, we should not lose sight of the:

- diversification of financial services themselves;
- dynamism of other economic sectors.

The importance of *private banking* has increased since the mid-1980s and Luxembourg has progressively positioned itself as an international centre in this area. But private banking is not the only asset of the financial centre. Within the European Union, Luxembourg has acquired recognized competence in administration, and more recently, in the distribution of *investment funds* (UCIs, Undertakings for Collective Investment). The number of UCIs rose from 525 in 1988 to 1,968 in 2004 (end of year). At the end of 2004, the net assets of UCIs in Luxembourg totalled EUR 1,106 billion, as against EUR 53 billion in 1988 (see also the graph 1.7.3 indicating the development of UCIs).

Graph 1.7.4
Value added of the "financial services, real estate, rentals and business services" sector, in % of total value added in 2003



Source: OECD
(NB: 2003 or the last year available)

According to the figures published by the *European Fund and Asset Management Association*, with net assets of EUR 1,058 billion at the end of June 2004, Luxembourg's share of the European fund industry was 20.4%. This puts Luxembourg in second place in Europe, just behind France (20.9% of the market).

Besides private banking and the administration and distribution of UCIs, the third pillar that was developed in the area of financial services is that of *insurance* (see the table 1.7.5 indicating the change by sector in gross value added in volume terms beginning in 1985). The growth of the sector is principally attributable to the development of cross-border FPS (free provision of services) life insurance. The total of premiums issued by insurance companies established in Luxembourg rose from EUR 393.1 million (of which EUR 117.1 million was for life insurance premiums) in 1990 to EUR 7.3 billion (of which EUR 6.3 billion was for life insurance premiums) in 2003. As regards the breakdown of premiums collected in 2003 by type of insurance and country of risk, it can be seen that around 80% of the total premiums collected can be attributed to cross-border life insurance. Belgium is the most important market, with almost 50% of the total life insurance premiums collected. The number of employees of insurance companies was nearly 2,700 as at 31 December 2003.

The reinsurance sector has also seen considerable expansion. The number of reinsurance companies rose from 136 in 1990 to 270 in 2003. Reinsurance is also an essentially cross-border activity. The breakdown of premiums collected according to geographic region of the insurance companies assigned in 2003 shows that of the total of EUR 2.9 billion in premiums, only 9% came from Luxembourg.

The dynamism of other sectors of the Luxembourg economy is shown in the table 1.7.5 indicating the trends of the indices of value added in terms of volume since 1985. Among the branches that have seen above-average growth of special note, besides financial and business services, are wholesale trade and the automotive trade sector, rental activities, computer activities, as well as transport and communications. Among the other services, the significant growth of the "health and welfare services" stands out.

Table 1.7.5

Trend by economic branches of gross value added in volume terms (indices, 1985 = 100)

	1985	2000	2001	2002	2003
Agriculture	100	127	108	108	105
Manufacturing (including energy)	100	189	191	195	200
Construction	100	210	226	238	249
Sales; repair of motor vehicles and household goods	100	238	253	252	259
Trade and repair of motor vehicles	100	281	303	308	324
Wholesale trade and trade intermediaries	100	295	315	309	317
Retail trade and repair of household goods	100	158	165	167	168
Hotel and restaurant services	100	147	152	149	145
Transport and communications	100	707	757	820	865
Financial services	100	321	311	315	320
Financial intermediation	100	282	272	277	282
Insurance	100	531	463	449	451
Financial and insurance auxiliaries	100	555	596	600	603
Real-estate services, rental services and business services	100	230	238	248	252
Real-estate activities	100	174	182	193	196
Renting of machinery and equipment without operator	100	460	495	565	607
Computer activities	100	1 136	1 045	951	832
Other business services, R&D	100	303	313	322	335
Other service activities	100	202	211	213	221
Government services	100	168	170	175	178
Education	100	204	215	219	224
Health and welfare services	100	456	512	514	548
Other community, social and personal service activities	100	110	110	107	110
Domestic services	100	130	131	143	150
Total sectors	100	249	254	260	266

Source: STATEC

As regards manufacturing, the growth of value added in terms of volume is below average for the period 1985-2003. Nevertheless, it doubled during the period. We cannot therefore speak of "deindustrialization". In addition, the performances in the area of productivity were very positive in the majority of the industrial sectors. As we have also seen above, since the 1990s, employment in manufacturing decreased less in Luxembourg than in other European countries. The trend in the construction sector is also somewhat positive. Its contribution to value added increased between 1985 and 1995 (from 4.3% of total value added to 6.2%), then fell only slightly to 5.8% of total value added in 2003. Two sectors – retail trade and hotels and restaurants – seem to be lagging somewhat.

1.8

Business demography: a dynamic development

The dynamism of an economy is frequently associated with the propensity of its inhabitants to create enterprises, in other words, entrepreneurship. One of the indicators frequently referred to in this area is the number of self-employed persons in the working population. According to this indicator, Luxembourg is rather poorly positioned. In 2002, the proportion of self-employed persons in the working populations (residents) was just 5.9% in Luxembourg, as against 16.3% in Belgium, 8.7% in France, 10.6% in Germany and 14.6% in the EU-15. The results of a survey on entrepreneurship in Europe (Flash Eurobarometer 160, 2004) show that within the European Union, 33% of those interviewed who are not self-employed stated that they intended to become self-employed within the next 5 years. In the United States, 46% stated the same. Luxembourg is slightly below the European average, with 28% of those interviewed tempted to become self-employed. In Spain (50%), Poland (50%) and Portugal (48%), those attracted to this status represent almost half the working population. Those least tempted to become self-employed are in Slovakia and Finland (only 15%), Austria (18%) and Belgium (19%).

The indicators above are based on the principle of professional working status (wage-earner/self-employed). This is not the only possible way to view the question of the creation of enterprises. STATEC recently published (Bulletin No. 9/2004) the results for the years 1997-2001 of its participation in the project "Business demography", launched by EUROSTAT. The renewal of a population of enterprises can be measured by the "birth rate" (proportion of new enterprises compared to the population of active enterprises). The birth rate of enterprises in the entire economy was at around 12% in Luxembourg in 2001. This level is particularly high in the sectors "Financial activities" (19%) and "Real estate, rental and business services" (16%), especially in the division "Computer activities" (22.5%). This data should be reconciled with the data indicating the growth of value added in these sectors. On the other hand, the birth rate is relatively weak in the sectors "Industry" (7%) - especially in the division "Agricultural and food industries" (3%) and "Education, health and welfare services" (6.5%). The differences observed in birth rates from one sector to another could be explained by differences in barriers to entry and by different levels of expected profit.

Table 1.8.1
Birth rates of enterprises in 2001 (in %)

	EU ¹	BE	DK	ES	IT	LU	NL	PT ²	FI	SE	UK	NO
Entire economy	8.8	-	9.3	9.1	7.7	12.2	9.6	7.5	7.2	6.6	-	10.1
Manufacturing	5.6	-	5.1	6.6	5.2	6.8	6.3	5.6	5.2	4.7	-	5.3
Construction	9.4	-	9.0	12.3	9	8.9	11.7	10	8.3	6.3	-	9.5
Services	9.1	-	10.0	8.8	7.9	12.8	9.6	7.5	7.4	6.9	-	10.9

Table 1.8.2
Death rates of enterprises in 2000 (in %)

	EU ¹	BE	DK	ES	IT	LU	NL	PT	FI	SE	UK	NO
Entire economy	8.3	-	9.7	7.2	7.0	9.2	10.2	-	7.3	5.5	10.6	8.3
Manufacturing	6.7	-	6.6	6.0	5.4	5.9	7.8	-	6.1	4.7	9.4	8.5
Construction	7.0	-	7.5	7.2	6.6	6.2	7.5	-	6.9	4.8	9.7	6.7
Services	8.8	-	10.6	7.4	7.4	9.7	11.0	-	7.7	5.8	10.9	8.6

Table 1.8.3
Three-year survival rates for enterprises established in 1998 (in %)

	EU	BE	DK	ES	IT	LU	NL	PT	FI	SE	UK	NO
Entire economy	-	-	53.5	61.6	62.3	66.2	-	-	59.2	-	-	66.9
Manufacturing	-	-	60.3	69.2	64.5	76.3	-	-	64.3	-	-	65.8
Construction	-	-	60.6	60.9	66.4	69.7	-	-	61.1	80.6	-	64.6
Services	-	-	51.9	61.0	61.1	65.7	-	-	58.0	76.1	-	67.4

Source: EUROSTAT, STATEC (bulletin No. 9/2004)

¹ Average of participating countries, ² Individual enterprises not covered in 2001

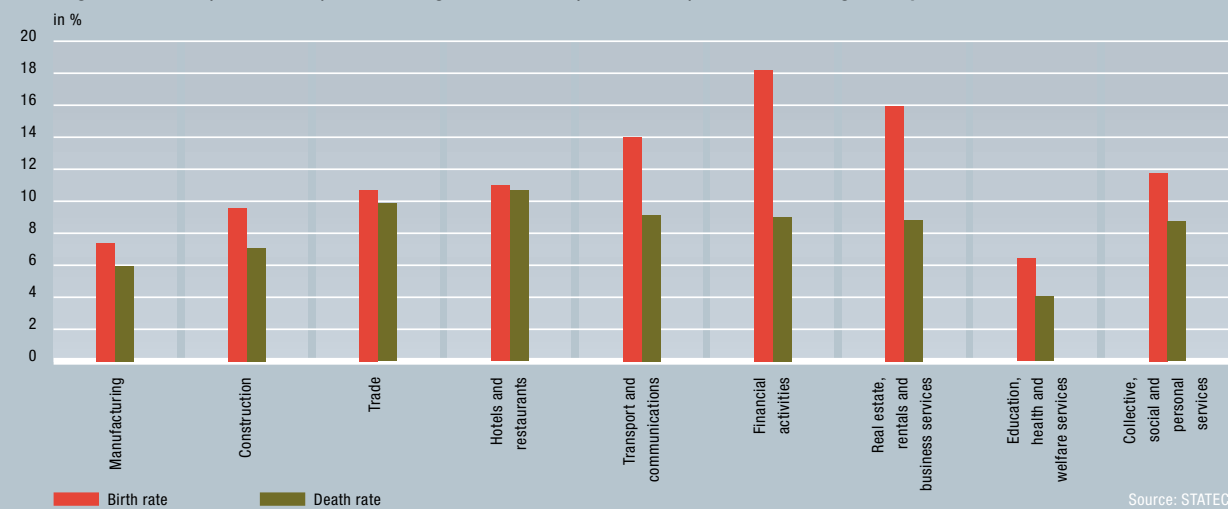
A comparison of the results obtained by Luxembourg with the results of other countries participating in the project "Business demography" (cf. table 1.8.1) reveals that Luxembourg leads in the birth rate (12.2%), clearly ahead of the average rate observed (8.8%). This solid performance can be explained above all by the results obtained in the services sector (LU: 12.8%; EU: 9.1%), but also in the manufacturing sector (LU: 6.8%; EU: 5.6%). In contrast, in the construction sector, Luxembourg is closer to the bottom of the ranking (LU: 8.9%; EU: 9.4%). This result can be explained by the large degree of penetration by cross-border enterprises which operate more or less regularly within Luxembourg, a sign of the increased competition in this sector.

One could obviously make a major objection that the rate of enterprise foundations is not necessarily synonymous with a "healthy" dynamism, if at the same time the survival rate (the proportion of new enterprises that survive) is low or the rate of closures (percentage of enterprises that have ceased operations in comparison with active enterprises), especially if due to bankruptcy, is high.

In Luxembourg, the proportion of enterprises created in 1998 that survived their third year of activity is 66%. One-third of the companies founded that year ceased operations after three years in Luxembourg, but only Norway turned in a better performance (66.95% of enterprises founded in 1998 survived after three years). Across sectors of activity, the survival rates in the Luxembourg economy are always among the highest; the 3-year survival rate in manufacturing very clearly exceeds that of other countries (see table 1.8.3).

As regards the cessation of business activities, there are multiple possible causes: voluntary or involuntary cessation, liquidation, bankruptcy, etc. Cessation therefore does not necessarily mean failure; it could also result from the deliberate intention of the owners of the business (other employment, impossibility of transferring operations to a new owner, for example). The bankruptcy rate – that is, the percentage of bankruptcies in the population of enterprises that have ceased operations – was 26% of the entire Luxembourg economy in 2000, with rates clearly above average in construction (bankruptcy rate of 57%) and in trade (rate of 38%), and lowest in financial activities (19.1%), as well as in the real-estate, rentals and business services sector (16.3%).

Graph 1.8.4
Average birth rate (1998-2001) and average death rate (1997-2000) of Luxembourg enterprises



Source: STATEC

From 1997 to 2000, the average death rate (percentage of enterprises that ceased operations compared to active businesses) in Luxembourg, all activities combined, was around 9%. Nearly one enterprise in 10 ceases operations each year. This rate is relatively low in the sectors "Education, health and welfare services" (4%), "Manufacturing" (6%) and "Construction" (7%), but above all in "Insurance", which is at 2%. Above-average rates of closures are observed in "Hotels and restaurants" (10.5%) and "Trade" (10%).

Compared with other European countries (see table 1.8.2), the rate of enterprise closures in 2000 in Luxembourg (9.2%) exceeds the average rate for EU countries (8.3%) participating in the "Demography of enterprises" project. It is not, however, as high as the rates in the United Kingdom (10.6%), Denmark (9.7%) and the Netherlands (10.2%). The relatively high rate of enterprise closures in Luxembourg can be explained in the rate observed for the services sector: the rate in this sector exceeds the average of the participating countries (EU: 8.8%; LU: 9.7%), while the rates of the manufacturing (EU: 6.7%; LU: 5.9%) and construction (EU: 7.0%; LU 6.2%) sectors are below the European average.

Finally, the graph 1.8.4 indicating the average birth rate (1998-2001) and the average death rate (1997-2000) of enterprises in Luxembourg underline the dynamism of financial activities, business services and the "transport and communications" sector in the area of creating enterprises. In these economic sectors, the rate of creation is largely above average. It can also be observed that the death rate is highest in trade and in the "Hotel and restaurant" sector. The birth and death rate is very close in these two sectors, unlike in financial services and the "transport and communications" sector, where the rate of births greatly exceeds the rate of deaths. We saw above that the performances of retail trade and hotels and restaurants in the area of growth of value added and productivity are also very lukewarm.

The "Business demography" project is in a development phase that should result in the production of detailed statistical information that will enable entrepreneurship to be measured and evaluated in Luxembourg.

External economic relations: importance of foreign direct investment and current account surplus

Luxembourg's economy is very small, and must be open to the outside for access to means of production (capital and labour), technology, and even for the supply and distribution of goods and services. We saw above that the strong demand for labour is largely covered by immigration and cross-border workers.

Being open to foreign capital has also been a constant in the economic history of Luxembourg. The provision of foreign capital has given rise to the principal new industrial activities since the 1950s. Virtually all banks located here are dependent on foreign capital. German capital dominates the banking sector, while capital from the United States is more oriented towards manufacturing. In 2002, employment of companies which were the object of foreign direct investment represented 32% of total employment (85% of banking employment, 56% of manufacturing employment and 25% of employment in other economic sectors).

The stock of foreign direct investment in Luxembourg was EUR 33.2222 billion in 2002, versus EUR 13.4924 billion in 1995. It should be noted that the foreign direct investment of the non-banking sector represents at least 40% of the total value of outstanding foreign direct investment in 2002. The increase in non-banking foreign direct investment has, however, been greater than in the banking sector since 1995 (see table 1.9.2 indicating the trend of foreign direct investment since 1995).

As regards trade in goods and services between Luxembourg and abroad, the exceptional growth of the services sector in the Luxembourg economy has led to contrasting trends in the balance of services, on the one hand and the balance of goods on the other. In the medium-term, the excess of the balance of services increases while the net trade balance (goods) is becoming increasingly negative. Although financial services are a major part of total service exports (more than 70% of the net balance of services), other services - travel, transport services, insurance services, communications services, business services - have also succeeded on foreign-markets (see also table 2.5.1 on p. 99).

Table 1.9.1

Foreign direct investment in Luxembourg by sector and principal countries of origin in 2002

Country	Banks	Insurance	Other sectors	Total
			stocks in millions of euros	
EU-15	18 751.9	1 285.1	4 646.3	24 683.3
Belgium	5 060.7	388.0	1 062.9	6 511.6
Germany	9 329.0	160.1	1 191.5	10 680.6
France	1 670.6	272.2	175.5	2 118.2
Italy	789.0	10.0	1 640.1	2 439.1
Netherlands	972.1	287.7	146.8	1 406.7
Spain	0.0	29.4	0.7	30.2
Other EU-15 countries	930.5	137.7	428.7	1 496.9
United States	271.6	191.9	6 043.2	6 506.7
Japan	182.7	10.1	225.7	418.6
Switzerland	485.7	83.4	199.2	768.3
Other non-EU countries	657.0	33.9	154.5	845.4
World total	20 348.9	1 604.5	11 268.8	33 222.2

Source: STATEC (provisional figures for 2002)

The determining factors in worsening the trade deficit (negative balance of goods) are energy dependence, the growth of imports of intermediate goods, as well as the tripling of the consumption by households since the mid-1970s. The change in the production structure – from a manufacturing economy to a service economy - is also responsible for this deficit. Service activities lead to the import of capital goods and goods for intermediate consumption and/or serving to support the exchange of services. These imports put a strain on the trade balance, while sales of the services sector are included in the balance of services.

The fact that the trade balance (goods) is negative does not mean that industries based in Luxembourg are not successful on foreign markets. We mentioned above the growth of Luxembourg industry in terms of value added and productivity. Yet, this industry is very much export oriented. Between 1995 and 2003, the current value of goods exported rose from EUR 6.264 billion to EUR 10.020 billion. As the value of the goods imported was higher – EUR 7.502 billion in 1995 and EUR 12.370 billion in 2003 – the balance of goods is nevertheless in deficit.

In addition, the structure of goods exported has changed dramatically. The crises in the manufacture of basic iron and steel (mid-1970s and beginning of the 1980s) and the subsequent restructuring, as well as the effects of industrial diversification, are making themselves felt. Metal products represent just one-third of the total value of exports, as against two-thirds in 1973. In addition to traditional exports, such as agri-food products, tyres, plastic products, textiles and earthenware, exports now also include glass, non-ferrous metals (copper and aluminium), printed documents and electronic supports. As regards the geographic structure of exports, the share of intra-Community exports is around 80% and the share of exports to countries bordering Luxembourg is some 60%.

Table 1.9.2

Foreign direct investment in Luxembourg and number of enterprises affected, 1995-2002

Sectors of activity	1995	1996	1997	1998	1999	2000	2001	2002
Number of enterprises in Luxembourg								
Banks	211	216	205	198	196	188	182	171
Insurance	177	254	274	276	284	284	280	291
Other sectors of activity	153	165	168	194	270	306	313	311
of which manufacturing	78	82	82	88	116	116	118	114
Total	541	635	647	668	750	778	775	773
non-banking	330	419	442	470	554	590	593	602
Foreign direct investment								
								stocks in millions of euros
Banks	10 303.7	10 750.5	11 299.1	11 254.3	12 939.8	15 478.8	17 684.8	20 348.9
Insurance	526.9	749.8	899.8	1 048.8	1 233.7	1 245.4	1 300.9	1 604.5
Other sectors of activity	2 661.9	2 965.3	3 615.5	5 495.2	6 094.8	8 522.2	10 909.6	11 268.8
of which manufacturing	1 879.7	2 091.1	2 407.0	2 563.7	2 764.8	4 830.8	5 816.7	5 723.8
Total	13 492.4	14 465.6	15 814.5	17 798.2	20 268.3	25 246.5	29 895.4	33 222.2
non-banking	3 188.7	3 715.1	4 515.3	6 544.0	7 328.5	9 767.6	12 210.5	12 873.3

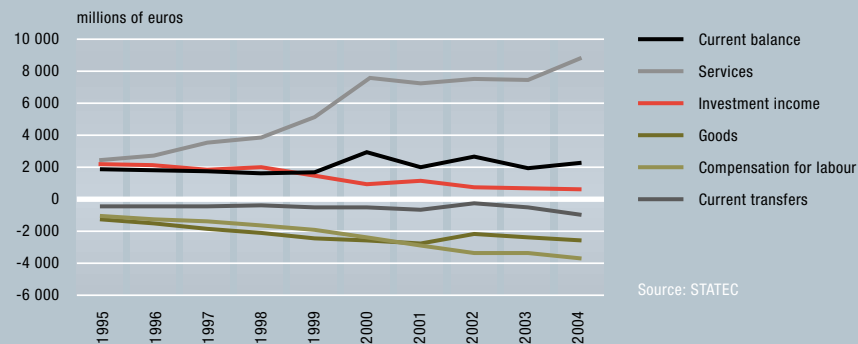
Source: STATEC (provisional figures for 2002)

In the area of income balance, the compensation of employees expresses, on the credit side, the gross income of residents working abroad (as well as the compensation of international officials working in Luxembourg) and, on the debit side, the gross compensation of non-resident employees working in Luxembourg. This last flow is primarily attributable to the cross-border workers who come to work in Luxembourg, whose numbers have increased exponentially. The great increase in total compensation of cross-border workers (compensation that is "exported" in some way) has as a result that the wage balance is largely in deficit and this deficit tends to increase. Nevertheless, cross-border workers, besides responding to companies' demand for labour and contributing to production (with respect to value added) in the Luxembourg economy, also contribute, by spending money in Luxembourg (see chapter 3.9), to the economic development of the country.

Besides the structural change regarding the relative importance of the trade in goods on the one hand the in services on the other hand, the trend in the current account balance has another characteristic: it always ends up with a surplus in favour of Luxembourg (except for a small deficit in 1964). The mostly surplus balance of services (which was growing up to 2000) means that, despite the increasing deficit in the balance of goods and wages, the current account balance remains positive. The average balance of the current account represented about 9% of the GDP of the country in 2001-2003 (see graph 1.9.4 indicating the balance of the current account as percentage of GDP in the OECD countries).

Graph 1.9.3

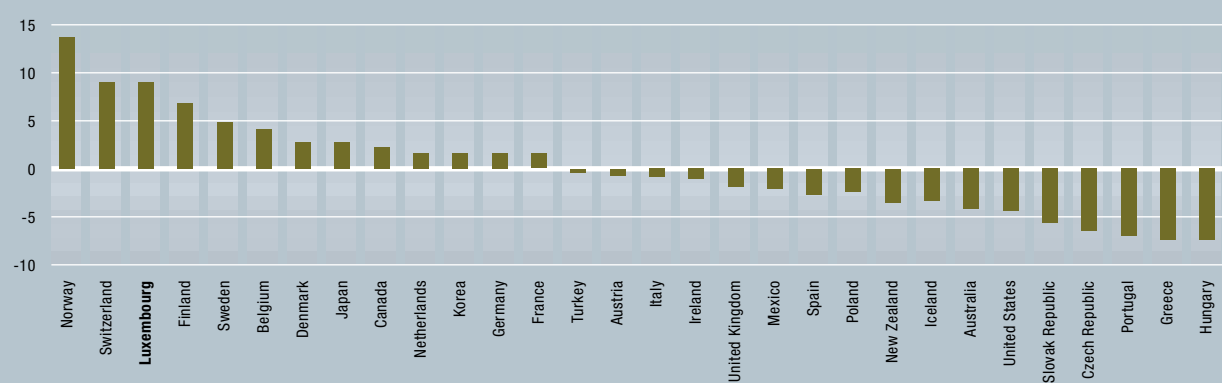
Current account balance of Luxembourg, 1995-2004



Source: STATEC

Graph 1.9.4

Current account balance in % of GDP (average 2001-2003)

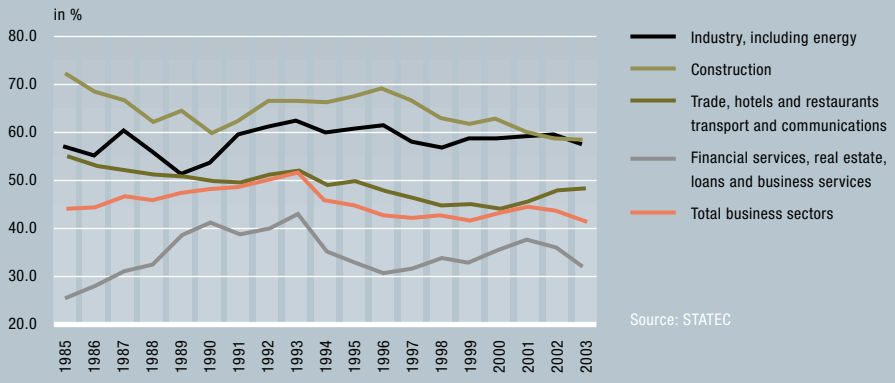


Source: OECD

The economic reversal of 2001 and the setbacks in the financial sector are felt in the current account balance. The partial balance of financial services (not including insurance) fell from EUR 5,707 million in 2000 to EUR 5,254 million in 2003 (see table 2.5.1 on p. 99). A fall in the total balance of services was avoided thanks to the favourable trends in other services. From 2001 to 2003, the net balance of services was virtually unchanged. Since at the same time the deficit in the trade balance stopped growing in 2002 and 2003, the total current account balance did not fall under its level of 1999, despite the difficulties in financial services. In 2004, due to an outstanding surplus of the balance of services, the global current account surplus increased. This development was made possible by the growth of exports of financial services as a result of the economic improvement in this sector in 2004 (see chapter 2.3.4 at page 89).

Wage restraint

Graph 1.10.1
Proportion of wages in value added of the Luxembourg economy, 1985-2003



Source: STATEC

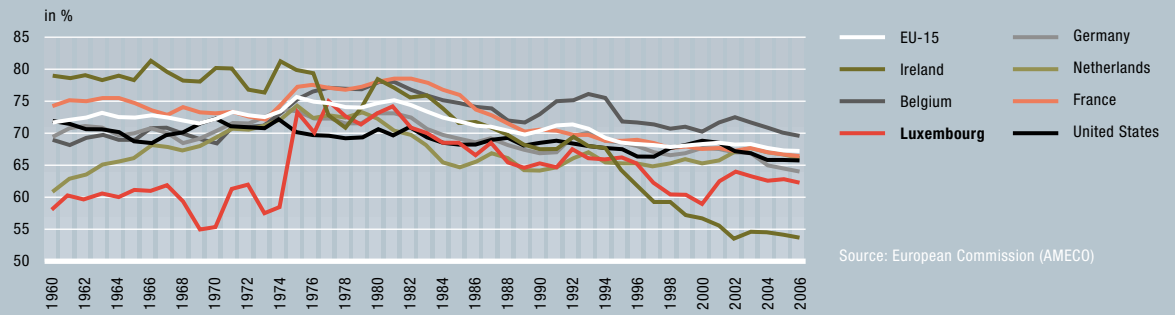
Salary trends are often analysed using indices such as growth in nominal wage cost or unit wage costs (as regards instruments for measuring salary trends, see also chapter 3.11). In addition, such analyses are generally limited to short-term changes, that is, variations from one year to the next, and conclusions are often drawn regarding wage restraint (or the lack of restraint) or competitiveness (or the loss of competitiveness) of the Luxembourg economy. Yet, in this area, real unit labour costs are a more meaningful indicator for a long-term perspective. Real unit labour costs are based on the trends of real average labour costs (nominal labour costs deflated by the prices of GDP or value added) and productivity trends (see graph 3.11.6 on p. 191). The proportion of wages in value added mirrors the trend of real unitary wage costs.

There is a series of consistent national accounts available for the years 1985-2003, published by STATEC in accordance with ESA (European system of integrated national accounts). With this series, we can follow the wage share in the value added of different economic sectors of Luxembourg since 1985 (see graph 1.10.1). The results require a qualified commentary. For the entire period 1985-2003, we can conclude that there was relative stability, if we assume that the decrease in the wage share in all the business sectors (44% in 1985, 41.2% in 2003) was not significant.

However, there is true stability in the medium term (1985-2003) only in the manufacturing sector. In the construction sector, the decrease is significant (the wage share fell from 70% in 1985 to less than 60% in 2003). In the financial activities, real estate and business services sector, the wage share rose significantly from 1985 to 1990, followed by a decrease beginning in 1993, which however did not completely offset the effects of the previous increase: in 2003 the wage share in the value added of this sector was around 32%, as against 25% in 1985.

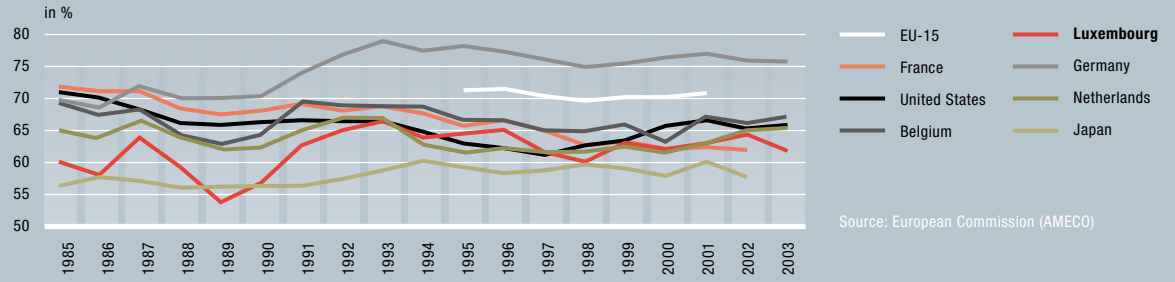
In taking into account the trend of the wage share in all trade sectors between 1985 and 2003, we can conclude that there is a certain "wage restraint", which is expressed by a slight decrease in the wage share in value added of all business sectors during that period. On the other hand, if the year 1993 is taken as the point of departure instead of 1985, there is a more significant wage restraint. Between 1993 and 2003, the wage share in the value added of all business sectors fell from 52% to 41.2%. The increase from 2001 to 2002, resulting from the late adaptation of the "labour" factor in the more moderate growth of those years, appears to have been transient.

Graph 1.10.2
Adjusted wage share in % of GDP (at factor cost), 1960-2006



Source: European Commission (AMECO)

Graph 1.10.3
Adjusted wage share in manufacturing in % of value added at current prices, 1985-2003



Source: European Commission (AMECO)

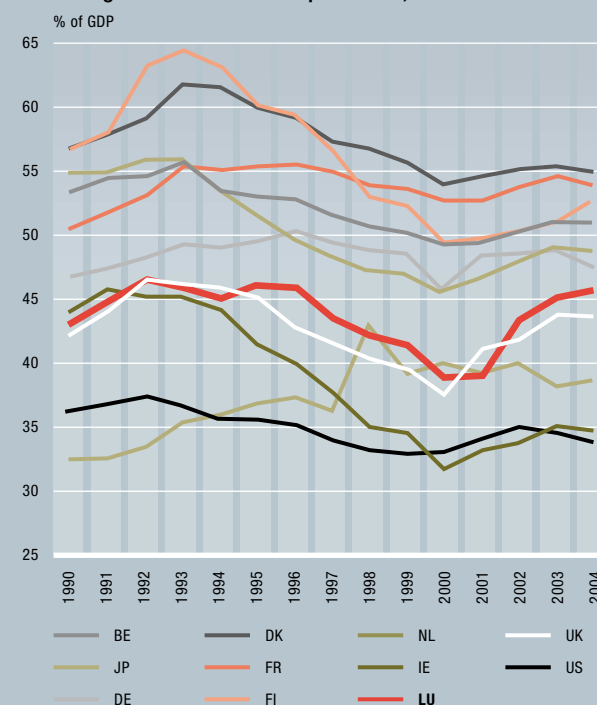
By limiting the analysis to the period 1985-2003, we nevertheless exclude the essential events in the wage trends that occurred during the previous decade (1975-1985). The services of the European Commission have calculated the adjusted wage share (adjusted for non-salaried workers) in the GDP of European countries since 1960. The graph 1.10.2 traces back the trends over a period of almost 50 years, and enables comparisons with other European countries to be made. As regards Luxembourg, there was an extremely significant increase in the wage share in GDP between 1974 and 1975. It seems that it was a catch-up phenomenon that followed a protest movement that, among other things, resulted in a collective agreement that was very favourable to those employed in the manufacture of basic iron and steel (which was, at that time, the dominant sector in the Luxembourg economy). At European level, there was also an upwards trend in the wage share, but it was not as great. The 1980s – especially the beginning of the 1980s – were marked by a slight fall in the wage share in GDP, both in Luxembourg and other European countries. This tendency continued beginning in 1993, albeit to a lesser extent and after a transient increase at the beginning of the 1990s.

It should be noted that the adjusted wage share also takes into account wages from the non-trade sectors (public and para-public). In addition, GDP – from the production viewpoint – is made up of value added, to which are added taxes on products, less subsidies on products (as regards the definition of GDP, see chapter 3.7). These two elements explain the differences between the curve that traces back the trend of the wage share in the value added of the business sectors from 1985 to 2003 on the one hand, and the curve regarding the trend of the adjusted wage share in GDP on the other. Globally, these methodological questions do not, however, change the situation fundamentally. In Luxembourg, as in all of Europe, the distribution of value added is not favourable to wage-earners beginning at the start of the 1980s.

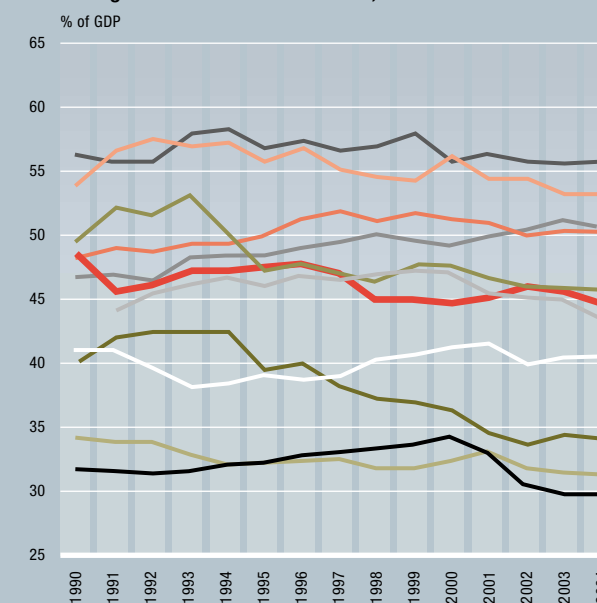
There is also comparative European data on the adjusted wage share in value added of manufacturing from 1985 to 2003. The relative stability of this contribution in Luxembourg manufacturing mentioned above is confirmed, at least in reference to the start and end dates of 1985 and 2003. In addition, it should be mentioned that in Luxembourg the level of the wage share is rather at the low end of the scale for European countries.

Public finances: a fragile balance?

Graph 1.11.1
General government: total expenditure, 1990-2004



Graph 1.11.2
General government: total revenue, 1990-2004



Source: European Commission (AMECO)

STATEC plays an important role at two levels in the area of public finance statistics. Firstly, it provides its activity and price forecasts during the preparation of the state budget (in June of each year) and delivers detailed scenarios during the updating of the stability and growth programme (November). Secondly, STATEC converts the budgetary accounts of general government, while ensuring that they are in accordance with the regulations and concepts of SEC95 (European system of integrated national accounts). The modified accounts are reported for the past year to the European Commission and to EUROSTAT. The accounts published and reported by STATEC are audited by EUROSTAT each year within the framework of the "excessive deficit procedure".

If we were to characterize the medium-term trend in Luxembourg public finances, the concept of "balance" would certainly be the most apt. The associated graphs 1.11.1 and 1.11.2 of expenditures and receipts by the general government (central government, local government and social security) from 1990 to 2004 reveal the following characteristics:

- Globally, the level of revenue and expenditure by the Luxembourg general government are average among, on the one hand, northern European countries, in which the "State" is more developed (Finland, Denmark, but also Sweden, which is not included in this graph for reasons of presentation) and the Anglo-Saxon countries (Ireland, United Kingdom, United States), as well as Japan on the other hand. Among Luxembourg's neighbours (France, Belgium, Germany, Netherlands), the level of total revenue – which is an approximation of the level of compulsory deductions – and, above all, the level of expenditures by the general government are greater than in Luxembourg.
- In Luxembourg, the level of expenditures is, for the entire period 1990-2003, less than the level of receipts (except for 1992), which translates into a considerable financing capacity (positive net balance of public finance), while all the other European countries are confronted, to varying degrees, with longer or shorter periods with financing needs (negative net balance).

- General government expenditures fell slightly (as a percentage of GDP) in the majority of European countries beginning in 1992-1993 until 2000. This is primarily an effect of the convergence criteria established for accession the economic and monetary union. This decrease was also favoured in the second half of the 1990s by the quite strong GDP growth in the majority of the European countries. The increase in expenditures by the general government was less than GDP growth. In Luxembourg, this characteristic was even more pronounced than in the majority of the other European countries, because the GDP growth rate was particularly high (averaging 8% between 1997 and 2000). It should also be noted that in Ireland, where the level of GDP growth was nearly 10% between 1995 and 2000, the decrease in expenditures by the general government was even more significant than in Luxembourg. Also, in Ireland the level of receipts by the general government in comparison with GDP (level of compulsory deductions) has also decreased greatly, which has not happened to the same extent in other European countries.

- The financing capacity of the Luxembourg general government rose from 2.0% in 1996 to 6.2% in 2000 and 2001. As a result, debt has remained stable in Luxembourg, while in most other European countries, public debt (expressed as a percentage of GDP) increased during the 1990s (see table 1.11.6 indicating the trend of general government consolidated gross debt from 1970-2004 and table 1.11.3 indicating the trend in financing capacity from 1992 to 2004). In addition, Luxembourg has been able to build reserves. The Luxembourg state budget reserve rose from some EUR 130 million in 1995 to more than EUR 500 million in 2000, while the special funds reserve (for investments) rose from some EUR 470 million to more than EUR 1.700 billion in 2000. The total reserve (budgetary reserve and special funds reserve) which represented around 4.5% of the GDP of Luxembourg in 1995, reached 10% of GDP in 2000. In addition, the level of the pension assurance reserve rose from 2.2 times annual benefits to more than 3 times that amount in 2001.

Table 1.11.3

General government financing capacity (+) and need (-) from 1992 to 2004 (in % of GDP)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
EU (15 countries)	:	:	:	:	-4.2	-2.4	-1.6	-0.7	1.0	-1.1	-2.2	-2.8	-2.6
Eurozone	:	:	:	:	-4.3	-2.6	-2.2	-1.3	0.1	-1.7	-2.4	-2.8	-2.7
Belgium	-8.0	-7.3	-5.0	-4.3	-3.8	-2.0	-0.7	-0.4	0.2	0.6	0.1	0.4	0.1
Denmark	-3.3	-3.7	-3.2	-3.1	-1.9	-0.5	0.2	2.4	1.7	3.2	1.7	1.2	2.8
Germany	-2.5	-3.1	-2.4	-3.3	-3.4	-2.7	-2.2	-1.5	1.3	-2.8	-3.7	-3.8	-3.7
Greece	-11.1	-13.4	-9.4	-10.2	-7.4	-4.0	-2.5	-1.8	-4.1	-3.6	-4.1	-5.2	-6.1
Spain	:	:	:	:	-4.9	-3.2	-3.0	-1.2	-0.9	-0.5	-0.3	0.3	-0.3
France	-4.2	-6.0	-5.5	-5.5	-4.1	-3.0	-2.7	-1.8	-1.4	-1.5	-3.2	-4.2	-3.7
Ireland	-3.0	-2.7	-2.0	-2.1	-0.1	1.1	2.4	2.4	4.4	0.9	-0.4	0.2	1.3
Italy	-10.7	-10.3	-9.3	-7.6	-7.1	-2.7	-2.8	-1.7	-0.6	-3.0	-2.6	-2.9	-3.0
Luxembourg	-0.3	1.6	2.6	2.5	2.0	2.9	3.2	3.4	6.2	6.2	2.3	0.5	-1.1
Netherlands	-4.2	-2.8	-3.5	-4.2	-1.8	-1.1	-0.8	0.7	2.2	-0.1	-1.9	-3.2	-2.5
Austria	-1.9	-4.2	-4.9	-5.6	-3.9	-1.8	-2.3	-2.2	-1.5	0.3	-0.2	-1.1	-1.3
Portugal	-6.0	-8.9	-6.6	-4.5	-4.0	-3.0	-2.6	-2.8	-2.8	-4.4	-2.7	-2.9	-2.9
Finland	-5.6	-7.3	-5.7	-3.7	-3.2	-1.5	1.5	2.2	7.1	5.2	4.3	2.5	2.1
Sweden	:	-11.6	-9.3	-7.0	-2.7	-0.9	1.8	2.5	5.1	2.5	-0.3	0.2	1.4
United Kingdom	-6.5	-8.0	-6.8	-5.7	-4.3	-2.0	0.2	1.0	3.8	0.7	-1.7	-3.4	-3.2
United States	-5.8	-4.9	-3.6	-3.1	-2.2	-0.8	0.4	0.9	1.6	-0.4	-3.8	-4.6	-4.4
Japan	0.8	-2.4	-3.8	-4.7	-5.1	-3.8	-5.5	-7.2	-7.5	-6.1	-7.9	-7.7	-6.5

Source: EUROSTAT, STATEC (estimates for 2004; the figures for the previous years may still be subject to revision)

Beginning in 2001, the course of the European economy has been characterized by low rates of GDP growth. Given that the growth of a large portion of public expenditure is structurally determined (such as expenditures for social welfare), and that many expenditures are difficult to reduce, the percentage of general government expenditures in comparison with GDP tends to increase at a rapid rate, exceeding the level of receipts in most countries, which translates into increasing financing needs (deficits) and helps explain the difficulties in many countries in meeting the criteria of the stability and growth pact (deficit no more than 3% of GDP, debt no more than 60% of GDP). Certain large European countries, such as France, Germany and Italy, are also treading a fine line with these two criteria (see the graph 1.11.5 indicating the financial room for manoeuvre of governments between 1998 and 2004).

The European Council of 22 and 23 March 2005 ratified the ECOFIN report of 20 March 2005 entitled "Improve the implementation of the Stability and Growth Pact", in which it approved the conclusions and proposals while inviting the Commission to present proposals for modifying the Council regulations that implement the pact (Council regulations (EC) Nos 1466/97 and 1467/97). The reference values of 3% of GDP for the deficit and 60% of GDP for debt remain the key to multilateral surveillance.

During the Council, there was a great deal of consensus on strengthening the preventative framework of the pact. Periods in which growth is greater than the usual rate should be taken advantage of for purposes of improving the budget situation (on the basis of strengthened budgetary discipline) in order to prevent procyclical policies and to progressively realize the medium-term objective, that is, in principle a budgetary position close to balance or in surplus. This prudent budgetary policy should enable the creation *"of the necessary room to accommodate economic downturns and reduce government debt at a satisfactory pace, thereby contributing to the long-term sustainability of public finances"*.

However, according to the ECOFIN report ratified by the Council of March 2005, the medium-term objectives should be differentiated and can deviate from the budgetary position of close to balance or in surplus for a Member State as a function of debt ratio and growth potential at the time, while preserving room for manoeuvre below the reference value of -3% of GDP. The specific medium-term objectives of the different countries lie between -1% of GDP for countries with low debt and high growth potential, and a balanced budget or a budget in surplus for heavily indebted countries with less growth potential. In order to ensure that the pact is advantageously positioned for growth, the Council has agreed that structural reforms should be taken into consideration at the time the trajectory for budgetary adjustment is defined, while understanding that a sufficient margin of security should be guaranteed with respect to the reference value of -3% of GDP.

Table 1.11.4

General government financing capacity (+) and need (-) in Luxembourg, 1996-2005 (in % of GDP)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
General government	2.0	2.9	3.2	3.4	6.2	6.2	2.3	0.5	-1.1	-1.6
Central government	0.5	1.5	1.5	1.7	3.1	3.1	-0.2	-1.4	-2.4	-3.0
Local governments	0.5	0.5	0.3	0.2	0.5	0.2	0.1	0.0	-0.1	-0.1
Social security	1.0	0.8	1.4	1.5	2.6	2.9	2.4	1.9	1.4	1.5

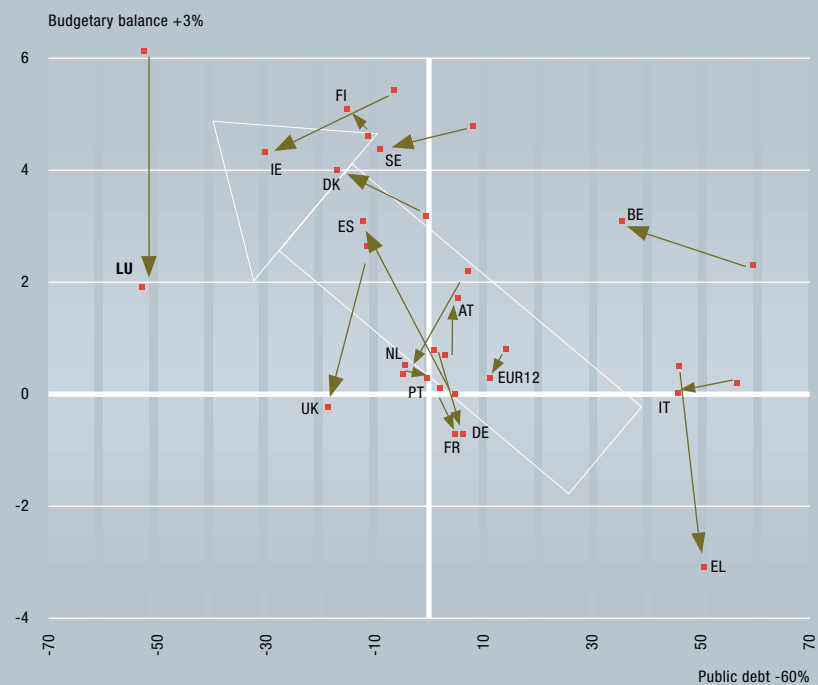
Source: STATEC (estimates for 2004, forecasts for 2005)

However, only the major reforms leading directly to long-term cost savings – while strengthening the potential for growth – and which have a positive, verifiable effect on the long-term viability of public finances will be taken into account.

Regulation (EC) No. 1467/97 defines the circumstances under which exceeding the reference value (to the extent that it is close to that value) is considered exceptional and temporary. Such a situation must result from an unusual circumstance outside the control of the Member State affected and should have a perceivable effect on the financial situation of the general government or directly follow a severe economic recession. As a general rule, a "severe economic recession" is understood to be a drop of at least 2% annually in real terms. The European Council of March 2005 considered this definition of a "severe economic recession" too restrictive. They believed that the dispositions relating to regulation (EC) No. 1467/97 should be adjusted to enable both the Commission and the Council (while they evaluate and decide whether a deficit is excessive or not) to regard as exceptional an excess over the reference value as a result of negative growth or the cumulative drop in production during a prolonged period of very weak growth in comparison with growth potential.

According to Article 104, paragraph 3, of the Treaty, the Commission, in preparing the report on non-compliance with the budgetary discipline conformity criteria, *"shall also take into account whether the government deficit exceeds government investment expenditure and consider all other relevant factors, including the medium-term economic and budgetary position of the Member State"*. According to the European Council of March 2005, the framework for allowing "all other relevant factors" to be taken into consideration should be made clear. The Commission report should appropriately reflect the medium-term economic position (in particular growth potential, economic conditions, the implementation of policies within the framework of the Lisbon programme and policies designed to encourage R&D and innovation), and the medium-term trend of the budgetary position (including efforts towards improving the budgetary situation during favourable economic periods, viability of debt and public investment). Particular attention should also be paid to efforts intended to increase or maintain a level of developmental and international solidarity aid, as well as budgetary efforts towards carrying out European policy (including the unification of Europe if it has a negative effect on the growth and budgetary burden of a Member State). The reference value established at Maastricht (-3% of GDP) will, however, remain in force.

Graph 1.11.5
Financial room for manoeuvre of general government with respect to the criteria of the Stability and Growth Pact, 1998-2004



Source: European Commission.
NB: large arrow = desired trend according to the Stability and Growth Pact

Table 1.11.6
General government consolidated gross debt, 1970-2004 (in % of GDP)

	1970	1980	1990	2000	2004*
EU-15	...	...	...	64.1	64.7
Eurozone	...	...	...	70.4	71.3
Belgium	65.3	78.7	129.9	109.1	95.6
Denmark	13.2	39.8	63.1	52.3	42.7
Germany	18.2	31.2	42.3	60.2	66.0
Greece	19.8	25.0	79.6	114.0	110.5
Spain	15.0	16.8	43.6	61.1	48.9
France	...	19.8	35.1	56.8	65.6
Ireland	49.7	69.8	94.2	38.3	29.9
Italy	37.9	58.2	97.2	111.2	105.8
Luxembourg	23.0	11.3	7.6	7.0	7.5
Netherlands	...	45.9	76.9	55.9	55.7
Austria	18.9	36.2	56.1	67.0	65.2
Portugal	...	32.3	58.3	53.3	61.9
Finland	11.7	11.5	14.2	44.6	45.1
Sweden	27.3	40.0	42.0	52.8	51.2
United Kingdom	78.7	53.2	34.0	42.0	41.6
United States	49.9	45.7	67.2	58.2	63.4
Japan	12.0	55.0	68.6	134.1	164.0

Source: European Commission
*Estimates for 2004

Finally, the European Council of March 2005 decided that in all the evaluations made within the framework of the excessive deficit procedure, the Commission and the Council will consider implementing pension reforms that introduce a multiple-pillar system comprising a compulsory pillar financed by capitalization. The Council believes that these reforms improve the long-term viability of public finances.

Parallel to the economic reversal of 2001, the level of financing capacity has also tended to drop significantly in Luxembourg, as in other European countries. The excess of the Luxembourg general government fell from 6.2% of GDP in 2001 to 0.5% in 2003 (this figure is subject to subsequent revision). In 2004, the general government is probably confronted with a deficit (financing need), although recent figures show a more positive trend. It should be noted that the financing capacity of general government – established in accordance with the rules of the European system of integrated national accounts (SEC95) – is made up of the total of three balances, namely the central government balance, that of the local governments (local authorities, etc.) and that of social security (see table 1.11.4). Certain observers have noted that the total balance of Luxembourg conceals a clear asymmetry between the balance of the Luxembourg central government, which has become negative, and that of social security, which is positive. The positive balance of social security results from the considerable growth in the amount of social security contributions relating to employment growth, but also from increasing transfers from the state.

While analysing the partial balances is useful, it is nevertheless the overall balance that seems the most appropriate indicator for judging the medium-term viability of public finances. The estimated trend in the assets (reserves) of the special investment funds – rail funds, road funds, public administrative investment funds, public school investment funds, etc. – is perhaps the most worrying point as regards the trend in Luxembourg public finances. The assets of the principle funds would fall from EUR 1.2622 billion in 2004 to EUR 94.6 million in 2007, and the budget of the funds would result in a deficit of EUR 195.6 million in 2008.

In spite of the deterioration of the health of the public finances in Luxembourg beginning in 2002, it is probably the room for financial manoeuvre of the Luxembourg state which remains one of the country's major assets. In comparison with most other European countries, the public finance situation in Luxembourg is enviable, most especially in the area of debt, as seen in both the comparative table 1.11.3 indicating the trend in the financing capacity of general governments in the EU-15 since 1992 and the graph 1.11.5 indicating the trend in the budgetary and financial room for manoeuvre with respect to the criteria of the Stability and Growth Pact between 1998 and 2004 (see also the following article on this subject: Serge ALLEGREZZA, Pour un pacte de stabilité et de croissance luxembourgeois, in: d'Letzebuerger Land, No. 23 of 4 June 2004, pp. 14-15).

The trend of decreasing debt began in Luxembourg during the economic boom preceding the crisis years of 1975-1985: the rate of indebtedness of the general government fell from 23.2% of GDP in 1971 to 13.6% in 1974. In spite of the low rate of GDP growth in 1975-1985, indebtedness was maintained at a low level (12.3% of GDP in 1984, then began to fall again during the boom years from 1986 to 1990 (indebtedness corresponding to 7.6% of GDP in 1990). As a result, spending on interest payments by the general government is very low: this spending represented just 0.2% of GDP in Luxembourg in 2004, but was 4.9% of GDP in Belgium, 3.1% in Germany, 3.0% in France, 2.9% in the Netherlands and 3.1% of the GDP of the EU-15 as a whole. On the other hand, spending for investments by the general government in Luxembourg is high: the gross fixed capital formation of the general government was almost 5% of GDP in Luxembourg in 2004, as against 2.4% in the EU-15 as a whole.

The format of this publication does not allow for a detailed description of the spending structure and public receipts. We shall limit ourselves to a few significant elements in the spending and receipts trends. As regards spending by the authorities, it seems appropriate to state:

- the increasing taxation for social welfare that constitutes a basic trend since the 1970s and a sluggish tendency in central government spending trends;
- the recent trend of public spending for R&D, which is of basic importance for the future development of economy and society in Luxembourg.

Taxation for social welfare can be illustrated by two indicators: the percentage of public contributions to current receipts of the social security schemes on the one hand and public contributions to social welfare as a percentage of ordinary state budget spending on the other.

Public contributions to social security represented more than 50% of current receipts of social security schemes in 2003, versus about 35% in 1970. Another striking characteristic of the financing of social welfare in recent years is the continuous reduction of the global share of the contribution of companies (their share in current receipts of social security schemes fell from 23.8% in 1990 to 20.4% in 2003), accompanied by an increase in the contribution of protected persons (for whom the share rose from 21% in 1990 to 24.9% in 2003) and of the public authorities (for which the share rose from 47.2% in 1990 to 50.8% in 2003).

Tableau 1.11.7

Public contributions to social security in Luxembourg, 1970-2003

	In % of current receipts of social security schemes	In % of current state budget spending
1970	35.3%	29.8%
1980	39.3%	35.8%
1990*	47.2%	45.5%
2000	50.4%	53.8%
2003	50.8%	56.3%

Source: General Social Security Inspectorate

* The series is interrupted in 1990, but the comparison of sizes with previous years remains significant

Luxembourg also distinguishes itself from most other European countries in this area. In 2001, the proportion of public contributions to receipts of social security schemes was 46.2% in Luxembourg, as against just 23% in Belgium, 32.6% in Germany, 30.4% in France and 36% in the EU-15.

Taxation of social security also appears in the structure of ordinary state budgetary spending. The weighting of public contributions to financing social security schemes in the regular budget rose from around 30% in 1970 to more than 56% in 2003. The corollary of the growing involvement of the Luxembourg state is obviously the limitation of indirect labour costs in which social security contributions are a large part (see also graph 3.11.4 on p. 190).

It should be noted that the participation of the public authorities varies greatly, however, from one social security scheme to the next. In 2003, the share of public contributions to financing varied from 99.7% for National Solidarity Funds (social welfare), to 96.8% for Employment Funds (unemployment payments, etc.), 94.2% for family allowances, 42.5% for long-term care insurance, 40.6% for sickness insurance and maternity, 32.1% for pension assurance and 15.5% for accident insurance.

Public spending for R&D is not among the largest in terms of volume, but it is interesting to briefly examine it, given the significance it holds for the future. It will be seen elsewhere in this publication (see chapter 3.3) that much remains to be accomplished in this area. Nevertheless, Luxembourg seems to be on the right path. Budgetary credits for R&D, which were just 0.1% of GDP in 2000, have increased considerably over the past few years to 0.3% of GDP in 2005.

In its note on the economic, financial and social situation of the country in 2005, the Economic and Social Council (ESC) of Luxembourg nevertheless regretted that it is currently too compartmentalized and that the coordination between the different centres leaves much to be desired. This coordination would avoid double employment and enable a critical mass of skills to be developed. The ESC stated that for the implementation of evaluation procedures for the effectiveness of public or subsidized research programmes, it considers that it will be necessary to establish quality and effectiveness indicators in order to appropriately evaluate the work conducted in the public laboratories (economic impact, scientific quality, etc.). The ESC reiterated that indicators established in Lisbon only measure input – in terms of percentage of GDP – that a country invests in R&D, while it would be necessary for the orientation of R&D activities in the area of applied research to be appreciated in the light of the capacity of these activities to create repercussions for Luxembourg through innovations that permit, if applicable, spin-off companies to leave the public research environment.

Graph 1.11.8

Trend in budgetary credits for R&D



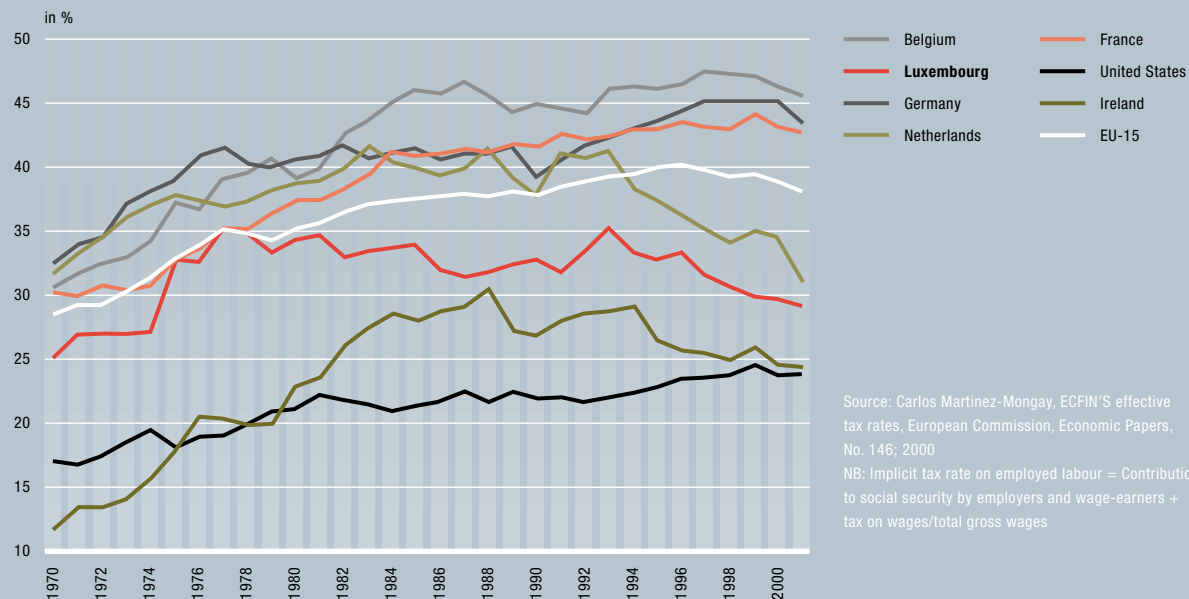
Source: Ministry of Culture, Higher Education and Research

As regards the *structure of state receipts*, or, more precisely, the structure of compulsory deductions, we shall limit ourselves to briefly mentioning the trend of labour tax since 1970, through the indicator of the implicit rate of tax of salaried employment, which is defined as the percentage of all contributions to social security by employers and wage-earners and the taxes on wages over total gross wages (see the graph 1.11.9 indicating the implicit tax rate on employed labour).

During the 1970s, the increase in tax pressure in Luxembourg derived from general growth in public spending was primarily felt on the labour tax. The end of the 1970s was marked by a decisive change: the tax on employed labour stabilized in Luxembourg, whereas it continued to increase in most other European countries. Only a few other countries, such as Ireland and the Netherlands, followed the same path at the beginning of the 1980s. During the 1990s, a number of European countries, including Luxembourg, once again started to follow the logic of decreasing the tax on labour. The low, competitive level of the indirect cost of labour (employers' social contributions) in Luxembourg is a reflection of this trend (see p. 190). It should be stated that this level of indirect cost of labour is sustainable only thanks to the taxation of social security. As the level of taxes and social contributions of wage-earners is also low in comparison with other European countries, the net gains of wage-earners are all the more attractive (see pp. 192-193).

It should be added that the stabilization, and then the decrease in the tax on labour in Luxembourg is possible only thanks to other tax flows (VAT, excise, corporate tax, etc.), which, following the exceptional growth of the economy beginning in 1985, has developed very positively. The growth of tax flows is not synonymous with higher rates of tax, which would jeopardize Luxembourg's attractiveness. As an example, the effective top statutory tax rate on corporate income in 2004 was 30.4% in Luxembourg, as against 34.0% in Belgium, 38.3% in Germany, 35.4% in France, 34.5% in the Netherlands and an average of 31.4% in the EU-15. Following the fiscal reform of 2001-2002 in Luxembourg, the tax rate fell from 37.5% (2001) to 30.4% (2002). In the new EU Member States, the top tax rate on corporate income is much lower (for example, 15% in Lithuania and Latvia and 17.7% in Hungary). Among the EU-15, Ireland has the lowest tax rate on corporate income (12.5%). As regards VAT rates, Luxembourg also fares well in comparison with other European countries. Luxembourg has the lowest rate, with a standard VAT of 15%. In Belgium this rate is 21%, in Denmark 25%, in Germany 16%, in France 19.9%, in the Netherlands 17.5%, and in the EU-15 19.4% on average. This is especially interesting for e-commerce operators for locating their activities in Luxembourg.

Graph 1.11.9
Implicit tax rate on employed labour

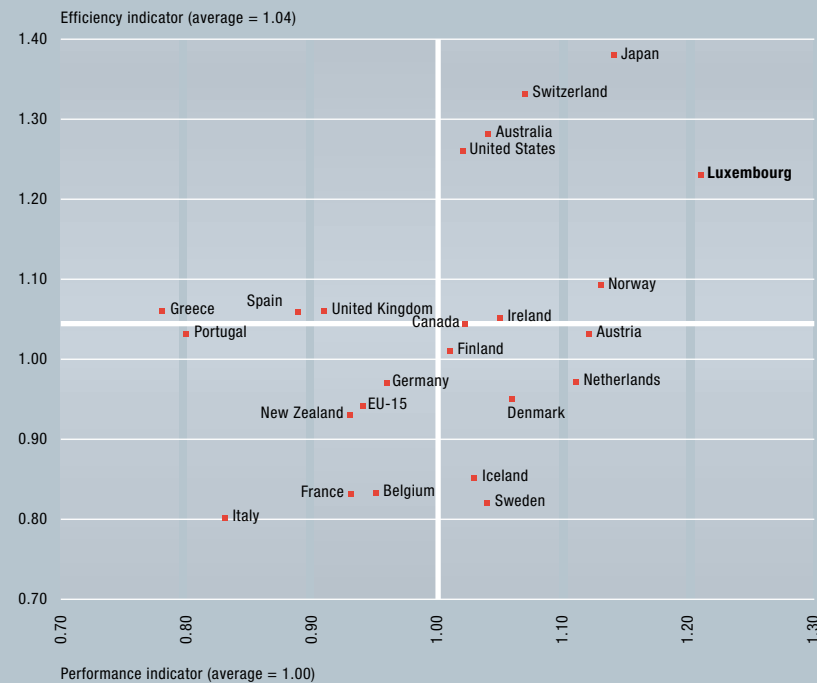


The level of receipts and spending by the state is not necessarily synonymous with the performance or efficiency of the public sector. A recent study by the European Central Bank contains an interesting comparative approach regarding the performance and efficiency of the public sector (AFONSO Antonio, SCHUHKNECHT Ludger, TANZI Vito, *Public sector efficiency. An international comparison*, European Central Bank, Working Paper, No. 242, July 2003). The performance of the public sector is analysed using indicators supposed to measure the effects of public policies. Good general government should theoretically be expressed in a perfectly functioning judicial system, a high level of education in the population, positive public health indicators, etc.

To measure the performance of the public sector, the authors used "opportunity" indicators (reflecting in principle the influence of public policies on individual opportunities), such as the perception of corruption, confidence in the administration of justice, the rate of enrolment in secondary education, the performance of the educational system (based on the PISA report, among other things), but also infant mortality and life expectancy at birth (regarded as indicators of public health), as well as the perception of the quality of public infrastructures. To these opportunity indicators are added more traditional indicators (defined by Musgrave) that reflect the performance of public policies as regards allocation, distribution and stabilization.

Among these indicators are GDP (in PPS) per capita, the GDP growth rate (average over 10 years), the rate of unemployment (average over 10 years) which are considered as indicators of economic performance, as well as the coefficient of the variation in growth of GDP and inflation (stability indicators), and, finally, the distribution of income (share of income of 40% of the poorest households). The authors have drawn from these partial indicators a synthetic indicator of performance. To this synthetic indicator of performance they added the synthetic indicator of efficiency. To do this, the authors take into consideration the level of public spending as a whole and the level of certain categories of spending (education, public health, social transfers, etc.) taken individually. It is assumed that public spending – expressed as a percentage of GDP – reflects the opportunity costs of realizing the performance of the public sector based on the indicators mentioned above. The ratio of the indicators of performance and public spending results in the indicators of efficiency for each country.

Graph 1.11.10
Public sector performance and efficiency indicators, 2000



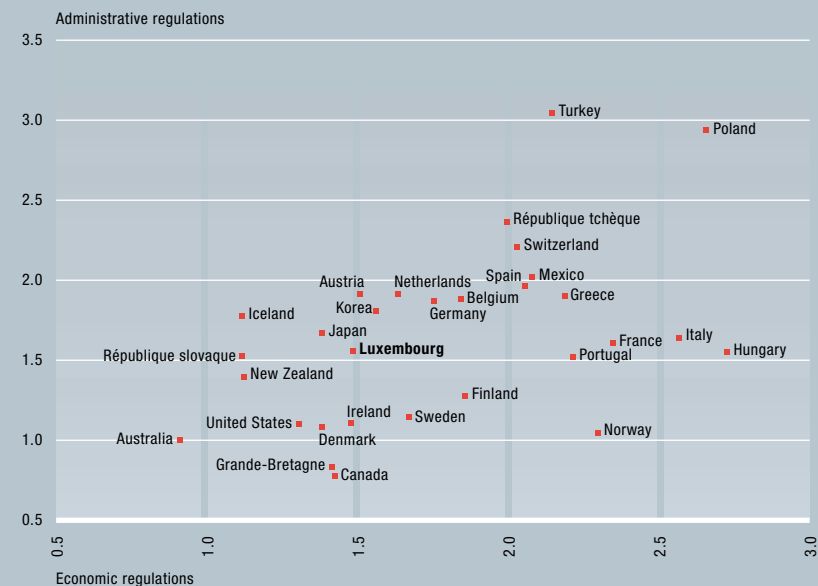
Source: AFONSO Antonio, SCHUHKNECHT Ludger, TANZI Vito, *Public sector efficiency. An international comparison*, European Central Bank, Working Paper, No. 242, July 2003 N.B.: The performance indicator is made up of the weighted average of the performance scores in seven areas of public sector activity: education, health, infrastructure, distribution of income, economic stability and economic performance. The efficiency indicator is the ratio of the performance indicator and public spending that is assumed to be related to the performance indicators.

The authors of the analysis draw the reader's attention to the methodological difficulties and point out that the results must be treated with caution. As with all synthetic indicators, the weighting of the different elements plays a considerable role. In addition, certain indicators do not necessarily reflect the actions of the authorities. For example, life expectancy could also be affected by eating habits or climate. For Luxembourg, certain indicators, such as the perception of the quality of public infrastructures, are also missing. Despite this situation, the approach seems interesting. The graph 1.11.10 indicating the performance and efficiency indicators from the abovementioned publication show that Luxembourg's ratings in the two areas are quite positive.

Luxembourg, Japan, Switzerland, Australia and the United States all attain a high level of performance at a moderate cost in terms of public spending. The Netherlands, Denmark, Sweden and Iceland have high ratings in the area of public sector performance, but at disproportionately high costs in terms of public spending. The countries located near the average for efficiency combine low public spending with low performance (Greece, Portugal, Spain, United Kingdom), or quite good performance with high levels of public spending (Norway, Austria, Ireland, Canada, Finland).

The public sectors of Italy, France, Belgium, and to a lesser degree Germany and New Zealand, would be inefficient in terms of the use of public funds while turning in at the same time low performance ratings. In general, the authors draw the conclusion that the public sectors of countries in which the level of public spending is low (in which total public spending is less than 40% of GDP), such as the United States, Japan, Australia and Switzerland, are more efficient than the public sectors in which the level of public spending is high (more than 50% of GDP), such as Sweden, Belgium, Finland, France and Denmark, for example. It should be noted that Luxembourg is located in an intermediate zone, with public spending that represented about 44% of GDP on average during the 1990s. In many industrialized countries, the "size" of the state would thus be too large. The authors put this conclusion into perspective: "... given the non-extreme differences in performance..., the incidence of 'negative' marginal products of public spending may be more limited". We should add that in the countries in which public spending expressed as a percentage of GDP is high, such as in the Nordic countries, the distribution of income is more egalitarian and the poverty rate is much lower than in countries in which public spending is low (see also chapter 3.12).

Regulation of the product market: indices of administrative and economic regulations



Source: OECD (CONWAY Paul et al., Product market regulation in OECD countries: 1998 to 2003, OECD Economics Department Working papers, No. 419, February 2005)

The role of the state is obviously not limited to public spending and compulsory deductions. It also plays a fundamental role by regulating the labour market and the product market. In 2003, Luxembourg appears for the first time on the regulation index of the product market established by the OECD. This index is calculated based on responses to a questionnaire which is filled out by government officials of different countries in the OECD. Among others, in this questionnaire questions are posed on state control (public enterprises, price controls, etc.), on barriers to entrepreneurship (such as administrative burden), and on barriers to investment and to trade. Besides the global synthetic index, the OECD also calculates partial indices: the administrative regulations index and the economic regulations index. The higher the value of the indices, the more the regulations are considered restrictive. For the OECD, this is equivalent to an unhealthy situation, unfavourable to economic development.

With a global synthetic index of the regulation of the product market of 1.3, Luxembourg is less well positioned than the United Kingdom (0.9), Australia (0.9), the United States (1.0) and Ireland (1.1), but better than Belgium (1.4), France (1.7), Germany (1.4) and the Netherlands (1.4). As regards the components of the global index (the administrative regulations index and the economic regulations index), Luxembourg is situated in the pack of the countries in which economic regulation is least restrictive (at the same level as Ireland and the United Kingdom), while administrative regulation would be rather strict (see the graph 1.11.11 indicating the regulation of the product market). In this area, Luxembourg has quite a way to go. The trend in Luxembourg can also be placed within the context of Community efforts, collected under the title "Better legislation" and geared towards improving the quality of regulations and stimulating economic growth and the growth of enterprises within the EU. In 2002, the European Commission published an action plan entitled "Simplifying and improving the regulatory environment" COM (2002) 278(02). In March 2005, the Commission adopted a new communication "Better regulation for Growth and Jobs in the European Union", which is intended to reduce administrative burdens, fight excess regulation and strike the right balance between the costs and advantages of legislative regulations.

1.12

Poverty rate and income distribution: relative stability

Although wages and income from labour are in many cases essential to the revenue of a family or a household, they are not the only source of income. To this are added, among others, revenue from capital (e.g. interest), replacement income (pensions, unemployment payments, etc.), family benefits and social welfare (MGI, etc.). In addition, the disposable income of a household is not synonymous with the standard living of the individuals which depends on the composition of the family. Disposable income and standard of living are determined through a panel survey, the PSELL (Socio-Economic Panel "Living in Luxembourg"), conducted by CEPS/Instead, whose origins date back to 1985. PSELL1 was replaced beginning in 1995 with the PSELL2 programme. Superimposed on this project was the European programme launched by EUROSTAT, the "European Community Household Panel" (ECHP). It should be noted that in 2003, a new socio-economic panel (replacing the ECHP) was launched as part of the European EU-SILC (European Union-Statistics on Income and Living Conditions) programme. The EU-SILC survey is conducted by the CEPS/Instead under the aegis of STATEC.

CEPS/Instead recently published a synthesis of the results of PSELL2 for the period 1994-2001 (BERGER Frédéric, Revenu disponible, niveau de vie et indicateurs d'inégalités: bilan sur la période 1994-2001, Population et emploi, Bulletin d'informations démographiques et sociales, No. 1/2004, Luxembourg, STATEC, CEPS/INSTEAD, IGSS, January 2004), of which a few essential elements are covered below.

Net disposable household income (DI) is the result of 40 different sources of revenue, and is understood to be net of taxes. However, tax on total revenue of two persons sharing the same tax residency status is not taken into consideration; in this case, disposable income is therefore overestimated.

Between 1994 and 2001, the average monthly disposable household income in current value rose from EUR 2,977 to EUR 3,977, which is a nominal increase of 34%. If we take inflation into account, "real" disposable income (i.e. purchasing power of the average DI) has risen by approximately 18% during the same period. In 2001, replacement income (pensions, unemployment benefits), family allowance and social welfare represented 24%, 5% and less than 0.3% of disposable income.

Table 1.12.1

Net disposable household income (DI) and context elements, 1994-2001 (in current euros by month)

	1994	1995	1996	1997	1998	1999	2000	2001
average/household DI	2 977	3 117	3 200	3 318	3 368	3 526	3 726	3 979
median/household DI	2 529	2 680	2 727	2 823	2 797	2 979	3 194	3 409
Gross social minimum wage per non-qualified worker*	1 024 (1 055)	1 084	1 084	1 147	1 147	1 191	1 221	1 290
Gross SMW per qualified worker*	1 229 (1 266)	1 301	1 301	1 377	1 377	1 429	1 465	1 548
Gross MGI 1 st adult	730	773	773	817	817	848	897	919
Gross MGI 2 nd adult	365	386	386	409	409	424	448	459
Consumer prices index (annual average; 1948=100)	553.88	563.89	571.78	580.6	586.17	591.79	610.30	626.56

Source: PSELL2-CEPS/INSTEAD (BERGER Frédéric, Revenu disponible, niveau de vie et indicateurs d'inégalités: bilan sur la période 1994-2001, Population et emploi, Bulletin d'informations démographiques et sociales, série bleue, No. 1/2004, Luxembourg, STATEC, CEPS/INSTEAD, IGSS, January 2004)

NB: DI = net disposable income; SMW = social minimum wage; MGI = minimum guaranteed income.

* Until 1994, a distinction was made between workers with dependants and workers without dependants. Parentheses = SMW for workers with dependants

The increase in income results from the combined effect of salary indexing and welfare benefits, modifications in the socio-tax schedules, the increase in wages and welfare benefits arising from effects not linked to indexation (e.g.: the results of collective negotiations) and "structural effects" (e.g.: increase in female professional activity). As regards the details of these trends, please see the recent publications of CEPS/Instead on the subject. The following elements should, however, be noted:

- based on salary indexing and welfare benefits, the increase in disposable income was 13.1% between 1994 and 2001, which corresponds to the rate of inflation for the period;
- the marginal tax rate fell from 50% in 1994 to 42% in 2001;
- the family benefits schedule increased significantly; except for revaluation adjustments, base benefits increased 59% (family with 1 child), 44% (family with 2 children) and 32% (family with 3 children); despite an identical drop in tax relief for children in the meantime;

→ the minimum social wage (MSW), pensions and minimum guaranteed income (MGI) would have increased, without indexing, by 11.3%.

→ gross average hourly wage increased, without indexing, by 10%;

→ as regards structural effects, only 54% of women aged 20 to 59 reported working in 1994, as against 63% in 2001.

The individual standard of living corresponds to disposable income per adult equivalent, that is, in comparison with the household disposable income and the number of "consumption units" (CU) per household. The "modified OECD scale" is used for determining the consumption units. This scale attributes 1 consumption unit to the first adult in the household, 0.5 consumption units for all other aged 14 or greater and 0.3 consumption units for each individual under the age of 14. This "standard of living" or individual "income" should then make up "equivalent disposable income". This is defined as the total disposable household income divided by its "size equivalent" (the number of CUs) to take into account the size and the composition of the household.

Table 1.12.2

Individual standard of living, indicators of inequality and risk-of-poverty rate, 1994-2001

	1994	1995	1996	1997	1998	1999	2000	2001
Median standard of living (DI/CU) by month (EUR)	1 598	1 653	1 671	1 746	1 774	1 870	1 957	2 080
Gini coefficient of DI/CU (in %)	26.0	24.9	25.4	25.8	26.9	26.1	26.3	26.3
Theil index of DI/CU (in %)	11.6	10.5	11.2	11.4	12.7	11.9	11.7	12.2
S80/S20	3.7	3.5	3.6	3.7	3.8	3.7	3.7	3.7
D9/D1	5.3	4.8	5.1	5.2	5.5	5.3	5.2	5.2
Risk-of-poverty rate (% of persons with a standard of living lower than a percentage of the median standard of living)								
40% of the median DI/CU	2.2	1.1	1.5	1.9	2.3	1.4	2.2	1.3
50% of the median DI/CU	6.6	4.6	5.1	6.3	5.9	6.0	5.8	5.3
60% of the median DI/CU	13.2	11.0	11.1	12.2	12.5	12.1	11.9	12.1
70% of the median DI/CU	21.4	19.5	19.6	20.9	21.7	19.8	20.2	20.1

Source: CEPS/Instead (BERGER, 2004)

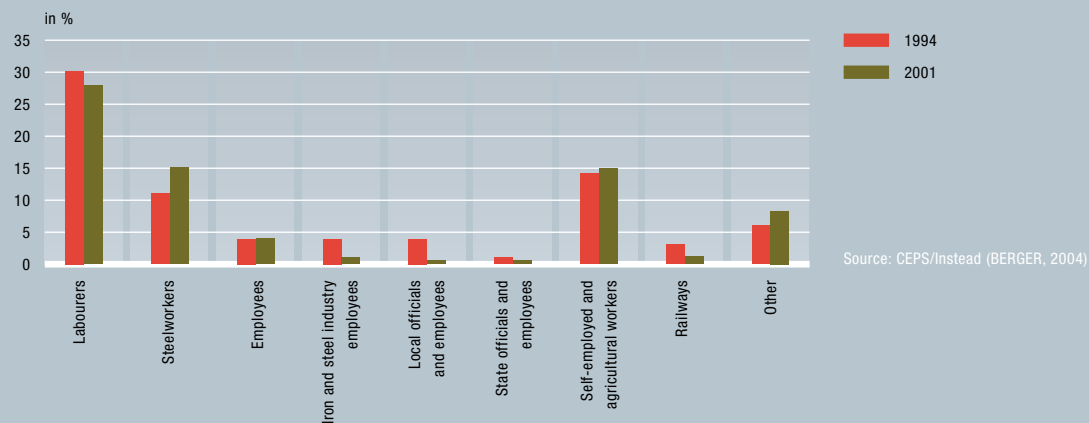
DI = Disposable incom, CU = Consumption unit

S80/S20 = interquintile ratio = ratio between the total standards of living of 20% of the people having the highest standards of living and those of 20% of the people having the lowest standards of living
D9/D1 = interdecile ratio = ratio between the total standards of living of 10% of the people having the highest standards of living and those of 10% of the people having the lowest standards of living

In nominal value, the median individual standard of living would have increased 30% between 1994 and 2001, that is, a value that is very close to the increase in household income. The calculation of individual standards of living primarily enables questions of inequality (distribution) in standards of living and of poverty (more precisely, of "poverty risk") to be understood. Among the indicators of inequality, there are the Gini coefficient, the Theil index and the interdecile ratios (D9/D1) and interquintile ratios (S80/S20). All of these indicators indicate – taking into account the confidence ranges – that there was no significant change in inequality from 1994 to 2001 (BERGER: 2004, p. 5).

Individual standard of living also allows a frequently used poverty indicator to be prepared: the "risk-of-poverty rate", which corresponds to the share of individuals who have a standard of living below a certain threshold; this threshold is established by convention, not to say arbitrarily. The most frequently used "risk-of-poverty threshold" corresponds to 60% of the median national standard of living. The monetary poverty risk rate is also calculated for other thresholds, namely 40%, 50% and 70% of median income (see table 1.12.2). For example, if the threshold of risk of poverty is set at 50% of equivalent median income, the risk-of-poverty rate is not 12.1% (threshold of 60% of median income), but only 5.3%. It should be noted that by using this indicator of risk of monetary poverty, we are limited to an economic approach to the phenomenon of poverty and that poverty measured in this way is relative to the national economic performances of each country. As with indicators of inequality, and taking into account the ranges of confidence, the risk-of-poverty rate in Luxembourg did not change significantly between 1994 and 2001, whichever threshold is used. In 2001, 12.1% of Luxembourg residents had a standard of living below 60% of the median standard of living and 5.3% had a standard of living below 50% of the median standard of living.

Graph 1.12.3
Risk-of-poverty rate (threshold of 60% of the median standard of living) according to the affiliation to health insurance schemes, 1994-2001



Source: CEPS/Instead (BERGER, 2004)

As regards the characteristics of individuals exposed to the risk of poverty, first the incidence of the demographic composition of the household is observed. It should be noted that the standard of living is calculated based on household income, that is, the individual standard of living is sensitive to the consumption units (CUs) of the household, but also to the number of persons in the household who contribute to the household's income (wages, income, benefits, etc.). Among single parents with a child dependant, 26% have a standard of living below the threshold of the risk of monetary poverty of 60% of the median standard of living. In addition, 27% of those people living as a couple, with three children as dependants, have a standard of living below this threshold. On the other hand, households composed of a couple with two children have a risk-of-poverty rate of only 11%. From the point of view of the demographic composition of households, the risk of poverty is thus higher than average for large families and for single-parent families.

We could add that the risk-of-poverty rate (threshold of 60% of the median standard of living) is higher for labourers (more precisely, for labourers affiliated to the health insurance scheme for manual workers), for whom it is 28% in 2001, and it is lowest – virtually zero – for officials and employees of the state. The risk of poverty by nationality reflects the stratification by professional status.

Among the Portuguese, who are overrepresented in the category of labourers, the risk-of-poverty rate is 19%, while only 9% of Luxembourgers, who are overrepresented among officials and government employees, live below the threshold of 60% of the median standard of living. Obviously the risk of poverty of the unemployed is much greater than for those who are employed: 44% of those looking for work have a standard of living below 60% of the median national income.

The analysis of poverty at a given moment (static) is just one aspect of the question. The dynamic aspects (entering into poverty and leaving poverty) are another important part of the problem. The rate of persistent risk of poverty, which measures the proportion of people with income below the poverty risk threshold during the current year and for at least two of the three previous years, is a base indicator in this regard. With a persistent risk-of-poverty rate of 9% (with a threshold corresponding to 60% of the median standard of living), Luxembourg is at the European average. But countries such as Germany, Denmark, Finland and the Netherlands fare better in this area.

Table 1.12.4
Results of the first wave of the EU-SILC survey for Luxembourg

(survey in 2003, income from 2002)

	2002
Equivalent disposable income (DI/CU in euros/year)	28 454
Gini coefficient (in %)	27.6
S80/S20	4.0
Risk-of-poverty rate thresholds (60% of the equivalent median disposable income, illustrative values in euros/year)	
Single-person household	14 654
Two-adult household	30 773
Risk-of-poverty rate (% of persons with a standard of living lower than a percentage of the median standard of living)	
40% of the median DI/CU	2.8
50% of the median DI/CU	5.6
60% of the median DI/CU	10.1
70% of the median DI/CU	17.5
Risk-of-poverty rate before transfers and after transfers (threshold of 60% of the median standard of living)	
Before all transfers	39.3
Including pensions	23.3
Including all transfers	10.1

Source: STATEC (EU-SILC, 1st wave)

DI = Disposable income

CU = Consumption unit

S80/S20 = interquintile ratio = ratio between the total standards of living of 20% of the people having the highest standards of living and those of 20% of the people having the lowest standards of living

Eurostat and the Member States of the EU decided in 2000 to stop using the "European Community Household Panel" (ECHP) and to replace it with a new instrument, the "EU-SILC" ("European Union-Statistics on Income and Living Conditions") from 2003. This was done in order to, among other things, adapt the statistical instrument to new political needs relating to the implementation of the strategy defined at the Lisbon and Nice summits, which emphasized the need to eradicate poverty and recommended better understanding of social exclusion on the base of indicators adopted by common agreement. In addition, the ECHP was facing multiple operational problems, such as outdated data (the national data from 1997 were not available on a European scale until June 2001). Given that many Member States granted little importance to the ECHP, which was considered a Community project and not a national one, the goal was also to integrate the Community project regarding income and living conditions into the national statistical systems. As a result, the EU-SILC is the object of Community regulation. In 2004, STATEC transmitted the data from the first wave of the EU-SILC (survey in 2003 regarding income from 2002) to EUROSTAT (see table 1.12.4).

A summary comparison of ECHP data for the years 1994-2001 makes apparent a global rate of poverty that has fallen slightly, sinking from 13.2% in 1994 to 12.1% in 2001. The EU-SILC survey gives a rate of poverty of 10.1% in 2002. Inequalities have slightly increased. The Gini coefficient was 26.0 in 1994, 24.9 in 1995 and 26.3 in 2001. According to EU-SILC, it rose to 27.5 in 2002. The S80/S20 was 3.7 in 1994 and 2001. In 2002, this ratio was 3.9. However, it must be borne in mind that the introduction of the EU-SILC survey was accompanied by a modification of the population surveyed and that the comparisons with the ECHP should be treated with caution.

The analysis of the trend of poverty and distribution of income over time is just one way to view this question. Comparison with other countries or territories provides supplemental indicators, which can be found in chapter 3.12 of this publication.

The economic situation in 2004

2.1

The international economic situation: Europe lagging behind

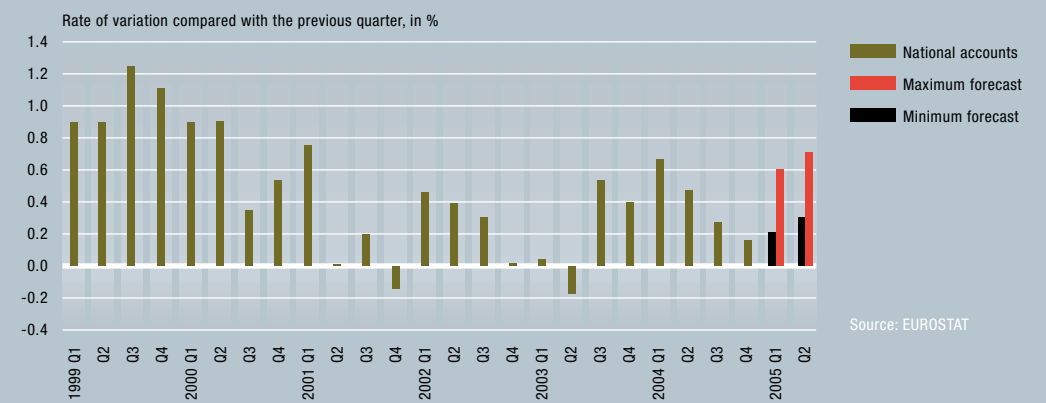
2.1.1 United States: growth and deficits

US growth reached 4.4% in 2004, which was the best performance since 1999, despite a slowdown during the fourth quarter (3.1% annual rate) due to the worsening trade deficit. As in previous years, households made a sizeable contribution to growth, not so much by their consumption expenditure (+3.8%) as by their very high investments in real estate. Business investment also recovered well: at approximately +10%, which was triple the previous year, they posted their highest growth since 1998, the time of the euphoria surrounding the Internet.

Rocketing oil prices have not had too much effect on the healthy state of business, since at the same time, companies were able to put their finances in order, due particularly to very favourable borrowing terms but above all to particularly high productivity increases. Job creation, despite a slowdown in the medium of the year, was relatively high, and led to a fall in the unemployment rate from 5.6% to 5.4% in one year. It is true that the rise in employment is less dynamic than in the late 'eighties, but on the other hand, it is generating less pressure on wages.

The exceptional items that largely sustained economic activity over the past two years (very flexible monetary and budgetary policy) are now coming to an end. The worsening of the budget deficit is forcing the authorities to tighten policy: the budget presented on 7 February 2005 shows spending up by only 2.1% for the 2005-2006 period, i.e. a level below inflation, although this figure does not include military and security spending. Drastic cuts have been made in the sectors of housing, agriculture, transport and justice, the aim being to cut back the deficit to 3% of GDP in 2006. High deficits are having a serious impact on the dollar. They cannot be wiped out instantly, which should keep the euro/dollar exchange rate high for a long period (around 1.30 USD to the EUR). The depreciation in the dollar has not yet had too many negative effects: overall, it has boosted American exports. Businesses that do not invoice in dollars apparently preferred to cut back on margins rather than lose market share in the United States, which has limited the impact on imports (and imported inflation) so far.

Graph 2.1.1
GDP Growth in the eurozone



2.1.2 Asia: China and Japan: increasingly close ties

Japan has made substantial changes to the methodology for its national accounts, which has had the effect of reducing the estimate for economic growth in 2004 to about 2.7% (instead of 4.3% previously). Growth weakened in the second and third quarters of 2004, but the fundamentals are heading in the right direction overall: despite a fall in business confidence during the first quarter, investment should continue to underpin growth, and businesses are continuing to cut their debt burden. Finally, the latest results show that Japan seems to be close to a sort of deflation, although it is not yet time for any tightening of monetary policy.

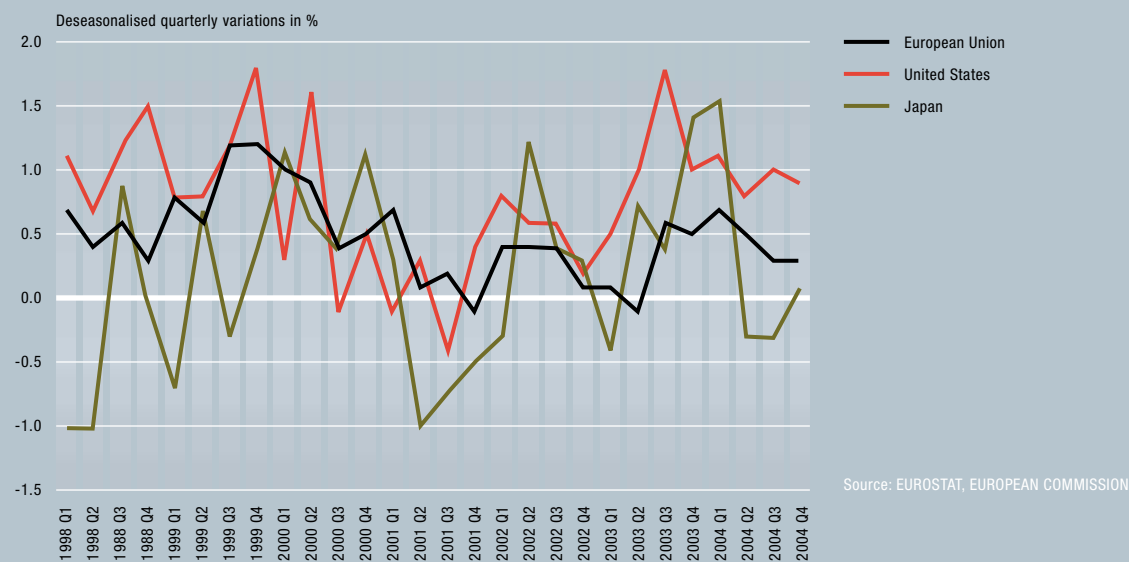
During 2004, China became Japan's leading trading partner, outstripping the United States. Despite tense political relations between the two countries, economic ties have never been stronger. China has become the main assembly centre for a large number of Japanese firms, which often re-export this production to other countries.

While many analysts were expecting a slowdown in Chinese growth for 2004, mainly due to the measures announced in the second quarter by the government to avoid overheating in some sectors, it rose to 9.5%, which is a similar rate to 2003.

Investment fell in sectors exposed to overheating, but industrial production moved ahead strongly, particularly in sectors like energy and steel, or for products such as microcomputers, mobile telephony and air-conditioning equipment (increases ranging from 30 to 40% over one year). Vehicle production expanded by 14% in 2004, and China should overtake Germany in volume terms from 2005 onwards.

This development has entailed a certain pressure on prices, and interest rates were raised for the first time in 9 years. International pressure on China to allow the yuan to float is increasingly intense. The currency is currently tied to the dollar, which has undeniably benefited Chinese development in recent years, as the USA is China's leading export market. This policy, also adopted by other Asian economies and which is aimed at buying assets in dollars to avoid their money depreciating against the falling dollar, has the consequences of greatly increasing foreign currency reserves. China now represents about half the stock of reserves held by emerging countries, which is already higher than that of the "advanced" economies. This accumulation of foreign currency reserves does, however, expose Asian central banks to certain risks: it increases the foreign exchange risk (if the dollar continues to depreciate), puts pressure on domestic prices (via the creation of the money necessary to purchase American securities) and increases government debit (which often use bond loans to limit excess liquidity).

Graph 2.1.2

GDP Growth

2.1.3 Europe: still bringing up the rear

After having experienced stronger than expected growth in the first half of 2004, economic activity in Europe slowed during the third and fourth quarters (see graphs 2.1.1 and 2.1.2). However, the European Commission draws attention to the fact that the two components that had the greatest influence on this slowdown are foreign trade and variations in stocks, which are by their nature volatile, and liable to be revised subsequently. GDP growth for the eurozone was 2.0% in 2004. In the EU-15, it reached 2.3% and in the EU-25, 2.4%. These results still show a modest performance for Europe, in comparison with the increase in world growth. According to the European Commission's latest estimates, growth in the world economy was 5% in 2004, or more than double the rate in Europe. 2004 was marked in Europe by weak consumption by households, which were unable overall (although the situation is different per country) to benefit from a recovery in employment, which also limited wage growth.

A substantial number of companies saw their financial situation improve (reduction of debt or increased profits), but other factors depressed investment and recruitment. The rise of the euro, for example, which made European exports more expensive at the same time as having an indirect negative impact on the competitiveness of industries based in the eurozone, since it entails a relative cut in the production costs of third countries. European industry continues to lose jobs (approximately 2.3% down in 2004 for the EU-15, following a fall of 2.0% in 2003). Job creation in services is still inadequate at European level to push total employment onto a growth path.

Inflation was relatively reasonable in 2004, despite the sharp rise in oil prices, and wage pressure remains low due to the situation of the labour market. In this context, the monetary policy of the European Central Bank seems unlikely to be tightened in the near future, except if there is a further sharp rise in oil prices or excessive appreciation of the euro. We should point out that the ECB's base rate has remained unchanged at 2% since June 2003.

2.2

Economic situation in Luxembourg

2.2.1 2004: a satisfactory year except for the labour market

In view of all the statistical data available at the beginning of 2005, the Luxembourg economy displays all the symptoms of an acceleration of economic growth during 2004. That acceleration was not shared in the same way by all economic sectors and by all branches of business activity.

Industry displays results with strong growth in terms of production (particularly in the first half of the year), the best since 1998, although these did not benefit employees directly. Productivity increases made in 2003 and 2004 started to have an effect on investment, but not on recruitment. The news in January 2005 was not encouraging in this respect: the job losses at TDK, extremely tense negotiations at Dupont de Nemours, the liquidation of the Valfond company followed on from a 2004 marked by job cuts at the Luxembourg plants of Arcelor.

Overall, the construction industry experienced a year of stagnation, the result of two opposing trends. In civil engineering, 2004 will remain in the memory as a bad year, with much less work on road infrastructures. In the building industry, activity moved ahead well, both in residential construction (stimulated, among other things, by rates of interest that are still very low) and in non-residential construction. For 2005, the main source of concern for the construction industry still relates to the same consideration: whether the supply of building plots will be sufficient to meet demand that shows no signs of slacking. The business cycle survey for January 2005 shows in any case a relatively high level of business confidence compared with the previous two years.

The commerce sector should make a sizeable contribution in terms of economic growth and tax revenue, as it did in 2003. The whole sector is being buoyed up by the good performance of "motoring" sales, with a growth in both sales of vehicles and fuels, and the wholesale trade (also concerning fuels, as well as sales of steel products). For the retail trade, on the other hand, the results will at best show stagnation compared with 2003. Households will probably have consumed less in the shops and large stores of the Grand Duchy, or at least have spent less, a phenomenon that is perhaps linked to a structural rather than a cyclical change.

Table 2.2.1
Economic situation in Luxembourg: main variables

	1985-2003	2003	2004 ²	2005 ²
	Rate of growth in % (or specified differently)			
GDP in current prices (in millions of EUR)	...	23 956	25 627	27 293
GDP in volume	5.5	2.9	4.2	4.0
Final consumption expenditure of households and NPISH	3.7	1.6	1.8	2.7
Final consumption expenditure of government	5.0	5.0	3.3	2.6
Gross fixed capital formation (excluding inventory change)	7.1	-6.3	6.9	7.9
Exports of goods and services	7.3	1.8	6.0	5.2
Imports of goods and services	6.8	1.6	5.7	5.4
Total domestic employment ¹	3.4	1.8	2.4	2.4
Inflation (implicit deflator of expenditure by households) ¹	2.3	1.9	2.2	2.0
Average wage cost ¹	4.0	2.1	3.2	2.7
Unemployment rate (registered, % of working population)	...	3.7	4.2	4.3

Source: STATEC, ADEM, IGSS

¹ Established according to national accounts methodology;

² Estimates and forecasts (January 2005).

The hotel and restaurant sector was unable to benefit from this year of fine weather, which encourages tourists to visit during the summer. The number of nights spent in Luxembourg establishments rose in 2004, which can be attributed to a revival in "business" travel, in line with the acceleration in economic activity. An increase in the results of companies connected with institutional food services was also observed. This branch of the hotel and catering industry remains one of the most dynamic in terms of job creation.

Air transport took advantage of the recovery in European and global tourism as well as the sound performance of activities connected with cargo transport. The performance of the national airline Luxair, which was relatively good in terms of growth in passenger numbers, should be put into context on the basis of revenue, with a lower increase in value relative to that of other European airlines. In addition, 2004 marked a recovery in river transport, after reduced activity in 2003 due to difficult conditions for navigation on the River Moselle, as well as an increase in the volume of products connected with the steel industry (inputs and outputs) transported.

The financial sector returned to growth in 2004. Although banking marked time and experienced overall stagnation in results and jobs for the year as a whole, other financial services enabled the positive trend to be maintained. The very good performance by investment companies, increased exports of financial services in general, in line with the recovery in stock market indices, are all encouraging signs for the contribution to the growth of the financial sector in 2004, as well as for years to come.

For all other commercially traded services, apart from the financial sector, the trend is relatively heterogeneous according to the type of activity under consideration. Jobs created in these services represent about 10% of new jobs. On the other hand, data relating to turnover is still too patchy for 2004, and it is difficult to draw clear conclusions about the cyclical status of the activity concerned. The new business cycle survey in service industries (joint survey by STATEC and the Chamber of Commerce) will help overcome these deficiencies in the future.

Table 2.2.2
Macroeconomic forecasts for the Luxembourg economy, 2005-2007

	1985-2003	2003	2004	2005	2006	2007
	Change in % (except if specified differently)					
GDP (in vol.)	5.5	2.9	4.2	4.0	4.3	4.4
Total domestic employment	3.4	1.8	2.4	2.4	2.8	3.0
Unemployment rate ¹	...	3.7	4.2	4.3	4.2	4.0
Consumer price index ²	2.3	1.9	2.2	2.0	1.7	1.7
Average nominal wage cost ²	4.0	2.1	3.2	2.7	2.7	2.5
Financing capacity/need of general government (% of GDP)	2.9 ³	0.5	-1.1	-1.6	-1.9	...

Source: STATEC (1985-2003: observed national accounts; 2004-2007: forecasts dated January 2005)

¹ Based on registered unemployment (ADEM), in % of the working population

² National accounts concepts

³ 1990-2003

We may consider that, with a final result of 2.2%, Luxembourg inflation has been relatively moderate in 2004 within the context of rocketing oil prices (up 13% over the year). It is true that this rise in oil prices, as well as raw materials prices worldwide, was mitigated (but not compensated) by the appreciation in the single currency. The increase in raw materials prices has had a clear impact on the price of Luxembourg's industrial products, via the price of steel products, and on construction costs. If we consider consumer prices, excluding petroleum products, these have been in an almost continuous deceleration since 2002, which is more pronounced for goods than services.

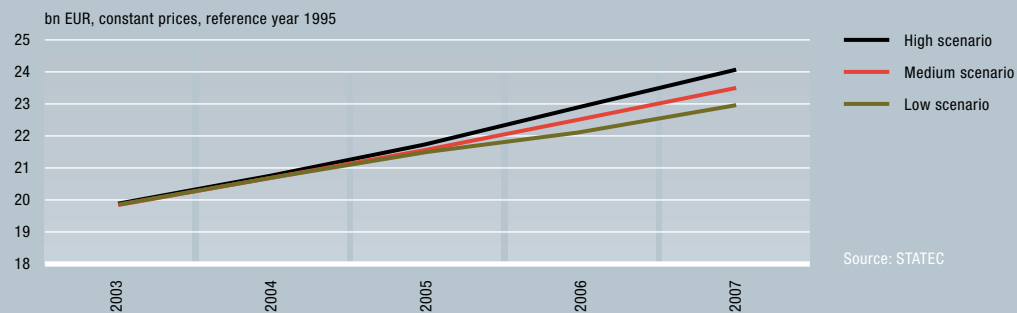
For wages, the dynamic is roughly the same as for consumer prices. Since the period of very sharp acceleration in 2000 and 2001, a direct consequence of the very strong economic growth experienced by Luxembourg during the years 1997 to 2000, wage costs have returned to a growth pattern close to that of the eurozone.

Employment rose in 2004. After a 1.9% increase in 2003, total domestic employment in Luxembourg experienced growth nearing 2.5% for 2004 as a whole. Unfortunately, this result is still inadequate, since unemployment is still rising. A more worrying development is that, although a slowdown was observed in the increase in the number of employed people since mid-2003, this slowdown was no longer apparent in the final months of 2004. Over that period, the number of unemployed people was growing at a virtually constant annual rate, at around 12%.

2.2.2 Forecasts: sustained, but not exceptional growth

In January 2004, STATEC confirmed its previous estimate of GDP growth in volume of 4.2% for 2004 (the most recent estimate of April 2005 for 2004 is 4.5%) and marginally revised downwards its forecast for 2005 (from 4.2% to 4%). This correction is due to the downward revision of the price of oil, which would affect exports of refined products from Luxembourg due to the (slight) reduction in the price differential. It can be shown that the differential in petroleum product prices between Luxembourg and neighbouring countries has a positive correlation with the price of Brent Crude. The greater this differential – which is largely due to the tax differential – the more likely it is that "petrol pump" tourism will increase. These forecasts made in January 2005 do not take account of the rise in oil prices during the first months of 2005. The price per barrel of crude oil (Brent) rose from 31.3 USD in January 2004 to 49.7 USD in October, to fall back to 39.6 USD in December 2004. The price of oil started rising again from January 2005 to reach 53.4 USD in March 2005 (concerning the pattern of oil prices, see also p. 96)

Graph 2.2.3
Forecasts for the Luxembourg economy:
GDP by volume per low/high/medium scenario



For 2006 and 2007, STATEC forecasts sustained growth of the Luxembourg economy, at slightly above 4%. This pace of expansion is very favourable in a European comparison. The European Commission's forecasts are for GDP growth in the eurozone of 1.6% in 2005 and 2.1% in 2006. The growth in the Luxembourg economy goes hand in hand with a negative "output gap", resulting in under-utilisation of production capacity. The potential GDP (i.e. the maximum production feasible without pressure on prices, given the capital stock), labour resources and technological progress should grow by approximately 4.5% on average to the forecasting horizon.

Despite a slight decline in world demand, exports to European countries, the leading customers for the goods and services produced by domestic firms, constitute the main driving force behind the business cycle. Exports of financial services have recovered some dynamism, but not returning to the frenetic growth of the late 1990s. Other market niches are being opened up, such as electronic commerce, at present generating tax revenue, but little demand-led growth. Luxembourg industry had an excellent year in 2004, and no substantial slowdown in exports of goods is forecast. Demand for consumption by households could recover while unemployment would stop rising and the overall climate would continue to improve.

After the falls in 2002 and 2003, capital formation already started in 2004: STATEC forecasts the continuation of a strong trend of investment in means of production and infrastructures, by the state as well as by businesses and households. Cumulatively, over the years 2002-2005, the Luxembourg state will have injected some 6% of the GDP into the economy. According to the most recent figures, a slight surplus of the public administrations (0.5% of GDP) in 2003 gave way to a public deficit of 1.1% in 2004, 1.6% in 2005 and 1.9% in 2006. The structural deficit, which neutralizes the effects of the economic cycle on public expenditure and revenue was 0.3% in 2004 and is expected to be 0.6% in 2005 and 2006.

Underlying inflation, which first eliminates oil prices from the overall index, continued to slow down in 2004, reaching around 1.5% at the end of the year. According to STATEC, inflation should continue to remain moderate up to the forecasting horizon due to the under-utilisation of production capacity, increasing unemployment and falling oil prices, from 2006. Therefore, the due date of the next index-linked pay increase is forecast in early 2006.

Nominal wage costs should rise at an annual rate close to 3%: this forecast rise must be regarded as moderate if evaluated in "real" terms, i.e. deflating it by consumer prices or value-added. Over the period 1985-2003, the real cost of labour rose by approximately 1.5% per year; over the years 2004-2007, a rise of 0.5% per year (concerning the pattern of wages, see also chapters 1.10 and 3.11).

With the gradual strengthening of growth, job creation should accelerate slightly and reach an annual rate of 3% at the end of the forecasting horizon. Unemployment is not expected to fall substantially before 2006 unless there is a very strong recovery. But the pattern of unemployment (residents) depends not only on job creation but on the influx of cross-border workers into the labour market or the number of residents of working age entering paid employment. The latter factor could allow a certain easing in the situation, because we could anticipate lower participation in the labour market as unemployment rises. While the labour force participation rate will continue to rise, the rate of increase will be lower than in the past.

In order to take account of a potential source of error in the forecasts, i.e. the risk emanating from incorrect hypotheses about exogenous variables, STATEC has chosen to define alternative scenarios. These are based on various hypotheses with regard to international demand and exports of financial services.

In the favourable case, growth would be maintained above 5% on average, over the forecasting horizon 2005-2007, while, in the low scenario, growth would only reach 3.3% on average per year (see graph 2.2.3). These few figures serve to illustrate the range of possibilities generated by production of alternative simulations. In the knowledge that one of the current risks of economic macro-economic destabilisation in Luxembourg concerns unemployment, it is important to bear in mind that in the best case, unemployment would stabilize if policy remains unchanged, at the horizon of 2007, at around 3.5%. At worst, it could stay for a long period at around 4.5%. For 2005, the medium scenario, deemed to be the most probably, forecasts growth of GDP in volume of 4%. It must be borne in mind that, in view of the uncertainty about the strength of the recovery in Europe, the unfavourable scenario could be assigned a slightly higher probability of realization than the favourable scenario. In that case, growth slightly below 4% could be expected. If that were to happen, the situation could turn around in 2006, enabling stronger expansion (than the 4.3% forecast in the medium scenario).

For more details concerning the hypotheses that underlie the forecasts and the various growth scenarii for the Luxembourg economy, the reader may refer to the STATEC Business Cycle Note ("note de conjuncture") no. 3/2004 (downloadable from Luxembourg's statistical portal: www.statec.public.lu)

2.3

Recent activity in a number of economic sectors: mixed performance

2.3.1 Industry: 2004 was a good year

The economic situation was again favourable for industry in Luxembourg during 2004. According to business surveys conducted among industrialists in Luxembourg, the annual rate of increase in output per working day was close to 6% in 2004. This result comes after an already impressive rate of +5.2% in 2003 and is not that far away from the extraordinary performance of 1998, when growth exceeded 8%. However, it should be noted that the last quarter of the year was not so good, something that was predicted by opinion surveys conducted in November and December indicating a slowdown. It was mainly during the first quarter of 2004 that growth was highest (+3.5% in comparison with the preceding quarter, according to seasonally adjusted figures), subsequently running out of steam to some extent (+1.9% in the second quarter as against only +0.4% in the third quarter and as little as -0.4% in the last quarter of 2004).

Activity per type of industry

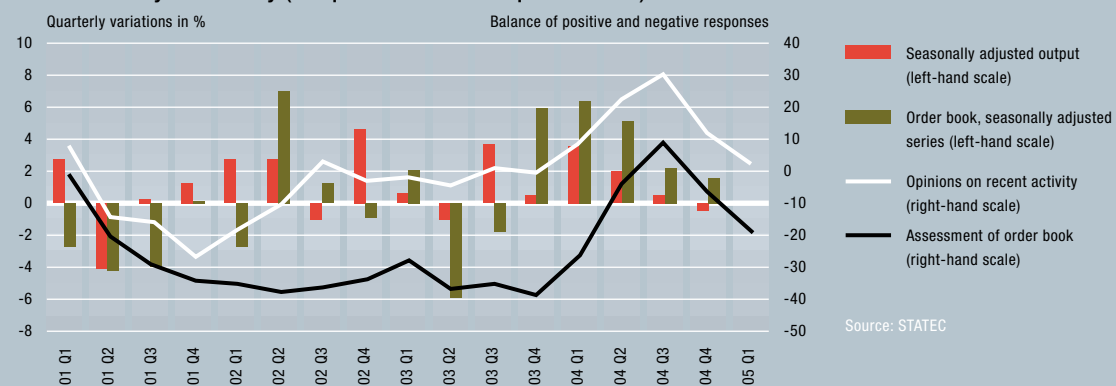
Looking at the major groups of activity, it was in the leading sector of intermediate goods (which includes the iron and steel industry) that activity was most sustained in 2004 (around 7% growth). On the other hand, consumer goods recorded a definite slowdown, declining from growth of over 3.5% in 2002 and 2003 to a more modest result of around 2%. Capital goods, showing a very good trend over the first half of the year, were particularly hard hit during the third quarter (with a fall of more than 20% in comparison with the second quarter). Excluding the iron and steel industry, industrial output in Luxembourg recorded an annual growth rate of around 7% in 2004. Excluding energy, growth reached more than 5%, showing how well this sector held up throughout the year.

Producer prices

Prices of industrial products experienced record inflation of over 8% in 2004. They are always heavily influenced by increases in the price of iron and steel products (around +27%), whereas all other products recorded a relatively modest increase (below 2%). Extensive comments have already been made about this rise in iron and steel prices. The price of the raw materials and inputs required for this type of industry did of course cause production costs to climb. However, this situation does not seem to have been particularly detrimental to the smooth operation of the iron and steel industry.

Graph 2.3.1

Recent activity in industry (1st quarter 2001 - 1st quarter 2005)



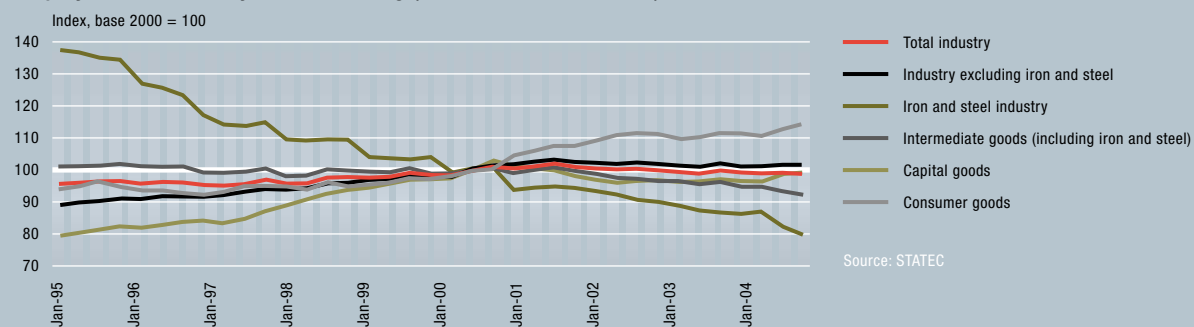
Source: STATEC

On the contrary, in the case of Arcelor, for instance, although increased selling prices naturally swelled turnover, profits and cost-effectiveness have also shown a clear upward trend. 2004 will probably have a positive outcome, but nevertheless we should not delude ourselves about the prospects for the iron and steel industry in Luxembourg and Europe. Guy Dollé, CEO of Arcelor, declared in December that "you'd have to be mad" to invest in steel in Europe. The group's development strategy, in terms of production and outlets, has been clearly geared towards high-potential markets such as Turkey, India or China. As a corollary of this strategy, during the last quarter of 2004, Arcelor announced that it would be shedding 7,000 jobs in France (out of around 36,000) and 1,000 jobs in Spain (out of around 15,000). Luxembourg has not escaped this phenomenon (see graph 2.3.2 showing the development of employment in industry from 1995 to 2004) or the regular trend towards decreasing numbers of jobs in Europe (the labour force in the iron and steel industry in the EU-12 has fallen from 900,000 to less than 300,000 in 30 years).

Productivity

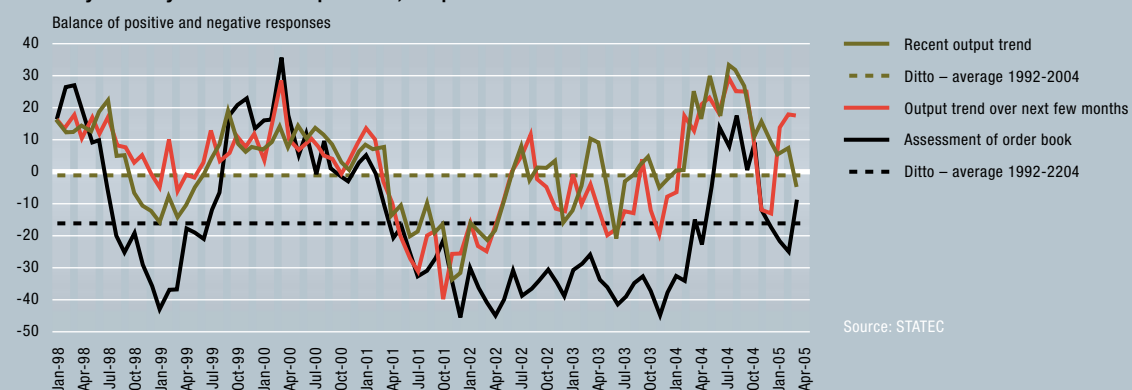
In terms of productivity, it is likely that 2004 will again prove to have been a very good year for domestic industry, judging by the results of the monthly activity survey. At the end of November, productivity per employee showed an annual growth rate of 7.1% (as against 6.3% in 2003 and 2.9% in 2002), whereas productivity per hour worked showed a gain of 6.4% (as against 5.6% in 2003 and 3.9% in 2002). While productivity has recovered sharply since mid-2002 in industry as a whole, it is only since the beginning of 2004 that it has begun to rise again in the iron and steel sector, after falling for two consecutive years. Nominal unit wage costs, obtained by dividing wage cost indices by production cost indices, have fallen by 4.6% (following falls of -3.4% and -0.9% in 2003 and 2002), a sign of greater corporate profitability.

Graph 2.3.2
Employment in industry in Luxembourg (index, base 2000 = 100)



Source: STATEC

Graph 2.3.3
Industry: Survey on economic position, output and order books



Source: STATEC

Recent activity - opinion surveys

Most indicators from the January 2005 opinion survey show a decline: recent output trend, order books, new orders and use of production capacity are moving downwards. In January 2005, demand was deemed inadequate by 27% of business owners, as opposed to only 14% in the October 2004 survey. Despite the strong downward trend affecting order books over the last few months of 2004, prospects for development of output recovered very clearly (the balance of responses went from -13 to +14). The duration of assured production also rose slightly, from 3.2 to 3.3 months. This means that a reversal of the situation over the coming months cannot be discounted.

Investments

The last survey on industrial investment confirmed a rise of around 15% for 2004. This recovery follows a fall of around 5% in investment expenditure in 2003.

2.3.2 Construction: building and civil engineering moving in opposite directions

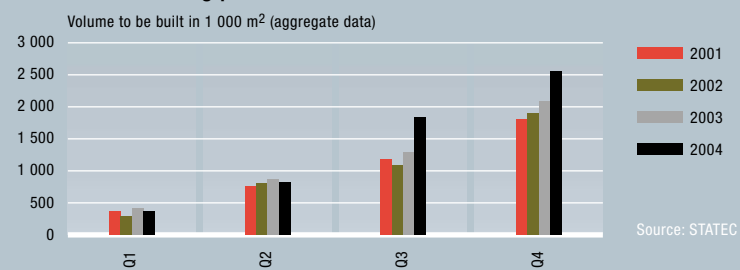
Activity in the construction sector fell by 1.1% in 2004. This result is due to the combination of two opposing trends. On the one hand, the building side (which accounts for around three-quarters of the sector's activity) moved forward appreciably with a gain of 3% over this period. If the results relating to building permits and from surveys of the economic situation are to be believed, this dynamism is shared by both residential and non-residential construction. On the other hand, civil engineering is simultaneously experiencing a downturn in activity exceeding 13%, mainly due to the drastic cuts in public works by the State and local authorities. It should be noted that civil engineering activity is much more volatile than building, the latter sticking more closely to the economic cycle. Going back a few years, it can be seen for example that 1996 was a very bad year for civil engineering (-9.6%), whereas this sector has recently known good times, such as 1999 (+10.9%) or 2002 and 2003 (with around 4% growth).

Table 2.3.4
Activity in construction, 1998-2004

	1998	1999	2000	2001	2002	2003	2004
	Annual variations in %						
Construction	...	...	3.2	4.1	1.9	0.8	-1.1
Building	0.2	-2.7	5.2	6.5	1.0	0.6	3.0
Civil engineering	1.1	10.9	3.6	-3.0	4.8	2.6	-13.8

Source: STATEC

Graph 2.3.5
Residential building permits



Source: STATEC

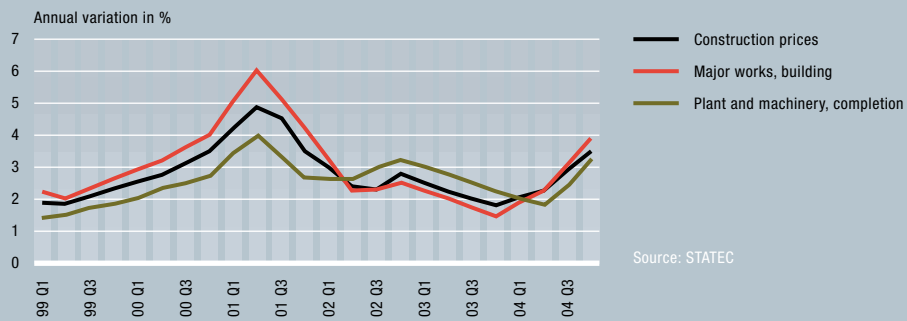
A healthy picture for the residential property sector

In Luxembourg, building permits issued in the residential sector showed a substantial rise in volume in the third and fourth quarters of 2004 (see graph 2.3.5). Blocks of flats always take the largest share of this upward movement. The residential property sector thereby confirms its good health. Demand remains high (as needs are far from met), but it can be seen that the phenomenon is fairly general throughout the eurozone, except Germany where the building sector is still in the doldrums. Historically low interest rates undoubtedly play a large part in this enthusiasm for residential investment.

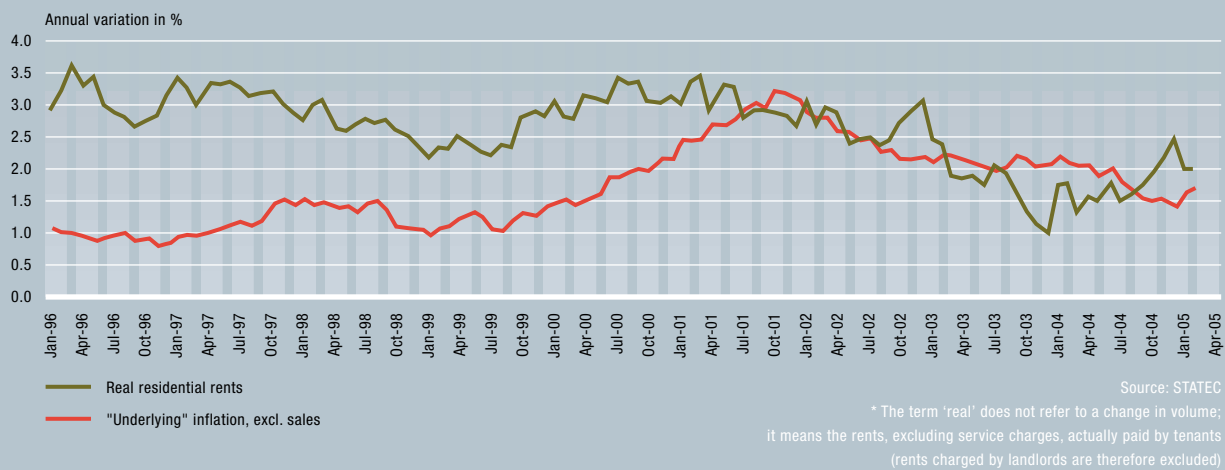
Mention is often made, in respect of the United States or United Kingdom, of a latent property risk, in the event that interest rates should rise further and increase the monthly payments of households who have got deeply into debt in order to invest in bricks and mortar. In Luxembourg, where the majority of home loans are based on a system of variable rates, a rapid rise in rates would have particularly damaging consequences.

However, for countries in the eurozone, a marked rise in interest rates does not seem to be a threat in the short or medium term. If there should be a rise, it would be very modest in view of the currently prevailing lethargic economic situation, with particular reference to the three heavyweights (Germany, France and Italy). To sum up and even if the possibility of a speculative property bubble cannot be excluded, the likelihood of a property crash seems to be relatively limited at present as regards the eurozone. All of these considerations point to a sustained level of activity in the residential construction sector over the medium term in the eurozone. The building sector in Luxembourg may also take advantage of this favourable economic picture, so long as demand is not limited by the supply of building land. It should be noted, finally, that in-depth economic studies of the criteria which might influence housing supply and demand in Luxembourg have not yet been conducted, a situation that needs to be rectified in view of the importance of the topic.

Graph 2.3.6
Construction prices



Graph 2.3.7
Real residential rents*



Rising construction prices

Construction prices pushed upwards in 2004. In the previous survey, a slight shift in trend could already be seen as regards this indicator, which can now be confirmed with an annual rise reaching 3.6%. Could this be partly related to the recovery in raw material prices at global level? The detailed analysis shows that the greatest contribution to the rise, accounting for one-third, comes from the item "paving stones, beams, pillars and reinforced concrete walls", which has recorded an increase of 10%. It is true that reinforced concrete contains both cement and metal and that world prices for these materials have gone up regularly and sharply over the past two years. Other categories, the contribution of which is less substantial, also show clearly rising prices, such as "heating installations" (+6.2% in one year, particularly due to the cost of pipework, which again has to be related to the price of metals), "internal joinery and metalwork" (+4.0%) and "plasterwork" (+4.3%).

Rents are going up again

Housing rental rates had been very definitely leaning towards moderation since 2001. They were, however, likely to move up a gear, particularly if the economic recovery were to be confirmed, with other exogenous factors such as the arrival of EU officials from the new Member States also pulling in the same direction. It is now clear that rents really leapt up over the last quarter of 2004. In terms of growth, they have moved sharply above the underlying inflation rate and it seems likely that we are witnessing the beginning of a new upward cycle. This theory is also backed up by the inflationary trend in construction prices mentioned above.

Surveys of the economic situation

Surveys of the economic situation conducted among building professionals indicate a growing feeling of optimism during 2004. Opinions about the status of order books and the duration of assured activity reached levels that had not been seen since 2002. However, the January 2005 survey indicates a general downward movement. This result was not too worrying, bearing in mind that it recurs every year at this period, when many people are on holiday. Data from the February and March 2005 survey do confirm the drop in terms of assessment of the order book. On the other hand, the duration of assured activity shows an upward trend in February and March 2005.

Graph 2.3.8
Construction: Results of the surveys on economic situation

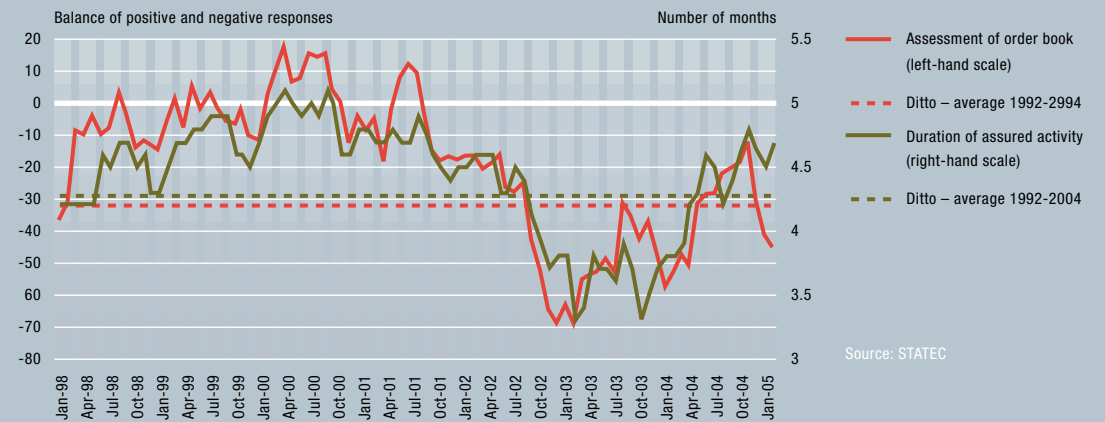


Table 2.3.9
Recent development in commerce; turnover by volume

	Weight 2002	1999	2000	2001	2002	2003	2004
Annual variations in %							
Commerce	100.0	2.2	9.8	5.1	1.4	8.9	5.0
Automobile	16.2	4.1	4.7	4.0	7.5	10.4	4.3
Wholesale	67.2	2.0	12.4	5.8	-0.7	9.4	5.9
Retail	16.6	1.2	3.8	2.2	5.4	4.0	1.3

Source: Administration of Registration and Property, STATEC

2.3.3 Commerce: slowdown

Automobile and wholesale trades: moderate dynamism

According to the provisional data available for 2004, turnover in the automobile and wholesale trades does not seem to have reached the growth rates recorded for 2003. Nevertheless, the rise is substantial. The automobile trade sector has benefited from the rise in sales of both fuel and vehicles. New vehicle registrations (new private, commercial and utility vehicles) increased by 10% in 2004 (see graph 2.3.10 indicating new registrations of new vehicles). The results showed a continuous improvement throughout the year and the last quarter ended on a high note, with 14% more registrations over one year. As regards the wholesale trade, sales of fuel also boosted the results. Added to this is the good economic position enjoyed by the iron and steel sector with its knock-on effect on the wholesale businesses that sell these products.

What is the explanation for the slowdown, we might even say decline, in retail?

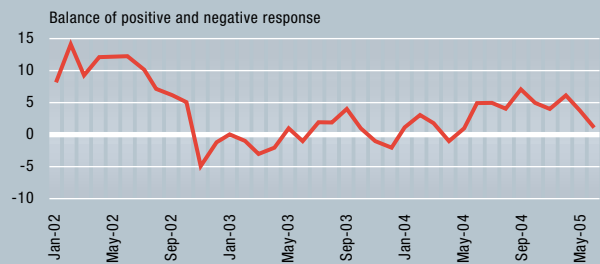
Conversely, retail is not doing so well. It has had to make do with a slight rise over the whole of 2004, while the seasonally adjusted figures (see graph 2.3.12 indicating the development of turnover in the retail trade) also show a downward trend since August. The fall or stagnation in consumption at retail outlets may undoubtedly be explained by the difficult situation experienced by certain households: unemployment got worse in 2004, employment is only just picking up, etc. The picture given by the consumer confidence indicator (see graph 2.3.11) does, however, run counter to this idea: overall, it shows an improvement in confidence after a very depressed 2003, which would tend to suggest increased expenditure on consumption.

It is also possible that other, more structural factors, stemming from a change in consumer behaviour, are playing a part in this development. Various theories may be put forward to explain this development in the retail trade's results in terms of value. The first of these relates to considerable price restraint on goods sold at retail outlets. It is true that, according to the national consumer price index (NCPI), inflation in Luxembourg reached 2.2% in 2004. The underlying inflation (excluding oil products and seasonal products) reached an average of 1.8% in 2004. However, it must be pointed out that, if underlying inflation in respect of *goods* (which does not include services and oil products) is taken into consideration, inflation was only 1.3% in 2004.

Graph 2.3.10
New registrations of new vehicles

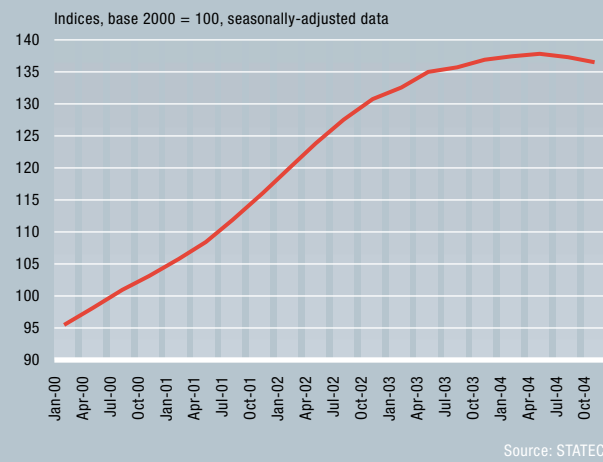


Graph 2.3.11
Consumer confidence indicator



Some of these goods are sold not by retail outlets but by the sector described as "Automobile trade and repairs", i.e. vehicles (which are an important item of expenditure) and a proportion of the tobacco and cigarettes sold (these products sometimes also being bought by the resident population at petrol stations), whose prices have climbed by 7.8% in 2004. In other words, not all goods consumed by residents are necessarily consumed at retail outlets. Similarly, prices of consumer goods included in the NCPI are not identical to the prices of goods sold at retail outlets. It is interesting to note that some goods sold at retail outlets recorded substantial drops in price in 2004: we might mention, in no particular order and by way of example, the categories "Telephone equipment, fax, etc." (-11.8%); "Photographic and cinematographic equipment, etc." (-10.5%); "Computer equipment" (9.3%); "Software" (-7.2%); "Garden furniture" (-5.5%); "TVs, videos, etc." (-4.7%); "Games, toys and hobbies" (-2.5%) or "Image and sound recording media" (-1.9%).

Graph 2.3.12
Turnover in the retail trade



Source: Central Bank of Luxembourg
The consumer confidence indicator constitutes the arithmetical average of the weighted balances of the following four questions: financial position of households over next 12 months, general economic position over next 12 months, development of unemployment over next 12 months, ability to save over next 12 months.

Secondly, it could also be that residents consumed more abroad, or in any event through other circuits than traditional commerce (especially via the Internet, see chapter 3.4). Discount stores such as Aldi, Profi and Lidl are also to be found in Luxembourg. The hypermarket chain Cora, which has been operating in Luxembourg since May 2002, also comes to mind. Although it is not really a discount store, it nevertheless has an extremely low price policy. Unfortunately, we do not have more precise data on this kind of outlets, but once again it could well be that they generate more competition in the retail trade in Luxembourg, dragging overall turnover downwards via price.

Consumer morale: quite good but not sufficient

Consumer morale improved during 2004 and stabilized at quite a high level as of the middle of the year (see graph 2.3.11 on the consumer confidence indicator). In view of what has been said above in respect of the development of sales in the retail trade, it is nevertheless true that household morale seems to have remained too low to translate into consumption to the advantage of commerce in Luxembourg. It should be noted, moreover, that the consumer confidence indicator has been moving downwards at the beginning of 2005.

Graph 2.3.13
Financial indicators for Europe

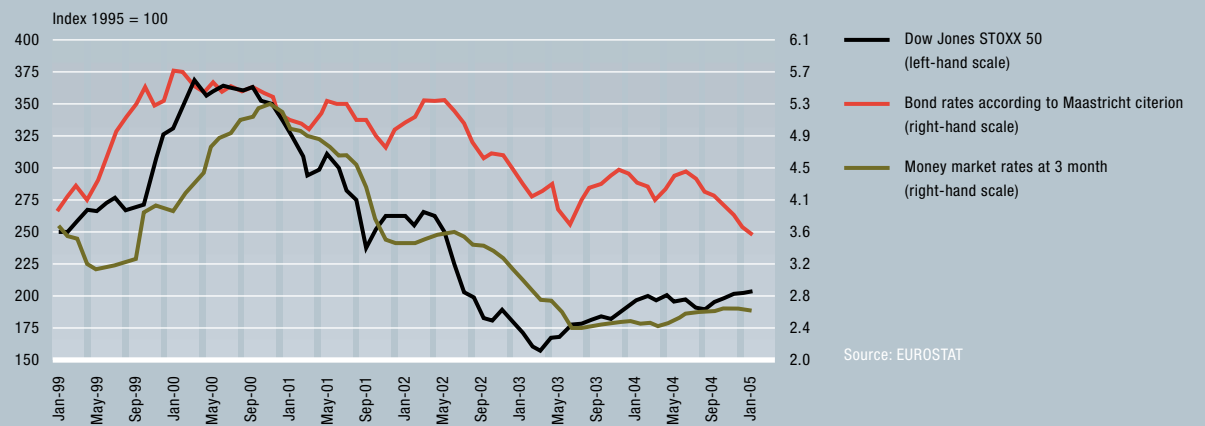


Table 2.3.14
Main figures for the various asset items on bank balance sheets

	2003	2004 December	Variation December 2003 - December 2004
		EUR million	EUR million
			in %
Inter-bank receivables	346 616	377 666	31 050
Customer receivables	117 743	121 307	3 564
Securities portfolio	172 141	174 522	2 381
Other assets	19 471	21 608	2 137
Total assets	655 971	695 103	39 132

Source: Central Bank of Luxembourg

2.3.4 Financial sector: good performance by UCIs and sustained growth of the insurance sector

Stock exchange performance in 2004

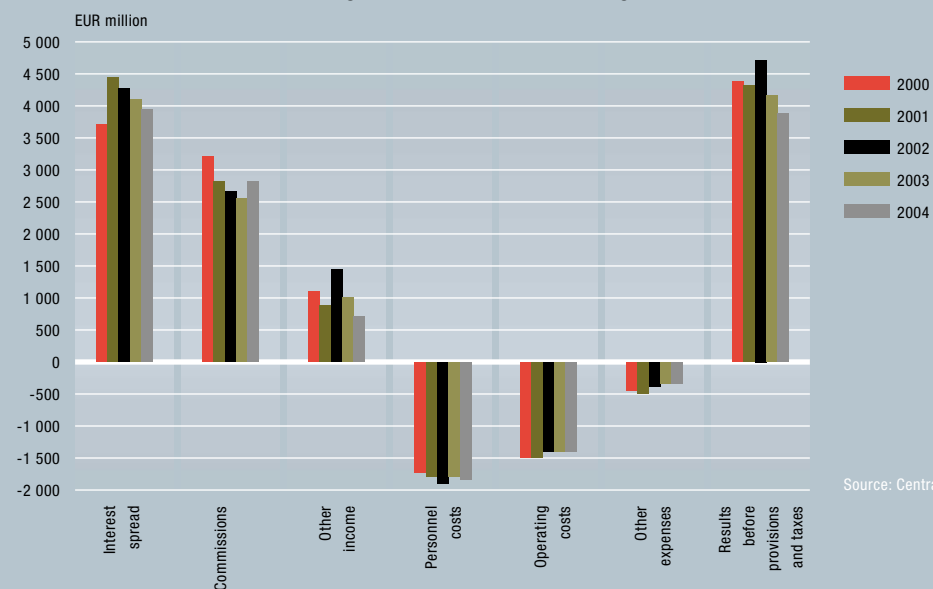
All the major stock exchange indices at global level enjoyed comfortable rises in 2004, following on from the already satisfactory performance of 2003. The most dynamic equity markets were undoubtedly those of Eastern Europe, with performance exceeding 50% for the three most important exchanges (Warsaw, Budapest and Prague). The development of these markets, which was already strong in 2003 and related to the good economic performance recorded in recent years, was undoubtedly boosted by the European Union enlargement process. The United States recorded rises in both traditional (Dow Jones: +3.2%) and technology (NASDAQ: +8.6%) stocks. Seen from the eurozone, such performance is entirely relative, given that the dollar depreciated, over the same period, by around 8% in relation to the euro. The eurozone made itself even more attractive, benefiting in particular from some loss of interest in investing on the US stock exchanges, because of both the appreciation of the euro in relation to the dollar and the concern aroused by swelling deficits across the Atlantic. The DJ Eurostoxx50 index rose by around 15% over the year as a whole. As regards the Luxembourg stock exchange, the LuxX index gained slightly over 25% between December 2003 and December 2004.

Substantial progress on bank balance sheets in 2004, with inter-bank activity predominating

The sum of bank balance sheets increased by 6.0% in one year, rising from EUR 655,971 million in December 2003 to EUR 695,291 million in December 2004. This figure represents the strongest growth recorded since 2001: we should recall that, using the same indicator, 2002 saw stagnation (+0.2%) while 2003 recorded a drop of 3.8%. As regards asset structure, the predominance of inter-bank activity is striking. Inter-bank receivables increased by 9% between December 2003 and December 2004, whereas customer receivables (lending to non-bank customers) only increased by 3% over the period. At the end of 2004, inter-bank receivables accounted for more than 75% of the banks' total receivables and close to 54% of their total assets.

In its "Review of Financial Stability 2005" (BCL Bulletin No. 1/2005), the Central Bank of Luxembourg (BCL) compares the development of loans and deposits of non-bank customers. In the eurozone, the volume of lending to non-bank customers rose by 44% between December 1999 and December 2004. However, there were substantial variations between European countries. The lowest growth was seen in Germany (19%) and Luxembourg (11%). Conversely, there were very high rates of growth in lending to non-bank customers in Greece (168%), Ireland (122%) and Spain (110%). The Central Bank of Luxembourg attributes developments in these three countries to the substantial rise in property prices, which stimulated demand for loans from non-bank customers. It should also be noted that, in Switzerland, there was a fall of 6% in loans granted to non-bank customers between 1999 and 2004.

Graph 2.3.15
Profit and loss account of banking institutions in Luxembourg, 2000-2004



Source: Central Bank of Luxembourg

As in previous years, the number of banks in Luxembourg fell in 2004. There were 162 banking institutions in December 2004, 7 units fewer than in December 2003. It is worth noting that, in 1996, there were still 221 banks. Despite this move towards concentration, the banking sector in Luxembourg remains one of the least concentrated in Europe. In 2003, the share of the five leading banks in terms of balance sheet grand total was only 32% in Luxembourg, as against an average of 53% in the EU-15.

Of the 162 banks operating in Luxembourg at the end of 2004, 46 came from Germany, 14 from Belgium, 17 from France, 15 from Italy, 12 from Switzerland, 6 from Great Britain, 6 from the United States and 4 from Luxembourg, with 42 from other countries.

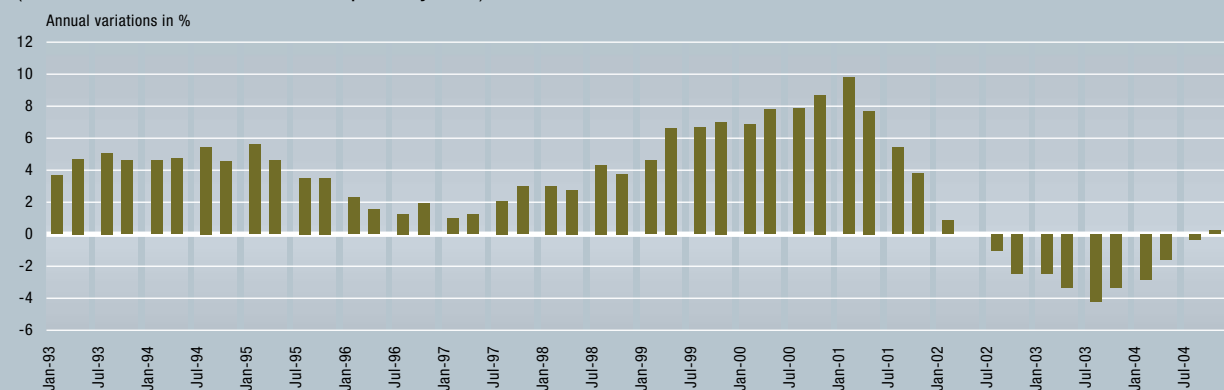
Profit and loss accounts: trend of results still negative with underlying stagnation

Gross results before provisions and taxes for the banking sector in Luxembourg amounted to EUR 3,909 million for the 2004 financial year (a drop of EUR 284 million or 6.8% in comparison with 2003). Between 2003 and 2004, there was a noticeable reduction in the interest spread (-4%), while income from commissions rose by 10.8% (see graph 2.3.15 on the development of profit and loss accounts). Leaving aside the fall in income related to extraordinary items, the profit and loss account actually indicates a stagnation of results compared with 2003. The improvement in income from commissions derives mainly from the global consolidation of the financial markets and the rise in stock market activity. The low levels of interest rates (money market and bonds) continue to have a negative effect on the interest spread. Moreover, this spread has been affected by the fall in income from shareholdings (dividends) following the disengagement of several Luxembourg banks abroad.

For 2004, the fall in income related to extraordinary items affects mainly the lowest capital gains that Luxembourg banks have realised on investment transfers. We often classify this item "Other income" with income said to be "non-recurrent". We notice that since 2003, this non-recurrent income has really become less and less recurrent.

After falling in 2003, particularly due to the reduced workforce, 2004 was characterized by a rise in labour costs (+3.7%), whilst other costs witnessed more moderate inflation (+2.7%).

Graph 2.3.16
Employment in banks
(annual variations on the basis of quarterly data)



Source: Central Bank of Luxembourg

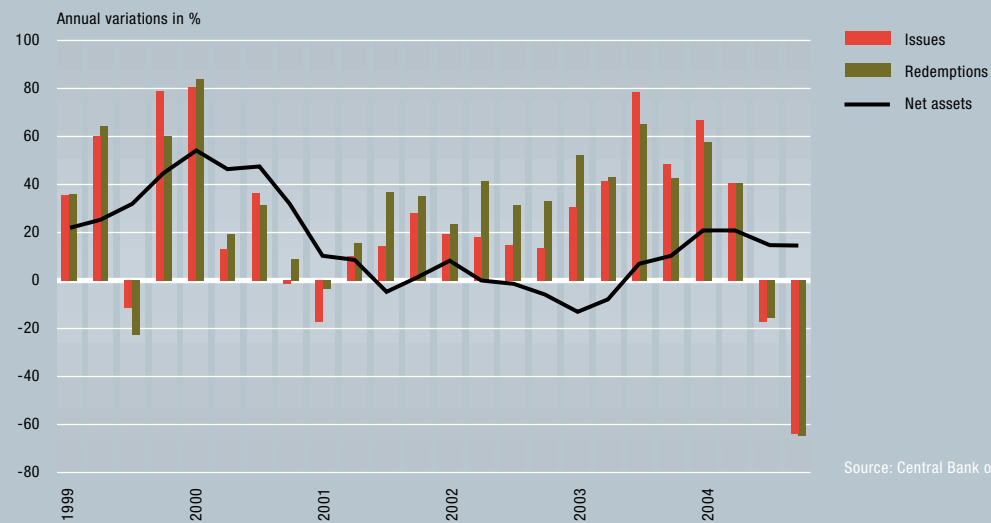
Employment in banking: checking the fall (temporarily?)

As at 31 December 2004, there were 26,608 jobs in the financial sector as a whole – banks, insurance companies, financial services – reflecting a rise of 6.2% compared with December 2003. However, this increase is largely due to the "financial sector professionals" (FSP) category, in which 1,187 net jobs were apparently created in 2004. The rise does, however, stem to a large extent from a change in the scope of data collection in this sector. Employment in banking ended the year 2004 with a very modest rise of 0.11% compared with December 2003, the actual number of jobs rising from 22,529 at the end of 2003 to 22,554 at the end of 2004. Nevertheless, there has been a reversal in the trend, since job losses occurred in both 2002 and 2003. From 23,886 jobs at the end of 2001, the bank labour force in Luxembourg had fallen to 23,300 at the end of 2002 and 22,529 at the end of 2003. This development seems to have been arrested, but the change in direction still requires confirmation.

UCIs: positive performance, despite a fleeting loss of momentum in the third quarter

Although there was a slowdown in the performance of undertakings for collective investment (UCIs) over the third quarter of 2004 (see graph 2.3.17 on UCIs), the position improved over the last quarter, suggesting a movement towards recovery in line with the bullish development of the financial markets at the end of the year. Taking the period between December 2003 and December 2004, the volume of net assets recorded a dazzling rise of 16% (EUR 1,106,222 million as at 31 December 2004, as against EUR 953,302 million at the end of 2003). This increase bears no comparison with the results of previous years (3.8% in 2001, 0.8% in 2002 and -1.4% in 2003). As at 28 February 2005, the net assets of UCI amounted to EUR 1,179,205 million, i.e. once again a substantial increase over December 2004.

Graph 2.3.17
Undertakings for collective investment (UCIs)



Source: Central Bank of Luxembourg

2.4

Prices and wages: inflation restrained, moderate growth in wage costs

Insurance: sustained growth in premiums and results

According to figures published by the *Commissariat aux Assurances*, the insurance sector continued to grow in 2004 and even grew faster during the last quarter. Premiums (excluding marine insurance) increased by 22.8% in 2004 compared with 2003. During the first nine months of 2004, growth was still only 9.7%. In the life assurance sector, premiums collected rose by 24.5%. The *Commissariat aux Assurances* also notes that receipts "break down into an increase of 22.00% in receipts related to products in units of account, which benefited from the recovery of the stock markets, and as much as 38.47% for guaranteed return life products. Products in units of account continue to dominate to a high degree, and the corresponding premiums account for more than 82% of receipts. The development of classic products is still influenced by pension savings products coming under Article 111a of the income-tax law: there were around 27,290 contracts – a rise of 15% in comparison with 2003 – generating receipts of EUR 39.20 million, 13.77% more than in 2003. Savings managed in this regard amounted to EUR 146 million at the end of 2004." Following two years of mixed results, 2004 turned in extremely positive results: the life assurance surplus was around EUR 45 million after tax in 2004.

Consumer prices: Inflation restrained in 2004, despite rising oil prices

Having stood at between 2.4% and 2.5% in October and November, year-on-year inflation fell to 2.15% in December, significantly closer to the 2% threshold. The average inflation rate for 2004 as a whole was 2.2%. The increased stability of non-oil prices in 2004 is demonstrated by the year-on-year underlying inflation rate, which fell from 2.2% in January to 1.4% in December. The average underlying inflation rate during 2004 was 1.8%.

Generally speaking, variations in the rate of inflation are closely linked to variations in the price of oil, as illustrated by the chart 2.4.1 showing inflation and oil prices. 2004 was characterized by soaring oil prices: the price of a barrel of Brent crude rose from around USD 30 at the start of 2004 to nearly USD 50 in October 2004. From November 2004 to February 2005 it moved between USD 40 and 45, before rising again to reach over USD 53 in March 2005. The rise in the prices of petroleum products included in the consumer price index was 12.7% in 2004, the highest since the year 2000 (+30.5%). It would have been even greater without the moderating effect of the euro/dollar exchange rate (see chart 2.4.2, Price per barrel of oil in euros and in US dollars). In contrast to 2000, when the euro was worth less than the dollar (0.92 on average), in 2004 one euro was worth USD 1.24.

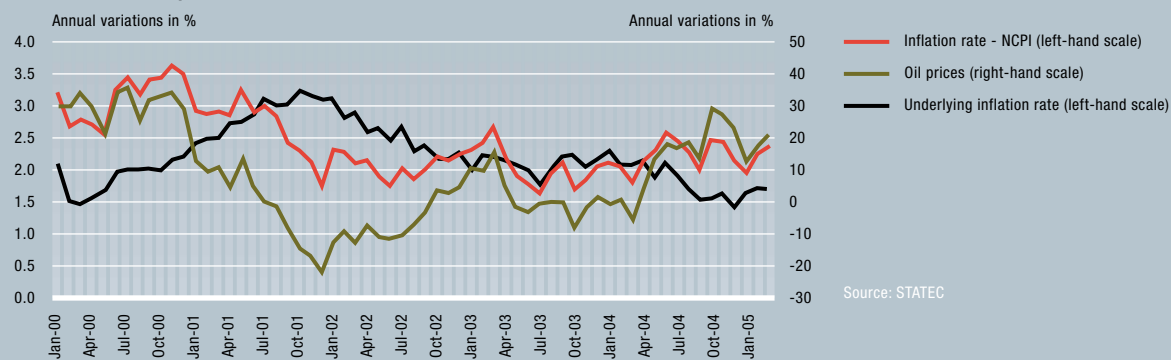
This effect limited inflationary damage throughout the eurozone to a large extent. While a strong euro is a mixed blessing (in particular it penalizes European exports), it certainly had its advantages in 2004! Furthermore, the slowdown in underlying inflation made it possible to contain prices. Arriving at an inflation level of 2.2% - virtually the same as that of the eurozone - in a year marked by runaway oil prices can be considered a relatively satisfactory result. For further details of Luxembourg's inflation trend on a European comparison, see section 3.8 of this publication.

Goods prices easing faster than service prices

The underlying inflation trend has eased significantly since 2002, for both goods and services. However, the easing is slightly more pronounced in the case of goods: The discrepancy between goods and services tended to increase over the same period, rising from 1.24 percentage points on average in 2002 to 1.35 in 2003, then 1.47 in 2004. The higher inflation rate for services as opposed to goods has also been noted for the eurozone in general. It is also worth noting that the increase in prices of raw materials (a global phenomenon) is impacting on the prices of industrial products and construction prices, but seems to have spared consumer goods prices (other than petroleum products, obviously) for the time being.

Graph 2.4.1

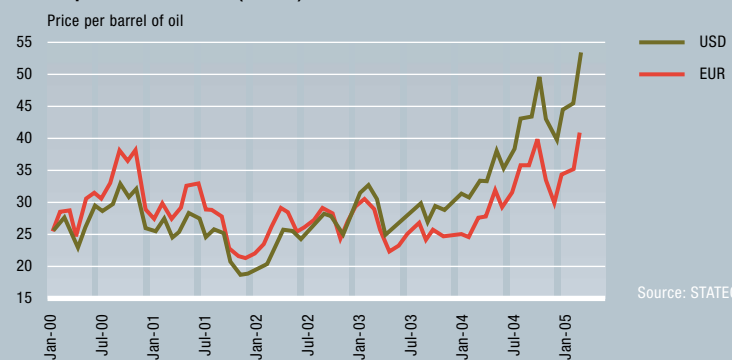
Inflation and oil prices



Source: STATEC

Graph 2.4.2

Price per barrel of oil (Brent) in euros and in US dollars



Source: STATEC

Wages: moderate growth

Average wage costs grew by only a small amount in Q3/2004. This was because there was no wage indexation adjustment affecting this period. The last wage indexation adjustment was in August 2003. In the last quarter of 2004, on the other hand, wage costs accelerated sharply owing to the new indexation adjustment in October.

Looking at the factors which contribute to the growth in wage costs (see table 2.4.4, Salaried employment and breakdown of wage costs), we can see the small contribution made by indexation, whilst the other factors have a limited influence, slightly below that of previous months. The National Budget approved for 2005 envisages certain changes relating to taxation and social security. Social security contribution rates increased by 0.05 of a point for businesses, and 0.15 of a point for households. For businesses, the rate of contribution to the health insurance scheme rose by 0.15 of a point but the rate of contribution to the "accident" insurance scheme fell by 0.10 of a point.

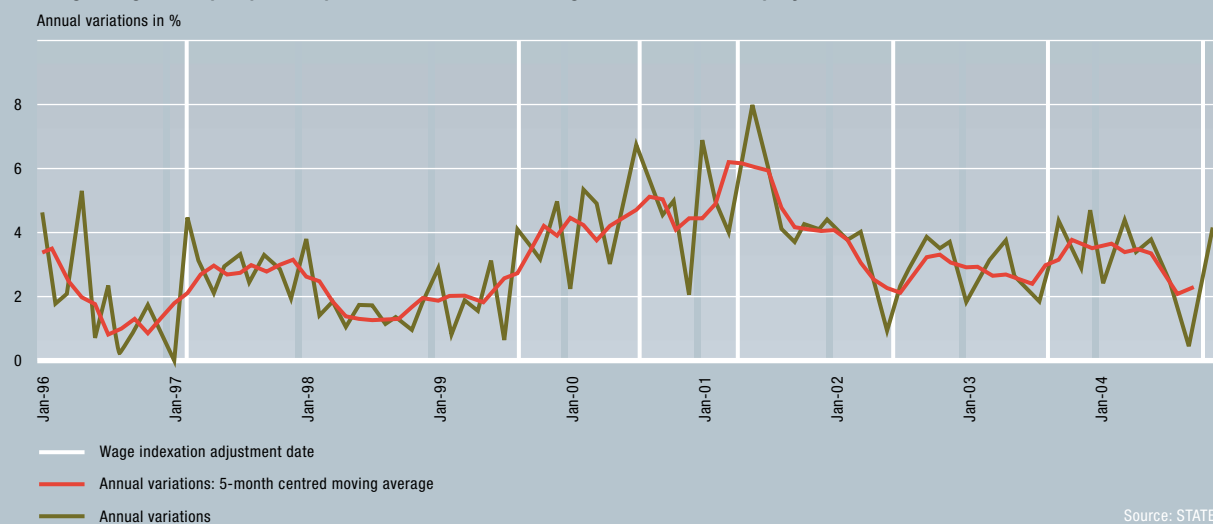
Hourly wage cost: European comparison

The general tendency in the eurozone is towards slower wage growth. Luxembourg seems to share in this trend, though movements are more volatile than those of the eurozone, where the effect of size produces a far more regular trend (see chart 2.4.5, Average hourly wage costs on a European comparison).

Over the period from 1997 to 2003, the hourly cost of labour in Luxembourg grew by an average of 3.6% per year, 0.6 of a percentage point higher than the figure for the eurozone (average growth of 3.0% over the same period). The greatest discrepancies between Luxembourg and the eurozone occurred in 2000 and 2001. It is easy to see parallels with the inflation comparison between Luxembourg and the eurozone. This period coincided with very strong economic activity in Luxembourg, with annual domestic employment growth of the order of 6% and naturally greater upward pressures on wages and prices. In 2004, the average hourly labour cost grew by 2.4% in Luxembourg, roughly the same level as the eurozone (+2.3%). In France, wage costs grew more (+2.8% in 2004) and in Germany less (+1.3% in 2004) than in Luxembourg. Other elements in the comparison of wage growth in Luxembourg and in other European countries are explained in section 3.11.

Graph 2.4.3

Average wage cost per person per month in Luxembourg, total salaried employment



Source: STATEC

Table 2.4.4

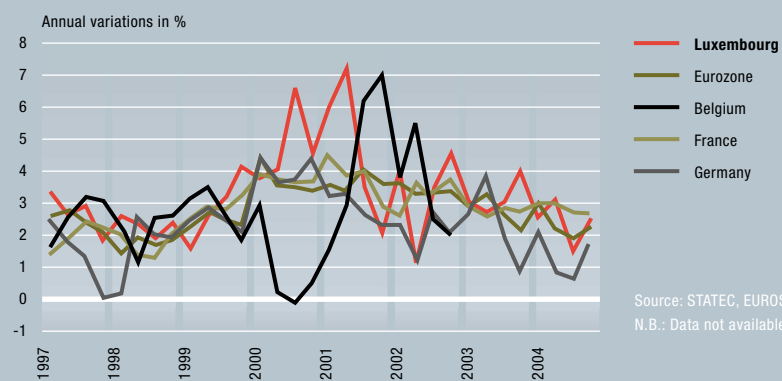
Salaried employment and breakdown of wage costs, 1996-2004

	Salaried employment		Average nominal wage cost, per employee per month in Luxembourg		
	Total Annual variation in %	Indexation Contribution to annual growth in %	Others in % points	Total Annual variation in %	
1996	2.7	0.8	1.0	1.8	
1997	3.3	2.3	0.6	2.9	
1998	4.8	0.2	1.6	1.8	
1999	5.3	1.0	1.9	3.0	
2000	6.0	2.7	1.6	4.3	
2001	6.0	3.1	2.3	5.5	
2002	3.3	2.1	1.1	3.1	
2003	2.0	2.1	1.1	3.2	
2003 Q1	2.1	2.5	0.2	2.7	
2003 Q2	2.0	1.7	1.0	2.6	
2003 Q3	2.0	1.7	1.4	3.1	
2003 Q4	1.9	2.5	1.6	4.1	
2004 Q1	2.0	2.5	1.0	3.5	
2004 Q2	2.6	2.5	1.0	3.5	
2004 Q3	2.8	0.8	0.9	1.7	

Source: IGSS, STATEC
N.B.: Q = quarter

Graph 2.4.5

Average hourly wage costs on a European comparison, 1997-2004



Source: STATEC, EUROSTAT
N.B.: Data not available for Belgium beyond 2003

External economic relations: balance of services showing a record surplus, growing current account balance

Luxembourg's current account surplus reached EUR 2.26 billion in 2004, against less than EUR 2 billion in 2003. This positive result is essentially due to strong growth (22%) in service transactions which showed a record surplus of EUR 8.8 billion, against EUR 7.4 billion the previous year. All other partial balances fell compared with 2003 (see table 2.5.1, Luxembourg's current account from 1995 to 2004).

Significant growth in imports and exports of goods

Total goods exports grew by approximately 10% in 2004, after a slight fall in 2003. This strong growth was essentially due to the favourable trend of exports of iron and steel products, and above all to the surge in prices starting from the second half of 2004. Under the influence of heavy demand from China, iron and steel prices soared during 2004. The value of iron and steel exports in the second half of 2004 consequently exceeded that for the same period of the previous year by over 40%. The price effect is estimated at over 30%. Foreign sales of non-iron and steel products grew (in value) by 3.9%.

The results vary greatly in terms of destinations. Deliveries to the three neighbouring countries (Luxembourg's main trading partners) grew by slightly less than the general growth rate (ranging between 7.7% for Belgium to 9.8% for Germany). On the other hand, exports to Italy and Austria rose very strongly. The performance in the Italian market (+24%) is largely attributable to growth in sales of iron and steel products.

Exports to the new EU states also continued to grow, reaching approximately EUR 300 million and thus accounting for some 3% of Luxembourg's total exports, compared with only 0.9% 10 years previously. From the point of view of trade, the process of European reunification led to closer economic relations even before these countries were integrated into the European Union. Although imports have also grown, the balance of trade shows a surplus in Luxembourg's favour throughout the period 1994–2004.

Table 2.5.1
Luxembourg's current account, 1995-2004

	1995	2000	2001	2002	2003	2004
	EUR million					
Goods	-1 238	-2 569	-2 763	-2 167	-2 339	-2 547
Exports	6 264	9 387	10 087	10 203	10 020	11 026
Imports	7 502	11 956	12 850	12 370	12 359	13 573
Services	2 340	7 388	7 186	7 473	7 442	8 813
Transport	51	539	502	668	825	923
Travel	447	529	500	326	273	257
Communications	213	583	645	628	229	-113
Insurance services	102	284	318	276	331	372
Financial services	1 514	5 707	5 574	5 384	5 254	6 505
Other services	11	-254	-353	190	531	869
Income	1 156	-1 411	-1 838	-2 369	-2 663	-3 011
Remuneration of employees	-1 086	-2 329	-2 863	-3 134	-3 374	-3 652
Income from investments	2 242	918	1 026	765	711	642
Current transfers	-422	-500	-609	-254	-477	-996
Current balance	1 835	2 909	1 976	2 683	1 963	2 259

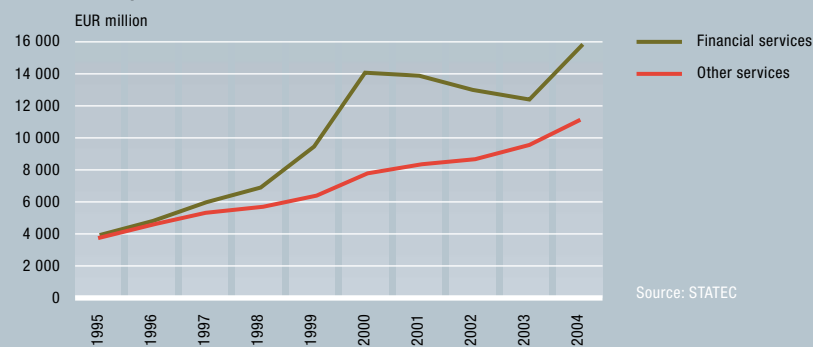
Source: STATEC, BCL

Having fallen since 2000, exports to the USA (Luxembourg's largest trading partner outside the EU) grew by 6.1%, essentially thanks to the appreciating value of iron and steel products. Total sales to the USA (2.6% of total exports) remained less than exports to the new EU states (3%) and to Asia (3.5%) – despite the net decline (-18%) in the latter. Regarding exports to Asia, though, it should be noted that 2003 was a record year (4.7% of the total), thanks in particular to exceptional contracts with China. This breakthrough performance was not maintained in 2004; nevertheless total sales to China remained significantly above those for the years prior to 2003. Despite this relative easing, exports to China continue to grow, with sales now at a level 2.5 times the 1999 figure (a result similar to that of Germany, whereas France has achieved growth of only 40% over the same period).

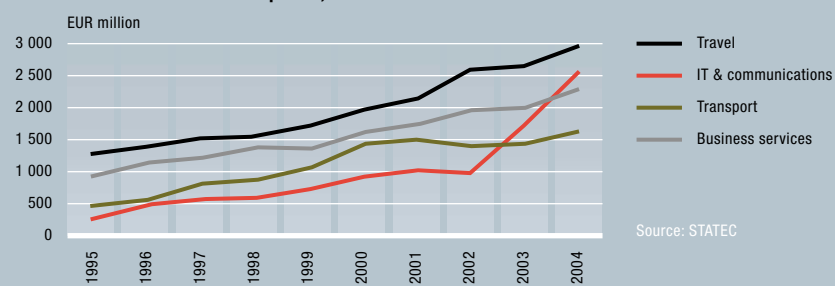
Imports of goods rose at virtually the same rate as exports (+10%). As with exports, growth was largely attributable to rises in the prices of basic materials (particularly raw materials and iron) and imported petroleum products. As with iron and steel products, huge and growing demand from China largely accounted for this surge in prices. Following a decline (-7%) in the first quarter of 2004, imports of fossil fuels and lubricants rocketed in the second half (+47%). Over the year as a whole, the increase amounted to 28%. For non-comestible raw materials (such as iron), annual growth was as high as 39%. Furthermore, imports of base metals – which are used to a large extent in the intermediate consumption of the metal processing industry – became dearer (see exports) by around 18% over the year as a whole. Leaving aside these three product categories (which account for nearly 30% of total imports), imports increased in value by only 5%.

The parallel development of inward and outward trade flows led to a stagnation of the cover rate at 81% and a slight deterioration in the trade deficit to EUR 2.5 billion (against EUR 2.3 billion in 2003).

Graph 2.5.2
Services exports, 1995-2004



Graph 2.5.3
Non-financial services exports, 1995-2004



Exceptional expansion of services exports

In 2004, the balance of services showed a record surplus EUR 8.8 billion, against EUR 7.4 billion in 2003 and only EUR 2.3 billion in 1995. Service exports now exceed services imports by approximately 50%. Overall, services exports grew by 22%, spread across three sectors: financial services, transport services and IT and communications services (see charts 2.5.2 and 2.5.3, Services exports 1995–2004). Most of the increase undoubtedly came from the very favourable growth of financial services (24.5%), representing almost three-quarters of total services exports in 2004. The rise in stock market indices and in net issues of shares of Luxembourg UCIs made a substantial contribution to the increase in commissions of UCI managers. Over the year as a whole, the balance of financial services increased by EUR 1.25 billion to reach EUR 6.5 billion.

Non-financial services exports also grew substantially (18%). Transport services rose by 14% thanks to the very favourable performance of airfreight (and price increases due to surging oil prices). The growth in exports of IT and communications services was essentially due to the very positive performance of certain companies which have recently set up in Luxembourg.

New deterioration in the balance of revenues and current transfers

The balance of revenues showed a deficit of over EUR 3 billion, against EUR 2.7 billion in 2003. The growing number of cross-border workers coming to work in Luxembourg accounts for the worsening deficit in the remuneration of employees from EUR 3.4 billion to EUR 3.7 billion.

On the other hand, the slight easing of the surplus on investment income flows is explained by the slight drop in interest margins and the growth in net dividend payments and profits reinvested abroad. The fall in the interest margin is in large part due to the relative stabilization of interest rates at very low levels. At the same time, net dividend payments to direct foreign investors rose again slightly in 2004 (based on the positive results achieved in 2003 after the more sluggish years of 2001 and 2002).

The doubling of the current transfer deficit is due partly to the increase in the reallocation of monetary revenues under the Eurosystem, and to the net payments made to Belgium under the agreements between Belgium and Luxembourg concerning the sharing of common excise duties.

2.6

Employment and unemployment: employment recovering, but unemployment rate still on the increase

Employment recovered in 2004

Total domestic employment in Luxembourg averaged 301,706 in 2004, of whom 281,418 were salaried employees and 20,288 self-employed. After growth of only 1.9% in 2003, employment accelerated in the Grand Duchy in 2004 (+2.6% on average over the year). Although employment growth was far better than in 2001, the growth rates are still well below those recorded in the years 1999-2001 (5% to 6%).

Cross-border workers continue to fill a growing proportion of Luxembourg jobs

The recovery in employment in 2004 benefited both the resident population (growth of +1.3% in 2004 against +0.8% in 2003) and cross-border workers (+4.7% in 2004 and +3.8% in 2003). In 2003, cross-border workers filled a larger proportion of newly created jobs (71.2% after approximately 64% in the previous years), but the figure returned to normal in 2004 (65.7%). Therefore, residents' share of overall employment continues to fall. They filled only 65.7% of jobs in 2004, compared with 72.1% five years ago, and 79.4% 10 years ago.

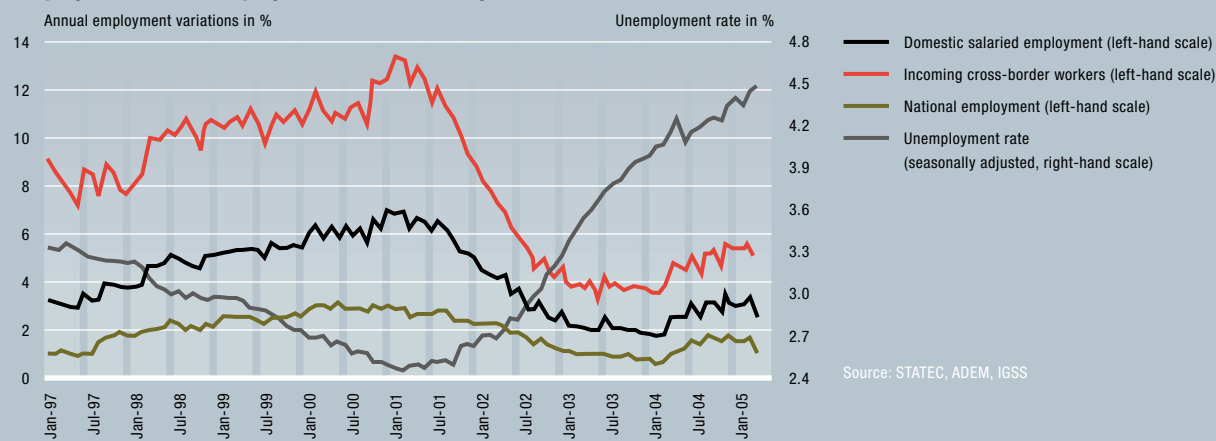
Recovery across nearly all sectors

Let us first consider structural employment growth between 1985 and 2003 (see table 2.6.2, Net salaried job creation). The trend is characterized by above-average growth in the number of people employed in the business services sector (+10.4% annual average), in financial intermediary services and insurance (+6.2% annual average) and in health and welfare (+5.6% annual average). Growth between 1985 and 2003 in the number of salaried individuals employed in transport and communications (+4.5%) and construction (+4.3%) was also above the average figure of +3.7% for the Luxembourg economy as a whole. Industrial employment on the other hand fell by an annual average of -0.6% between 1985 and 2003.

The above figures were calculated according to national accounting rules based on the concept of economic activity of workers. As figures were not yet available for 2004 at the time this publication came out, we are reliant on the administrative data published by the General Social Security Inspectorate (Inspection Générale de la Sécurité Sociale – IGSS) which are prepared according to the concept of employer affiliation.

Graph 2.6.1

Employment and unemployment in Luxembourg, 1997-2004



Source: STATEC, ADEM, IGSS

According to IGSS data, 8,080 net jobs were created between December 2003 and December 2004, against 5,204 jobs created from December 2002 to December 2003. The rate of net salaried job creation was 2.9% from December 2003 to December 2004. This rate is below the average rate for the years 1985-2003, but represents an improvement over 2002 and 2003.

At sector level, a number of adjustments had to be made to the raw data of the IGSS for the figures to reflect economic reality. Based on these corrected figures, in 2004 the "Health and welfare" sector was the largest recruiter with an increase of 2,762 persons (+16.1%), followed by the "Property, letting and business services" sector, with an increase of 1,767 persons (+4.9%). These are followed by "Public administration" (+1,152 persons), "Construction" (+959 persons), "Trade" (+926 persons) and "Transport and communications" (+772 persons). The number of people employed in manufacturing industry fell by 0.3% in 2004 (-96 persons), in line with the previous trend. Industry actually appears to have fared a little better than during the years 1985-2003, when it lost an average of nearly 200 people per year. The financial sector (including insurance and auxiliary financial and insurance services), which saw a decline in its workforce in 2003, recovered in 2004.

The two domestic sectors of construction and trade, in which employment gathered pace up to the end of 2003, became more cautious in the matter of recruitment towards the end of 2004. Nevertheless, they were still among the sectors with the highest employment growth in 2004 (3.2% for construction, 2.5% for trade). The non-profit sector (Public administration, Education, Health, Community, social and personal services, Domestic services and Extraterritorial activities) showed employment growth of around 5% in 2004 compared with approximately 4% in 2003.

Temporary employment picking up again

After a slowdown in temporary employment in late 2003/early 2004, it picked up again towards the end of 2004. Growth in the number of temporary workers, which had fallen to just 1.6% in Q1/2004, recovered to +13.0% in the fourth quarter. Over the same period, the growth in the number of hours worked rose from +6.0% to +14.3%. Over 2004, the rate of growth of temporary employment (+8.6% for the number of temporary workers and +8.9% for the number of hours worked) therefore exceeds that observed in 2003 (+7.1% for number of persons and +6.6% for hours worked).

In terms of the number of companies using temporary staff, a sharp increase was observed in 2004. Over the first seven months of 2004 the average number was 1,297, compared with 1,172 over the same period the previous year. This amounts to a rise of 10.6%, against only +3.6% in 2003.

Table 2.6.2

Net salaried job creation in Luxembourg

Sector	Data obtained from national accounts		Data obtained from Social Security records ²			
	put in perspective		Dec. 2003		Dec. 2004	
	1985-2003	1985-2003	Persons	Persons	Variation	Development during 2004
	Average annual variations					
	in %	Persons			Persons	in %
Unclassified	...	...	662	776	114	17.2%
Agriculture, viticulture, forestry, fishing	0.5	5	1 248	1 232	-16	-1.3%
Extractive industries	-0.9	-3	325	326	1	0.3%
Manufacturing industries	-0.6	-191	34 229	34 133	-96	-0.3%
Electricity, gas and water	1.2	17	1 020	1 004	-16	-1.6%
Construction	4.3	806	29 936	30 895	959	3.2%
Trade, repair	2.6	731	36 729	37 655	926	2.5%
Hotels and restaurants	3.5	279	11 823	11 885	62	0.5%
Transport and communications	4.5	730	24 738	25 510	772	3.1%
Financial intermediary services and insurance	6.2	1 227	32 906	33 379	473	1.4%
Property, letting and business services	10.4	2 050	35 786	37 553	1 767	4.9%
Public administration	1.8	236	33 962	35 114	1 152	3.4%
Education	3.0	294	1 508	1 555	47	3.1%
Health and welfare	5.6	609	17 110	19 872	2 762	16.1%
Community, social and personal services	4.7	309	8 056	7 070	-986	-12.2%
Domestic services	3.1	166	3 672	3 805	133	3.6%
Extra-territorial activities	...	...	407	433	26	6.4%
Total economy	3.7	7 266	274 117	282 197	8 080	2.9%

Source: General Social Security Inspectorate (Inspection Générale de la Sécurité Sociale – IGSS), STATEC (National Accounts).

¹ Whereas the figures obtained from Social Security records (available on a monthly basis) relate to employer affiliation, those obtained from the National Accounts (available only on an annual basis) relate to the economic activity of salaried individuals.

² The raw data of the IGSS have been corrected for business classification errors according to the NACE code.

Unemployment in the strict sense: slowdown halted

After the second quarter of 2004, unemployment growth stabilized at around +12%. The slowdown in unemployment growth observed after mid-2003 (+36.2% in June 2003) appears to have been halted (see graph 2.6.4, Annual unemployment growth). Therefore the number of unemployed persons continued to rise in 2004: an average of 8,716 persons was registered with the Department of Employment (Administration de l'Emploi – ADEM) in 2004, against 7,587 in 2003. The average rate of unemployment in 2004 was 4.2%, against 3.7% in 2003, a smaller increase than in 2003. In December 2004, the seasonally adjusted unemployment rate was 4.4%, unchanged from November. The employment recovery observed at the start of 2004, not only among cross-border workers but also among residents, caused unemployment growth to ease, without however producing a fall in unemployment.

Unemployment in the broad sense

If we also include persons benefiting from a remunerated work programme, the total number of job-seekers amounted to 11,957 in 2004 against 10,518 in 2003. The rate of unemployment in the broad sense, which includes not only those registered with the Department of Employment (ADEM), but also persons benefiting from active employment measures, reached 5.8% in 2004 against 5.2% in 2003. In 2004, the largest group were still those under "temporary auxiliary contracts" (average of 890 people in the public sector and 355 in the private sector), followed by training programmes (644 persons) and special measures (548 persons). Occupational reintegration schemes (+68.8%) and induction traineeships (+58.1%) saw the biggest growth in 2004. On the other hand, temporary auxiliary contracts in the public sector (+1.5%) and special measures (-4.1% following growth of nearly 30% over the previous years) departed from the sustained growth rates of previous years. Therefore, "measures" generally tended to move away from the public sector and into the private sector.

Table 2.6.3
Temporary employment in Luxembourg

	1995	2001	2002	2003	Year	Q1	Q2	Q3	2004
					2004				Q4
					Monthly averages		Monthly averages		
Number of temporary workers	2 483	4 758	4 720	5 055	5 489	4 856	5 753	6 026	5 320
Hours worked ('000)	342	660	650	693	754	653	782	818	765
User companies ¹	560	1 144	1 172	1 214	1 297	1 195	1 342	...	...
					Annual variations in %		Annual variations in %		
Number of temporary workers	10.2	6.4	-0.8	7.1	8.6	1.6	9.2	10.3	13.0
Hours worked ('000)	6.1	6.8	-1.5	6.6	8.9	6.0	6.6	8.6	14.3
User companies ¹	...	1.2	2.4	3.6	10.6	9.3	11.2	...	...

Sources: IGSS, Ministry of Labour and Employment
¹ 2004-7 months

Graph 2.6.4
Annual unemployment growth

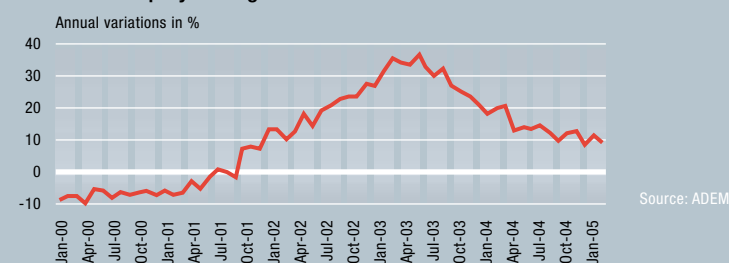


Table 2.6.5
Benefit claims by cross-border workers losing their jobs in Luxembourg

	2000	2001	2002	2003	2004	2004			
						Q1	Q2	Q3	Q4
						Monthly averages		Monthly averages	
E 301 certificates ¹	559	847	846	1 005	907	1 009	887	837	895
Number of cross-border workers	87 363	97 342	102 952	106 856	111 920	108 976	111 312	113 235	114 158
Ratio: E 301/cross-border workers	0.64	0.87	0.82	0.94	0.81	0.93	0.80	0.74	0.78
						Annual variations in %		Annual variations in %	
E 301 certificates	-24.6	51.6	5.2	18.8	-8.0	22.7	-4.1	-26.1	-11.3
Cross-border workers	11.5	11.4	5.8	3.8	5.5	3.9	3.2	4.5	4.8
Ratio: E 301/cross-border workers (variation in % points)	-0.31	0.23	-0.05	0.12	-0.12	0.14	-0.28	-0.12	-0.26

Source: IGSS, Ministry of Labour and Employment
¹ Form E301 is used by cross-border workers to prove their periods of employment in Luxembourg, to allow them to claim unemployment benefit in their home countries.

Partial unemployment falling

In 2004, fewer people were involved in the partial unemployment scheme: 94 workers on average per month in 2004 (equivalent to 28 persons per month in full unemployment, taking the reduced hours into account), compared with 169 persons in 2003. The number of companies applying for partial unemployment, which was exceptionally high at the end of 2003/start of 2004 (approximately 10 units), fell to only 4 units at the end of 2004, in line with the average for previous years. The drop in partial unemployment in manufacturing industry, already recorded in 2003, continued in 2004 (74 persons involved on average per month in 2004, against 123 in 2003 and 231 in 2002). At sector level, this drop was due to other non-metal mineral product industries, metalworking industries and the automotive industry. The chemical industry on the other hand recorded a rise in workers involved in the scheme in 2004. As for partial unemployment in services, it declined in construction, trade and property, letting and business services. Only transport and communications saw an increase in 2004. In the two months of 2005 for which figures are available, the chemical industry, metalworking industries and metallurgy were the sectors most affected by partial unemployment.

Applications for E301 forms declining

In 2004, ADEM received 10,881 applications for E301 forms. This form is used by cross-border workers to prove their periods of employment in Luxembourg, to allow them to claim unemployment benefit in their home countries. This source of information is not wholly reliable, because it does not take into account cross-border workers who do not apply for this form, or unemployed people who apply for the form but then quickly find work again. Moreover, we would point out that these figures are "inflated" by temporary workers who represent approximately half the cross-border workers applying for this form. Since jobs are often very short-lived in this sector, it is possible that a worker may submit several applications per quarter, or even per month. In 2004, the number of applications for E301 forms fell by 8% compared with the previous year. The ratio of "E301 form applications to number of cross-border workers" was 0.81 in 2004, against 0.94 in 2003, and 0.82 in 2002.

Unemployment in Europe has stopped rising

In December 2004, according to Eurostat, 12.6 million Europeans were unemployed in the eurozone and 19.0 million in the 25-nation EU. Seasonally adjusted unemployment in the Europe of 25, having stagnated in 2003, showed a small drop in 2004 (from 9.1% at the start of 2004 to 8.9% by the end of the year). This improvement is largely accounted for by the new member states; the unemployment rate in the eurozone continued to stagnate at 8.9%. In December 2004, the lowest rates were recorded in Ireland (4.3%), Luxembourg (4.4%), Austria (4.5%), the United Kingdom (4.6% in October) and the Netherlands (4.7% in November). The highest unemployment rates were observed in Poland (18.3%), Slovakia (16.9%), Greece (10.5% in June), Spain (10.4%) and Germany (10.0%).

Whereas most countries in the EU of 25 recorded a fall in unemployment over one year, this was the case in only three eurozone countries: in Spain the rate fell from 11.2% to 10.4%, in Ireland from 4.6% to 4.3% and in Finland from 9.0% to 8.6% during the 12 months from December 2003.

Apart from the Netherlands, where the rate went from 4.1% in November 2003 to 4.7% in November 2004, Luxembourg recorded the largest increase in unemployment over one year – from 4% in December 2003 to 4.4% in December 2004. It was followed by Portugal (from 6.3% to 6.7%) and Germany (from 9.6% to 10.0%).

The unemployment rate among women in the EU of 25 went from 10% in December 2003 to 9.8% in December 2004. Poland (19.3%), Slovakia (18.7%) and Spain (14.3%) had the highest rates, while Ireland (3.8%), the United Kingdom (4.2% in October) and the Netherlands (5.1% in November) had the lowest. The rate in Luxembourg was 5.5%, putting it in sixth place. As for unemployment among young people (those under 25 years), this stood at 18.1% in the EU of 25 in December 2004, against 18.2% one year previously. The lowest rates were recorded in Denmark (7.5%), the Netherlands (7.7% in November) and Ireland (8.0%); the highest were in Poland (37.9%), Slovakia (29.8%) and Greece (27.1% in June). Luxembourg came eighth, with a youth unemployment rate of 12.9%.

Thematic reports

Lisbon strategy

and structural indicators:

Luxembourg's situation

and margin for manœuvre

Bases for the strategy and its development

At the European Council of Lisbon in March 2000, the European Union set as its strategic objective for the next decade, to become *"the most competitive and most dynamic knowledge-based economy in the world, capable of sustainable economic growth, accompanied by an improvement in job quantity and quality and greater social cohesion"*. The Lisbon strategy focuses on a balance between three pillars - economic competitiveness, social cohesion and environmental protection. The Council of Lisbon invited the Commission to draw up an annual Synthesis Report on the basis of structural indicators which should provide an instrument to evaluate the progress made within the framework of the Lisbon objectives in an objective manner and act as a back up to the report.

It must be noted that the European Commission's annual Spring Report is the only document on the agenda of the European Spring Council, during which European heads of state and governments assess the state of progress of the strategy and set future priorities for achieving the objectives defined in Lisbon.

As regards the *structural indicators*, an initial list of 35 indicators was adopted in September 2000 and used in the spring 2001 report prepared for the Council in March 2001. The Gothenburg Council in June 2001 identified new domains to be included in the Commission's Annual Report, including the environment.

The 2002 Spring Report for the Barcelona Council in June 2002 was based on 42 structural indicators covering the domains of employment, innovation and research, economic reform, social cohesion and the environment, including some indicators of the overall economic climate. In 2003, geographic cover of the structural indicators was extended to the applicant countries, i.e. the countries in the process of becoming members. Faced with this plethora of indicators, a shortlist of 14 structural indicators was compiled by common agreement between the Commission and the Council for 2004, to enable a more concise presentation and an improved evaluation of the achievement of the Lisbon agenda.

The strategy was developed at a time when the economic climate in Europe was highly positive (1999-2000) and was borne on a wave of optimism as to the possibilities for European growth.

The economic turnaround as from 2001, together with the realization that Europe was far behind the USA, in particular as regards growth in productivity, changed the framework for the implementation of the strategy drastically. The SAPIR report notes: *"This underperformance is striking because it contrasts not only with expectations but also with past EU performance and recent US accomplishment. In the EU, there has been a steady decline in the average growth rate decade after decade, and per-capita GDP has stagnated at about 70% of the US level since the early 1980s"* (SAPIR, 2003). A detailed analysis of the European Commission services (Denis et al., 2004 and 2005) confirms the decline in the growth of productivity in the EU and notes, more particularly, that the contribution of ICT to the growth of labour productivity in Europe is only 40%, while the share is 60% in the USA.

Furthermore, the deterioration of productivity in Europe appears to be due, to a significant extent, to negative development in those economic sectors that make little use of ICT.

At its meeting in Brussels in March 2004, the European Council invited the Commission to create a high-level group to proceed to an independent evaluation for the mid-term examination of the "Lisbon strategy". The group was asked to provide a report defining the measures that would constitute a coherent strategy enabling the European economies to achieve the Lisbon objectives. In November 2004, this high-level group, chaired by Wim Kok (KOK, 2004) presented its report, which insists on the urgency of applying the Lisbon strategy.

For the KOK group, an improvement in economic growth and an increase in the employment rate are likely to *"provide the means to support social cohesion and protect the environment, two factors, which, in their turn, can generate stronger growth and rising employment"*.

The KOK report defines five key areas on which actions expected to contribute to the success of the Lisbon strategy will focus:

- the knowledge-based society: making Europe more attractive to researchers and scientists, making R&D an absolute priority and promoting the use of information and communication technologies (ICT);
- the internal market: completing the internal market for the benefit of free circulation of goods and capital and, as a matter of urgency, introducing a single market for services;



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Tableau 3.1.1

Relative performance of the EU-15 countries according to the structural indicators appearing on the shortlist

Structural indicators*	Year**	AT	BE	DE	DK	ES	FI	FR	EL	IE	IT	LU	NL	PT	SE	UK	EU-15	US
GDP per capita (PPS, EU-15 = 100)	2003	111.4	106.6	98.8	112.9	87.3	100.6	103.8	73.0	121.7	87.8	194.6	109.9	68.3	105.6	108.9	100.0	140.3
Labour productivity per person employed (PPS, EU-15 = 100)	2003	96.4	118.4	94.3	97.8	94.8	98.6	113.7	90.3	119.7	103.6	132.2	95.2	63.5	96.5	101.9	100.0	121.6
Employment rate (%)	2003	69.2	59.6	65.0	75.1	59.7	67.7	63.2	57.8	65.4	56.1	62.7	73.5	67.2	72.9	71.8	64.4	71.2
Employment rate for women (%)	2003	62.8	51.8	59.0	70.5	46.0	65.7	57.2	43.8	55.8	42.7	52.0	65.8	60.6	71.5	65.3	56.0	65.7
Employment rate of older employees (%)	2003	30.4	28.1	39.5	60.2	40.8	49.6	36.8	42.1	49.0	30.3	30.0	44.8	51.1	68.8	55.5	40.1	59.9
Education attainment level (20-24) (%)	2003	83.8	81.3	72.5	74.4	63.4	85.2	80.9	81.7	85.7	69.9	69.8	73.3	47.7	85.6	78.2	74.0	
Gross domestic expenditure on R&D (% of GDP)	2003	2.2	2.2	2.5	2.5	1.0	3.4	2.2	0.6	1.2	1.1	1.7	1.9	0.9	4.3	1.9	2.0	2.8
Business investment (% of GDP)	2003	20.3	17.9	16.3	18.2	22.1	15.3	15.9	21.8	19.7	16.5	15.0	16.5	19.1	12.6	14.6	17.2	
Comparative price levels (EU-15 = 100)	2002	102.0	99.0	104.0	131.0	82.0	123.0	100.0	80.0	118.0	95.0	100.0	102.0	74.0	117.0	108.0	100.0	113.0
Risk-of-poverty rate (%)	2003	12.0	13.0	11.0	10.0	19.0	11.0	15.0	20.0	21.0	19.0	12.0	11.0	20.0	9.0	17.0	15.0	
Long-term unemployment rate (%)	2003	1.1	3.7	4.6	1.1	3.9	2.3	3.5	5.1	1.5	4.9	0.9	1.0	2.2	1.0	1.1	3.0	0.3
Dispersion of regional employment rates	2003	3.1	7.7	6.0	n.r.	8.9	6.1	5.0	3.6	n.r.	17.0	n.r.	2.4	3.9	4.3	6.0	12.6	
Greenhouse gas emissions (1990 = 100)	2002	108.5	102.1	91.1	99.2	139.4	106.8	98.1	126.5	128.9	109.0	84.9	100.6	141.0	96.3	85.1	98.0	113.1
Energy intensity of the economy	2002	146.0	214.0	165.0	123.0	229.0	272.0	187.0	258.0	164.0	184.0	198.0	202.0	254.0	224.0	212.0	194.2	330.0
Volume of freight transported	2002	120.0	100.0	102.0	85.0	137.0	95.0	96.0	127.0	133.0	103.0	110.0	97.0	126.0	90.0	86.0	102.4	91.0



Source: EUROSTAT

* For a precise definition and explanatory notes on the indicators, please consult the Website <http://europa.eu.int/comm/eurostat/structuralindicators/>

** Latest available year

→ the corporate environment: reducing administrative charges across the board, improving legislation, facilitating the rapid creation of new companies and creating a more company-friendly environment;

→ the labour market: applying the recommendations of the European taskforce on employment rapidly (approved by the Member States in March 2004), developing strategies for life-long education and training and active ageing, supporting partnerships for growth and employment;

→ the sustainable environment: distributing eco-innovations and acquiring a dominant position in eco-industry, pursuing policies that, in the long term, lead to a lasting improvement in productivity through eco-efficiency.

The KOK report considers, in particular, that:

→ governments should undertake to submit a national action plan before the end of 2005; these programmes of national actions should be debated in the national Parliaments in order to mobilize all forces around the objectives of the Lisbon strategy;

→ the European Commission should present, in the most public manner possible, an annual classification of the progress made by the Member States towards achieving the 14 key indicators and objectives of Lisbon and that, furthermore, the countries that have obtained good results should be praised and those with mediocre performances should be 'named and shamed'.

The speech of 2 February 2005 by the President of the European Commission, Mr Barroso, to the European Council and the working document of 28 January 2005 produced by the Commission services to back up the Commission's report to the Spring European Council on the Lisbon strategy, again refer to the diagnosis and part of the recommendations made by the KOK group (European Commission, 2005 and 2005a).

In its communication of 2 February 2005, the Commission considers that Europe needs to be made more attractive to investors and workers by developing and reinforcing the internal market, improving European and national regulations, ensuring open and competitive markets in Europe and outside and improving infrastructures.

Secondly, the arrival of the knowledge and innovation-based society should be prepared actively through growth and improvement in investment in research and development, measures to facilitate innovation, the adoption of ICTs and the sustainable use of resources and the creation of a solid industrial base. Thirdly, the Commission recommends the creation of more and better quality jobs by attracting more people onto the labour market, modernizing the social protection systems, improving workers' and companies' ability to adapt, making the employment markets more flexible and investing more in human resources through improved education and skills.

For the European Commission it is also necessary to *"reorganize the implementation procedure, which has become over-complicated and which is not properly understood"*.

The Commission adds that the procedure *"produces too much paper, but little action"* and that *"the responsibilities shared between national and European levels are vague"*. This does not promote a feeling of responsibility.

In order to remedy this situation, the Commission proposes overhauling the methods of implementing the Lisbon strategy:

→ a single programme of national action for growth and employment should be adopted by national governments. Legitimacy at national level would be reinforced thanks to the participation of the social partners and civil society in the preparation of the national programme on the Lisbon strategy;

→ the Member States would designate at government level a "Mr" or "Mrs" Lisbon, who would be responsible for coordinating the various elements of the strategy and presenting the Lisbon programme;

→ the national Lisbon strategy programmes for growth and employment would become the main instrument for submitting a report on the economic and employment measures taken within the framework of the Lisbon strategy.



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EUROPEAN COMMISSION (2005a), *Commission staff working document in support of the Commission to the Spring European Council, 22-23 March 2005, on the Lisbon Strategy of economic, social and environmental renewal, SEC (2005)160, Brussels, 28 January* www.europa.eu.int/growthandjobs/pdf/SEC2005_160_en.pdf

The European Council which was held on 22 and 23 March 2005 under the Luxembourg Presidency performed the mid-term review of the Lisbon Strategy. In view of the mixed outcome, the Council considered that it was essential to relaunch the strategy by focusing the priorities on growth and jobs, and concentrating mainly on knowledge, innovation and making maximum use of human capital. Knowledge and innovation are regarded as the driving force behind sustainable growth, and the Council considers that it is important, therefore, to develop research, education and innovation in all its forms. The overall objective of a 3% level of investment in R&D was confirmed. Moreover, the Council emphasised the need to complete the internal market and implement a regulatory environment that is more favourable to business. The Member States are also expected to continue their policy in favour of small and medium-sized enterprises (SMEs) which, according to the Council, play a key role in growth and

employment by reducing the administrative burden (see also p. 62 on this point), by setting up single windows, through access to microloans, etc. In addition, the Council considers it essential to attract more people into the labour market, an objective which should be attained by concentrating on an active employment policy and on measures to ensure a work/life balance.

The European Council of 22 and 23 March 2005 also decided to reform the governance of the Lisbon Strategy, by facilitating the identification of priorities and improving the implementation of these priorities in the field by increased involvement of the Member States and by rationalization of the follow-up procedure. This reformed governance is based on a three-year cycle starting in 2005, and should be renewed in 2008. The starting point of the cycle will be the summary document by the Commission, discussed in the spring European Council, which will adopt the policy

directions. Based on the conclusions of the European Council, the Council will adopt a series of "integrated guidelines" comprising two components: the broad economic policy guidelines (BEPG) and the employment guidelines (EGL). The Member States will draw up "national reform programmes", which will be the subject of consultations with all stakeholders at national and regional levels, including parliamentary bodies. The Commission will set up a "Lisbon Community Programme". The monitoring reports of the Lisbon Strategy sent each year to the Commission will henceforth be compiled into a single document reporting on the measures taken over the preceding 12 months to implement national programmes. The cycle started in April 2005 with the presentation of the integrated guidelines and the Member States must draw up their national reform programme in autumn 2005.

Luxembourg seen through the shortlist of structural indicators

The shortlist of structural indicators (see synopsis table 3.1.1) provides an overview of Luxembourg's strengths and weaknesses within the context of the Lisbon strategy.

When compared with the countries of the EU-15, Luxembourg's relative performance is good as regards context indicators such as GDP per inhabitant or productivity (GDP per employed person). Similarly, there is little insecurity (risk-of-poverty rate, long-term unemployment) in Luxembourg, a situation that is obviously due, to a significant degree, to strong economic growth since 1985.

There has been significant job generation and the unemployment rate has been maintained at a fairly low level, despite the considerable increase in the number of unemployed over recent years (see pp. 104 and 105). In 2004, average unemployment did not exceed 4.5% in Luxembourg, as against almost double that in the EU-15. At the same time, this growth enabled an effective social distribution policy to be implemented (see chapter 3.12). Luxembourg is in a good position in terms of price levels. In Ireland, for example, which also experienced very high growth in the 1990s, we have witnessed a certain degree of overheating, combined with significant inflationary pressure and a considerable increase in prices (for price trends, see also chapter 3.8).

Under the terms of the Kyoto Protocols, the EU has accepted an 8% reduction in its greenhouse gas emissions between the reference year 1990 and the period 2008-2012. The reductions for each of the 15 EU countries were arrived at within the agreement on responsibility sharing, and Luxembourg has committed itself to a 28% reduction on 1990 by 2010. At first sight, Luxembourg's performance seems to have been successful, given the 2003 indicator of 84.9. Now, a large percentage of this reduction was achieved through the replacement of blast furnaces by electricity in the Luxembourg steel industry during the 1990s. Greenhouse gas emissions achieved their lowest level in 1998 (index 65.1) and the last few years have seen an increase in emissions, mainly due to the fact that the sale of fuels has become attractive to non-residents (cross-border workers, hauliers and tourists) because of the tax difference (for fuel price, see also p. 168).



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Table 3.1.2

Average annual variation in gross fixed capital formation (in %)

	1961-1970	1971-1980	1981-1990	1991-2000	2001-2006*
BE	5.8	2.3	2.3	1.8	1.1
DE	4.2	1.2	1.6	1.8	-1.4
EL	8.4	2.8	-0.4	4.3	6.3
ES	11.3	1.6	5.3	2.8	3.1
FR	7.8	2.7	3.1	1.6	1.7
IE	9.6	5.7	0.5	8.5	3.4
IT	5.1	1.8	1.9	1.5	1.8
LU	3.4	2.6	3.9	5.4	3.0
NL	6.8	0.3	2.2	3.0	0.1
AT	5.9	3.7	1.7	2.7	1.9
PT	6.9	4.1	3.0	5.2	-0.7
FI	4.4	2.2	3.4	-1.4	1.1
DK	7.0	-0.7	1.9	4.2	3.1
SE	5.1	0.6	3.8	0.4	1.4
UK	5.2	0.5	4.3	2.8	3.9
EU-15	5.9	1.6	2.7	2.0	1.5

Source: European Commission

*Estimates for the years 2004-2006

Luxembourg has mixed results in terms of R&D and innovation. The Barcelona European Council in March 2002 laid down the objective of increasing overall EU spending on R&D and innovation, with a view to achieving 3% of GDP. Two-thirds of this total investment is due to come from the private sector. With R&D investment at 1.7% of GDP, Luxembourg is below the EU average and, therefore, very far off EU objectives. This relative weakness is, to a great extent, due to the fairly limited resources invested by the authorities in this domain until recently.

Compared with the Community level, where the percentage of GERD (gross domestic expenditure on experimental research and development) financed by the public sector was 34.3% in 2000, Luxembourg is characterized by low public investment in R&D (7.7%).

The recent creation of the University of Luxembourg and the state financial resources allocated to existing research structures should enable it to make up for lost time (for R&D in Luxembourg, see also chapter 3.3)

Furthermore, the level of business investment appears somewhat average when measured against the shortlist of indicators. Now, this figure has only limited significance. Moreover, like the GDP trend, the investment rate is characterized by high volatility, due to the small size of the country – a characteristic which means that a positive or negative shock affecting significant investments in a specific branch of the economy has a dramatic effect on the annual variations in economic aggregates. Thus, the annual variation rate in gross fixed capital formation fell from 14.6% of GDP in 1999 to 3.5% in 2000, only to rise again to 10% in 2001 and then fall again to -1.1% in 2002.

The growth rate in the gross fixed *medium-term* capital formation seems to be a more meaningful indicator in this domain (see table 3.1.2). From the 1970s onwards, Luxembourg achieved high growth rates, in excess of the European average. These growth rates were due, in part, though not exclusively, to significant investment in the steel industry.

With regard to the employment rate and, more precisely, that of women and "elderly" people, Luxembourg seems less well placed. As the Economic and Social Council (CES, 2004) has noted, however, *"the apparent contradiction between relatively low employment rates and the highest internal employment growth in Europe in recent times can be explained by the characteristics of the Luxembourg labour market"*.

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Graph 3.1.3

Employment rates (2003) and EU objectives



Source: STATEC, EUROSTAT

The ESC finds that the Luxembourg labour market is extremely open, in two ways: *"Firstly, it is a cross-border market. Some 38% of the domestic workforce comprises cross-border workers and, moreover, considerably more than 50% of newly created jobs in the recent past have been held by cross-border workers. This latest economic and social reality is quite simply hidden by the actual statistical division between the concepts of employment rate and activity rate, which are national residence statistics. Secondly, the Luxembourg labour market is supplied to a significant extent by an "imported" workforce, in this case people who come to live in Luxembourg in order to enter the labour market."*

This phenomenon is reflected in the employment rate and activity rate statistics, but to a lesser degree than if, all things being equal, these jobs were occupied by residents who had been in the country for a greater length of time; the explanation for this being that the type of employment in question affects the numerator, as well as the denominator, of employment and activity rates."

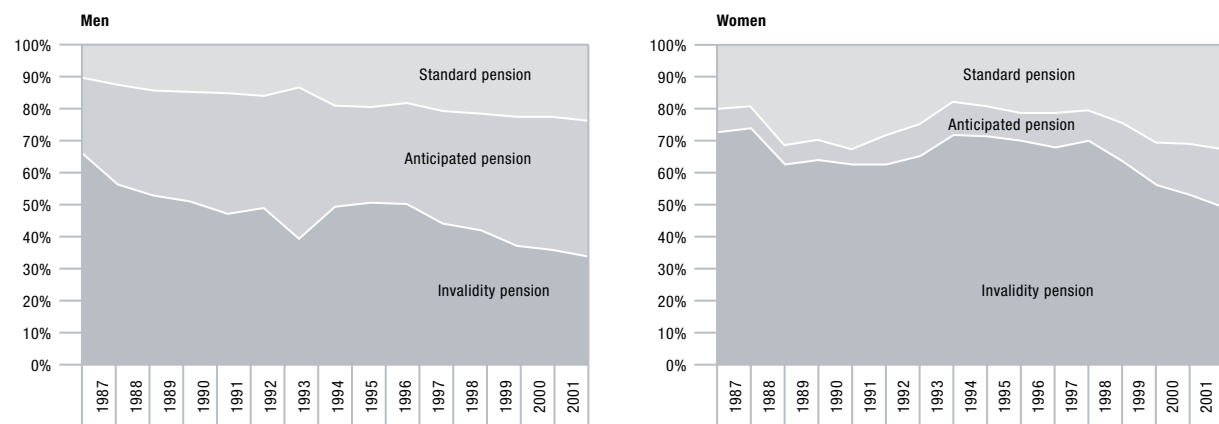
When identifying the low rates of employment of women and older workers in the European comparison (see also graph 3.1.3 concerning EU employment rates), the ESC, however, says that it *"is necessary to act in support of an underlying, un-costed, increase in the overall employment rate through measures focusing, in particular, on certain categories, such as female and older workers"*.

The low employment rate of older workers (30% in 2003, as against 40% on average in the Europe of 15) is primarily linked to legal and regulatory provisions encouraging anticipated retirement. The origins of the implementation of these regulations lie in the recession of 1975-1985. It was a social measure to compensate for the loss of jobs in the steel industry. Furthermore, during those years the number of invalidity pensions awarded increased to a significant extent. In 2002, out of the 79,561 pensions paid out by pension schemes, about 19,672 (around 25%) were invalidity pensions. Now, the average age at the time of allocation of an invalidity pension is 50.

During the 1990s, we saw a turnaround in the trend due to a stricter interpretation by the courts of the legislation on invalidity pensions.

Graph 3.1.4

Personal pensions (by type) awarded in Luxembourg



Source: Social Security Inspectorate General (IGSS)

Today, applicants have to prove that they are incapable of working in the last profession practised and in any other profession for which they are qualified, whilst, before 1997, applicants merely had to prove their incapacity to work in the last profession practised. The legislator has reacted to this more restrictive interpretation by implementing the law of 25 July 2002 relating to the inability to work and professional reintegration. This law must encourage reclassification within the company or employment in another company, thanks, in particular, to professional re-appraisal and conversion measures. Furthermore, the law of 28 June 2002 creates the principle of progressive increases in pension amounts on the basis of the extension of the length of working lives. Significant progress has been made over the past few years. The employment rate among people aged between 55 and 64 increased from around 24% in 1997 to 30% in 2003.

Nevertheless, Luxembourg (together with other countries such as Belgium) is still very far off the EU objective, according to which the employment rate for older workers in Europe must attain 50% in 2010.

Under the title *"Overcome demand-related obstacles"*, the OECD stated in a recent study (OECD, 2004), that *"the changeover from a policy that encourages an early exit from work to retirement to a policy encouraging staying on at work cannot be solely demand-based"*, adding: *"Demand needs to progress, failing which we would simply be increasing unemployment for that category of workers. We need to mobilize the factors that determine demand by ensuring that it is in the interests of employers to keep on and recruit workers over a certain age. Evidence suggests that, in Luxembourg, employers have for years been implementing a policy of pushing out older workers."*

There are historical reasons for this, connected with the recession in the steel industry, but after that the situation became established as the status quo...". For the OECD, it is now a top priority to intervene in the end-of-career working conditions offered in companies, taking into consideration the hardness of the work, forms of work organization and methods of personnel management. The same study questions the influence of the salary structure on demand for work: *"The figures indicate that, on average, the salaries of workers in Luxembourg increase quite significantly with age, especially after the age of 50 for men. Taking 100 as the basic salary for those aged between 25 and 29 years, the salaries of men between the ages of 55 and 59 years is 176 and that of women in the same age group 147. There are disparities not only between the sexes, but also between types of profession. ..."*

In an international comparison, it is interesting to note that the behaviour of male salaries according to age in Luxembourg deviates and moves closer to the very steep slope of French salaries. This is quite the opposite of the behaviour of curves in Germany or the United States, where salaries do not increase very much according to age... This fact may be the result of the automatic link between salaries and age or seniority, which does not reflect workers' productivity. It is difficult to determine which of these two factors plays the largest role, but there is no doubt that a high wage bill after the age of 50 years that does not reflect the higher productivity of workers may accentuate the process of pushing out older workers".

The female employment rate has also increased significantly, rising from 45% in 1997 to 52% in 2003. But here too, Luxembourg is behind many European countries. The employment rate of women in Luxembourg lies between the low level that characterizes certain southern European countries, such as Italy, Greece and Spain, where the "traditional" family model has continued longest, and the high rate of countries such as Denmark, Sweden, Finland and the Netherlands. There is no doubt that there are socio-cultural reasons for the low employment rate of women on the labour market. On the other hand, flexible working conditions making it possible to reconcile family life and work play a significant role. In this context, it should be noted that part-time work is not very developed in Luxembourg (see graph 3.1.5 on part-time work).

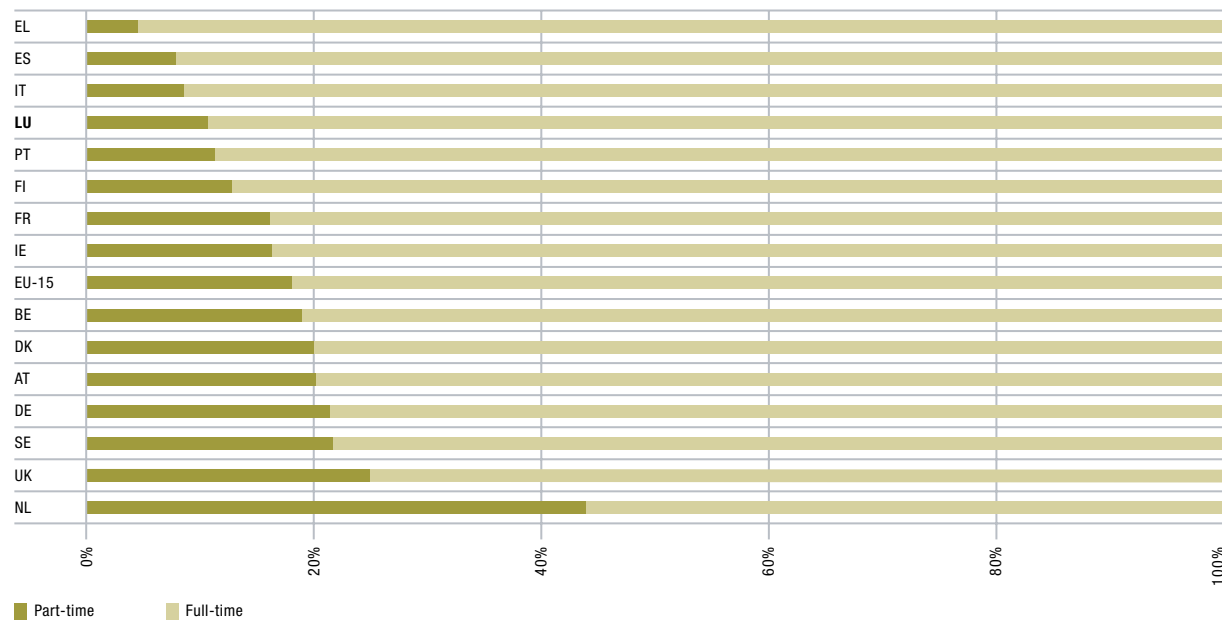
The Economic and Social Council (CES, 2004) also insists that *"actions such as investment in socio-familial infrastructures, such as crèches, undertaken in a more significant way over the past few years, should make it easier to combine professional life with family life, a sine qua non condition for many women to envisage entering the labour market"*. Between 1996 and 2002, the number of state-approved or controlled crèches and day nurseries has risen from 39 to 54. The number of places available has almost doubled during the same period, rising from 1,133 in 1996 to 2,070 in 2002 (including 1,108 places for children aged 0-4 years and 961 for those aged 4-12 years). This progress must not, however, hide the fact that the number of places available for 0-4 year olds in state-approved establishments represents only 4% of this age category (1,108 seats for 27,936 children).

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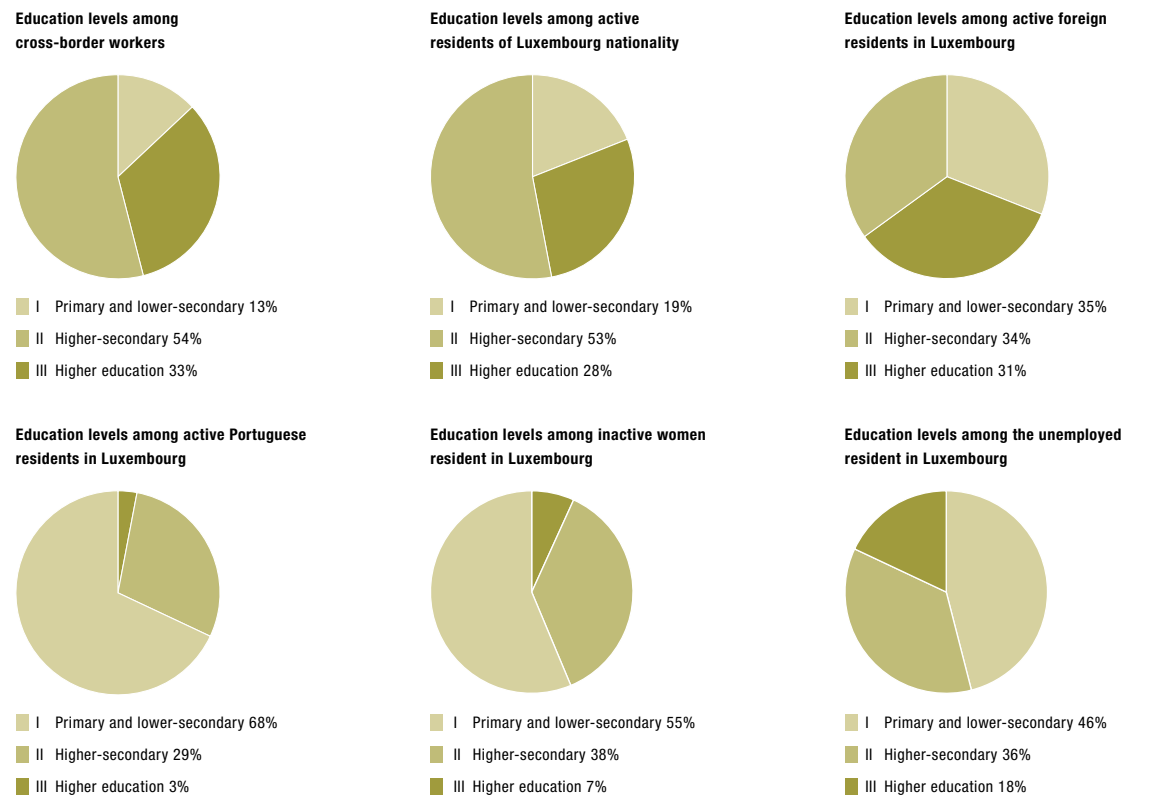
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Graph 3.1.5
Part-time and full-time employment in 2002 (% of total employment)



Source: European Commission (2004)

Graph 3.1.6
Education levels



Source: Zanardelli (2004) on the basis of the "cross-border" 2003 study by STATEC and the CEPS/Instead and on the basis of the PSELLII - CEPS/Instead

A comparison of education levels obviously raises thorny issues about methodology, given that education systems diverge significantly and make classification difficult. Other indicators, however, point in the same direction. Thus, in Luxembourg in 2003, 17% of young people left school early (percentage of the population aged between 18 and 24 years not in training and who have not completed the lower-secondary level). In countries such as Portugal (40% of young people leave school early) or Italy (24%), performances are much worse than in Luxembourg. Conversely, in Denmark (10% of young people leave school early), Germany (12.8%), Austria (9.2%), Sweden (9%) and Finland (8.7%), performances are better than in Luxembourg.

A recent survey (ZANARDELLI, 2004) shows, furthermore, that the level of training of cross-border workers is, on average, higher than that of Luxembourg residents (see also graph 3.1.6 on education levels). Some believe that this is one of the factors that help explain why cross-border workers are now competing successfully with Luxembourg residents on the Luxembourg job market. There are, nevertheless, considerable differences between these residents.

If the average training level of residents of *Luxembourg nationality* still seems close to that of cross-border residents, the level of training of some foreigners, especially that of the Portuguese – who comprise the largest foreign community in Luxembourg (see p. 175) – is low.

Almost 70% of residents of Portuguese nationality have only level I training (primary and lower-secondary), while this percentage is only 13% for cross-border workers and 19% for residents of Luxembourg nationality. It is obvious that the low level of training of a section of foreigners is linked to continuous immigration by an under-qualified workforce, often working as unskilled workers in sectors such as construction or industry. On the other hand, however, Luxembourg schooling has been unable or unwilling to raise a large part of the children of this wave of immigration up to a level of qualification that will ensure their employability. It should also be noted that resident workers of Belgian, French or German nationality have, overall, a level of qualification that is higher than that of residents of Luxembourg nationality and of cross-border workers.

Even when we add private crèches (1,680 seats), the percentage is still only 10% (MINISTÈRE DU TRAVAIL ET DE L'EMPLOI, 2003: pp. 47-48).

Since the 1998-1999 school year, a large number of communes have been offering free early years schooling to children from the age of 3 until their entry into pre-school education. Eighty-five communes offered early schooling during the 2003-2004 school year, and around 3,270 children aged between 3 and 4 were accepted. On the basis of a decision taken by the Council of Ministers, the communes have to offer early years schooling from 1 January 2005 onwards, but this offer can vary substantially (daily, in the afternoons only or once or twice a week).

Finally "parental leave", created under the law of 12 February 1999, which implements the national employment plan, is also one of the measures involved in reconciling family life and work. This 6-month leave (respectively 12 months in the case of part-time work) may be taken by the father and/or mother to bring up a child under the age of 5. During this leave, the beneficiary cannot be dismissed and must be re-employed after leave ends. The beneficiary is also entitled to a significant allowance (in mid-2004, EUR 1,700 per month and half this amount in the case of a part-time job). Between 1999 and 2001, 30% of the potential beneficiaries (5.3% of fathers and 68% of mothers) have used their entitlement to parental leave (KPMG, 2002). This division nevertheless shows that men and women are still to a large extent confined to their respective "traditional" roles and that much remains to be done in this area.

Aside from employment rates, Luxembourg seems to have lagged behind most in the level of education and training. The structural indicator is based on the percentage of young people between the ages of 20 and 24 having completed at least an upper-secondary level of schooling and training, that is level ISCED (International Standard Classification of Education) 3 to 4 minimum (numerator). The denominator refers to the total population in the same age group, excluding the 'don't knows'. With just 70% of young people completing upper-secondary education, Luxembourg's performance is far behind those of Sweden, Finland, Austria and Belgium, where this percentage is in excess of 80%.

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Table 3.1.7

Unemployment structure

Unemployment rate by gender, age, nationality, duration of unemployment and level of training

		1997	2003
		in % of the working population	
Total unemployment		3.1	3.7
Gender	Male	2.3	3.0
	Female	4.1	4.6
Nationality	Luxembourgers	2.2	2.5
	Foreigners	4.1	5.2
Age	15-24	8.4	11.7
	25-39	2.9	3.4
	40-54	1.7	2.9
	55-59	1.2	2.9
Gender and nationality	Luxembourgers (male)	1.7	2.0
	Luxembourgers (female)	3.1	4.4
	Foreigners (male)	3.2	3.2
	Foreigners (female)	4.1	6.3

		1997	2003
		in % of unemployed	
Duration of unemployment	Less than 6 months	38	50
	6-11 months	24	23
	12 months or more	38	27
	Total	100	100
Training level	Low	...	45
	Average	...	38
	High	...	17
	Total	...	100

Source: STATEC (Labour force survey)

For example, 54% of German residents in Luxembourg have attained the higher education level (level III), while this percentage is only 28% in the case of resident workers of Luxembourg nationality and 33% in the case of cross-border workers.

As for labour "reservoirs", that is non-working women and the unemployed, the average levels of training of these groups of people are fairly low (55% of non-working women and 46% of job seekers have only completed level I training), which calls into question their ability to move into the job market. It should be noted that the structure of unemployment reflects this situation: the rate of unemployment among foreigners residing in Luxembourg – and in particular foreign women - is above average. This also applies to the 15 to 24 age group. Furthermore, the unemployment rate among the 55-59 age group has seen significant growth, even though the level is still below average (see table 3.1.7).

What is the margin for manoeuvre?

There is obviously the issue of the margin for manoeuvre available to the Member States, and in particular to Luxembourg, in achieving the Lisbon objectives.

In the domain of the integration of older people and of women into the labour market, the trend in Luxembourg seems to be in the "right" direction, even if there is still some way to go. As regards training and education, which constitute the basis of a "knowledge-based" society, there are still important obstacles to be overcome. A debate on educational structures in Luxembourg and on the teaching methods used has, indeed, begun, following Luxembourg's unsatisfactory results in the first PISA survey conducted by the OECD in 2000.

The second PISA survey did not change the situation in any fundamental way, even if there appeared to be a few improvements (Ministry of National Education, 2002 and 2004). Furthermore, the government is counting on continuing vocational training to improve the employability, flexibility and mobility of the active population. Since 1 January 2000 (law of 22 June 1999, amended by the law of 10 June 2002), Luxembourg companies can count on State subsidies – direct subsidies or tax reductions – for their investment in continuing vocational training. The conclusion by the social partners of an agreement on individual access to training in May 2003 moved in the same direction. Indeed, these measures seem to be necessary when we look at the rate of participation in continuing vocational training courses. In Luxembourg in 2004, 6.5% of the economically active population between the ages of 25 and 64 participated in a continuing vocational training course in the 4 weeks prior to the annual survey of

work forces. This percentage is slightly below the European average (10.1%), but far below the rates achieved in Denmark (27.6%) or Finland (24.6%).

The real challenges facing Europe arise, however, as a result of a low demographic growth rate and of the ageing population. The Kok report contains an interesting summary of prospects in this domain (KOK, 2004):

"Two forces – declining birth rates and rising life expectancies – are interacting to produce a dramatic change in the size and age structure of Europe's population. The total population size is projected to fall by 2020. By 2050, the working-age population (15-64 years) is projected to be 18% smaller than the current one, and the numbers of those aged over 65 years will have increased by 60%.

As a result, the average ratio of persons in retirement compared with those of the present working age in Europe will double from 24% today to almost 50% in 2050. This dependency ratio will vary in 2050 from 36% in Denmark to 61% in Italy.

This development is already at work and in 2015 the EU average dependency ratio will increase to 30%. The impact is then compounded by the low employment rate of older workers. These developments will have profound implications for the European economy and its capability to finance European welfare systems. Ageing will raise the demand for pensions and healthcare assistance at the same time as it reduces the number of people of working age, to produce the necessary wealth.

European Commission projections estimate that the pure impact of ageing populations will be to reduce the potential growth rate of the EU from the present rate of 2-2.25% to around 1.25% by 2040. The cumulative impact of such a decline would be a GDP per head some 20% lower than could otherwise be expected. Already from 2015, potential economic growth will fall to around 1.5% if the present use of the labour potential remains unchanged.

This same ageing will result in an increase in pension and healthcare spending by 2050, varying between 4 and 8% of GDP. Already from 2020, projected spending on pension and healthcare will increase by some 2% of GDP in many Member States and in 2030 the increase will amount to 4-5% of GDP. On top of this, the lower economic growth rate will impact negatively on public finances, and this negative impact will commence from 2010".



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Table 3.1.8

Dependency rate of the elderly (%)*

	2000	2010	2020	2030	2040	2050
BE	26	27	33	42	46	45
DK	22	27	32	38	40	36
DE	24	30	34	44	50	49
EL	26	29	33	38	47	54
ES	25	27	31	39	52	60
FR	24	25	33	40	45	46
IE	17	17	22	27	33	40
IT	27	31	37	46	59	61
LU	21	24	28	36	41	38
NL	20	22	30	38	44	41
AT	23	27	32	45	54	54
PT	23	25	29	33	41	46
FI	22	25	36	43	43	44
SE	27	29	35	40	42	42
UK	24	24	29	37	43	42
UE-15	24	27	32	41	48	49

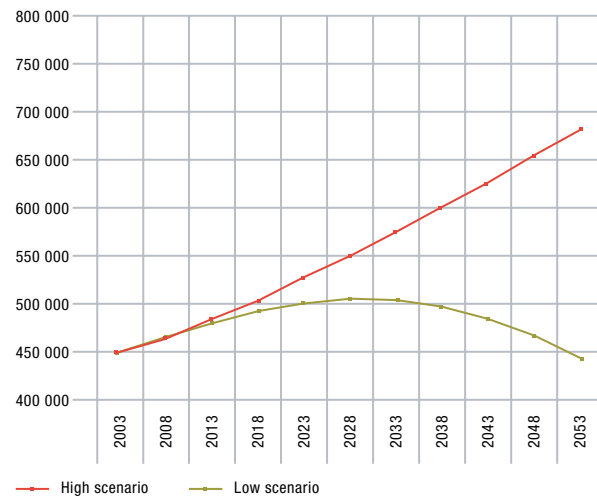
Source: KOK (2004) on the basis of the forecasts of the European Commission;

* Population of 65 and over as a percentage of the population between 15 and 64.

Graph 3.1.9

Population forecasts for 2003-2053 (Luxembourg)

Total population



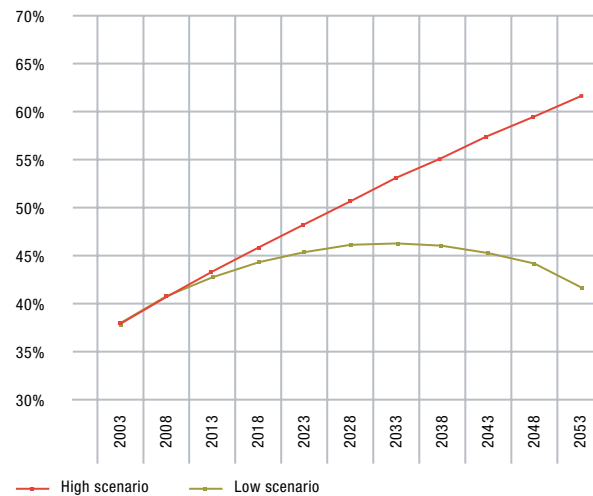
Source: STATEC (LANGERS, 2004)

NB: The scenarios differ as regards annual net migration. In the upper scenario, it will increase gradually from 2,000, at the beginning of the period, to 5,000 at the end of the period. On the other hand, the lower scenario is characterized by negative net migration flows. By 2053, the balance will be -2,500.

Graph 3.1.10

Population forecasts for 2003-2053 (Luxembourg)

Proportion of foreigners

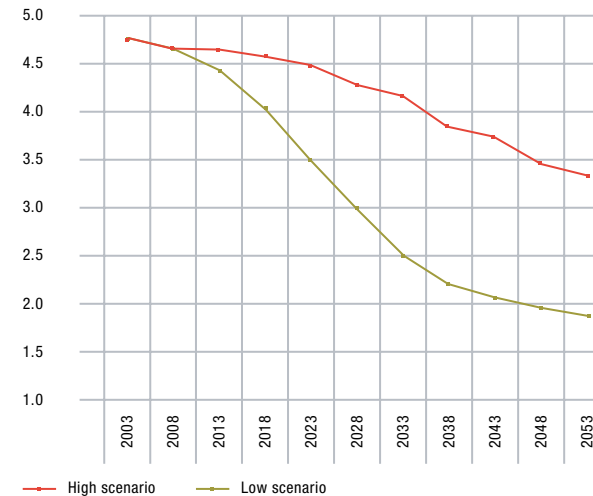


High scenario Low scenario

Graph 3.1.11

Population forecasts for 2003-2053 (Luxembourg)

Figures (15-64/ 65+)



High scenario Low scenario

Demographic forecasts for a small country such as Luxembourg, with its high level of immigration, will give rise to particular problems. Indeed, the results of these forecasts depend, to a large extent, on the basic hypotheses concerning the level of the migratory balance – a balance that has been mainly positive during the past decades in Luxembourg.

A recent STATEC publication (LANGERS, 2004) studies the impact of net immigration on Luxembourg in population forecasts. This survey highlights the effects of the different hypotheses for immigration on the development of both the number of inhabitants and distribution by nationality and age.

Two scenarios (upper and lower) up to the year 2053 are indicated (see graphs 3.1.9 to 3.1.11). As regards fertility and mortality, the hypotheses remain the same in the two scenarios.

The total fertility rate is likely to rise from 1.7 children per woman to 1.8 in 2023, and it will remain at the same level throughout the forecast period. Life expectancy at birth is expected to increase from 75.0 years (2003) to 81.7 years (2053) for men and from 81.0 years to 86.7 years for women. Scenarios differ as regards net annual migration. In the upper scenario, it will increase gradually from 2,000, at the beginning of the period, to 5,000 at the end of the period. On the other hand, the lower scenario is characterized by negative net migration flows. By 2053, net migration will be -2,500.

The regular rise in net migration in the upper scenario would lead to a resident population of almost 700,000. If the upper scenario were to bear fruit, foreigners would be by far in the majority.

Instead of just over 60% of native inhabitants, as is still the case today, by 2053 there would be the same percentage of foreigners, and this despite a rising number of naturalizations and "options". Sustained immigration would slow down the fall in the ratio of people of working age (15-64 age group) to people over retirement age. Nevertheless, even in the upper scenario (positive net migration), while there are currently 4.8 people of working age to 1 person in the 65+ group, there would only be 3.3 at the end of the period, which would entail a significant increase in the dependency rate.

Despite the numerous uncertainties arising from these forecasts, it is somewhat unlikely that the Luxembourg population will prove an exception to the rule as far as ageing is concerned.

According to the forecasts of the European Commission to which the Kok Report refers, the dependency ratio of the elderly in Luxembourg – that is the population over 65 years and more as a percentage of the population aged 15-64 – would rise from 21% in 2000 to 36% in 2030. The situation would be slightly better in Luxembourg than in the other European countries, with the exception of Ireland and Portugal. According to an analysis conducted by the EU "Economic Policy Committee", spending on pensions in Luxembourg would increase from 7.4% of GDP in 2000 to 9.2% of GDP in 2030, whilst, at EU-15 level, spending would rise from 10.4% of GDP in 2000 to 13% of GDP in 2003 (Economic Policy Committee, 2001).

A comparison of the structure of the population of Luxembourg with that of the neighbouring regions also provides useful information. Compared with the regions that form part of what is commonly called the "Greater Region" (comprising Saarland, Lorraine, Luxembourg, Rhineland-Palatinate and Wallonia), Luxembourg is quite "young": in 2003, the ratio of over 60s to the total population was 18.7% in Luxembourg as against 26.2% in Saarland, 20.3% in Lorraine, 24.6% in Rhineland-Palatinate and 21.3% in Wallonia. On the other hand, the ratio of those under 20 in the population of Luxembourg is relatively high, 24.4%, as against 19.7% in Saarland and 21.4% in Rhineland-Palatinate. The proportion of the population under 20 is only slightly higher in Wallonia (24.6%) and in Lorraine (25.4%) (see maps 3.1.12 and 3.1.13).

When all is said and done, the Kok Report recommends fairly conventional solutions to the "greying" of the population, that is an increase in the employment rate through growth in participation by women and older workers ("active ageing"), together with the implementation of policies intended to improve workers' ability to adapt, in particular through lifelong education and training.



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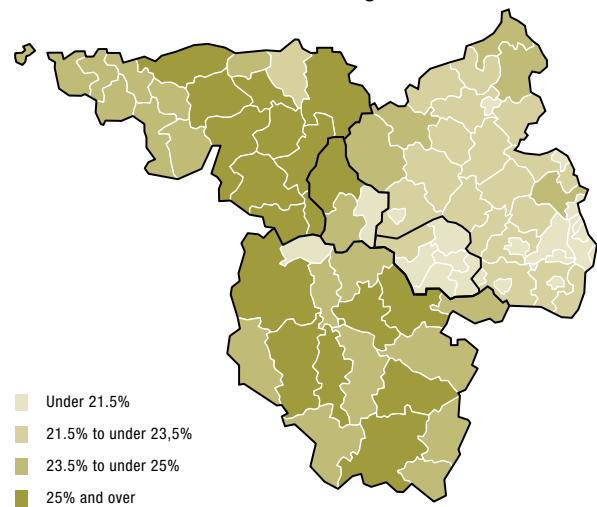
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Map 3.1.12

The “under 20s” in the Greater Region



Source: STATEC et al. (2004)

Map 3.1.13

The “over 60s” in the Greater Region

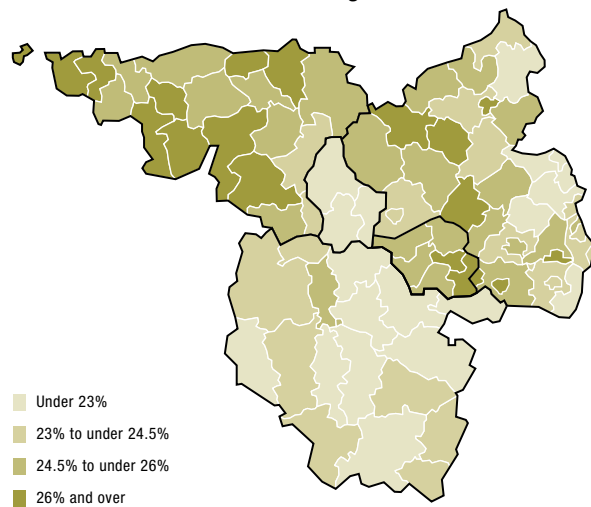


Table 3.1.14

Percentage of companies by sector of activity that have lodged a complementary pension scheme application with the authorities (October 2003)

Sector of activity	%
Tobacco industry	100.0%
Financial brokerage	57.9%
Air transport	37.5%
Manufacture of other non-metallic mineral products	35.9%
Finance and insurance ancillaries	33.9%
Rubber and plastics industry	33.3%
Metallurgy	33.3%
Manufacture of electronic machines and equipment	26.7%
Post and telecommunications	24.3%

Source: MINISTÈRE DE L'ÉCONOMIE (2003), IGSS

The report drafted by the high level group on the future of social policy in an enlarged European Union (EUROPEAN COMMISSION, 2004a) establishes a diagnosis on the effects of ageing similar to that of the Kok Report. But, aside from the recommendation to increase the employment rate, the report on the future of social policy goes straight to the heart of the matter by raising the issue of immigration. The report on the future of social policy in Europe:

"If we accept the hypothesis of a constant employment rate, this implies that the volume of work will begin to decline. Even if the EU attains the 70% level, defined in Lisbon, by 2010, the total potential labour supply will diminish with the decline in the working-age population. After 2010, employment will grow only if immigration increases, or if the employment rate continues to rise, or if these two factors occur simultaneously..."

A constant flow of immigration of 1 million per year, as happened in 2001-2002, would increase the working-age population, thereby enabling us to face the pressures of migration from the neighbouring countries and, generally speaking, from developing countries, with greater serenity. A rise in immigration rates would certainly have a positive impact on the economy, not only in terms of the labour supply but in terms of capacity for innovation".

In response to the problems arising from welfare funding as a result of ageing, many scientists, not to mention international bodies such as the OECD, recommend the development of second and third linchpins of social protection (additional corporate pension schemes and private pensions).

In Luxembourg, the law of 8 June 1999 relating to complementary pension schemes applies to all complementary pension schemes set up after it came into force in January 2000, and to existing schemes that involve the payment of a lump sum or an income after the law comes into force. The law applies to complementary pension schemes created by a company for all its employees or for certain categories of them, to the exclusion of individual commitments. By October 2003, around 4% of all companies had made applications for the setting up of complementary pension schemes with the competent authorities, but in some sectors of activity the ratio of companies that have made an application exceeds 20% (MINISTÈRE DE L'ÉCONOMIE, 2003).

The "Lisbon Strategy" makes heavy demands on States, especially as regards investment in education, training and R&D. Furthermore, the strategy assumes the setting up of infrastructures that encourage the development of the economy. This is compounded by the burden on public welfare schemes and State finances, due to the ageing of the population. In 2003, in Luxembourg, the contribution of the authorities to social welfare running receipts represented 56.3% of State budget running expenditures, as against 45.5% in 1990, which raises the question of the margin for manoeuvre available to States in terms of budgets and finances. States are caught in a catch-22 situation, owing to the stability pact criteria and not only more modest growth in tax revenue due to the economic reversal from 2001 onwards, but also (and more fundamentally) due to a structural change arising from multiple pressures for a fall in tax and social security deductions.

Now, it is probably its margin for manoeuvre in financial terms which is one of Luxembourg's major assets compared with other European States (for the evolution of Luxembourg's public finances, see chapter 1.11).

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Competitiveness indicators

Since 2001, the Luxembourg economy has experienced a much slower growth rate than in the 1990s. In this context, the question of competitiveness arises even more acutely than in the past. In view of the changes under way, it is widely accepted nowadays that an array of indicators is necessary to ascertain competitiveness – which is, in itself, a highly complex concept. The competitiveness of an economy may be defined as its ability to generate in a lasting way relatively high levels of income, employment and social cohesion, while being exposed to international competition (OBSERVATOIRE DE LA COMPÉTITIVITÉ: 2004).

The report on competitiveness – carried out since 1999 by STATEC and CREA (the Applied Economics Research Unit) of the University of Luxembourg – covers a number of dimensions of competitiveness (BOURGAIN et al., 2004). The recurrent part makes a distinction between business cycle indicators and structural indicators. Current account balance is usually considered an indicator of an economy's external performance. For Luxembourg, trade in goods and services have resulted in regular surpluses over the past 10 years. The fact of covering requirements for foreign goods and services by selling abroad is unquestionably a sign of competitiveness. A similar pattern is followed by the trend in the current account balance, where the surplus remains substantial (see chapters 1.9 and 2.5).

Besides this indicator of external performance or competitiveness "ex post", we can refer to attractiveness and diversification indicators which analyse competitiveness "ex ante" instead. The comparison of foreign direct investment in EU Member States shows (in relative terms) a much higher level and a favourable trend for Luxembourg.

A synthetic indicator (see graph 3.2.1), as well as an analysis of its various components, supplement these various specific indicators. The appeal of this synthetic indicator is that it combines internal and external factors of the competitive situation of the Luxembourg economy by comparing unit wage cost with foreign prices (expressed in national currency). The change since 1990 is characterised by an inflection of the trend in 1997/98.

Until that date, competitiveness improved regularly. From 1998 to 2000, it remained at an appreciable level and then deteriorated from 2001 onward. This more general trend should be set in context per sector of economic activity – with a much more pronounced profile for service activities than for industry. Moreover, it emerges from these analyses that in industry, the appreciation in nominal wage rates (3.5% as an annual average for the past 13 years) is perfectly in phase with the improvement in productivity (3.4%), which is far from the case in traded services (1.5% for apparent labour productivity and 3.5% for nominal wage growth rates).

With regard to the development of the synthetic competitiveness indicator for industry and services, the downward trend (started around 2000) in the competitiveness of the Luxembourg economy seems to have been confirmed or even accentuated in 2003 (BLEY, 2005).

This observation is just as valid for the industrial sector as for the traded services sector. Even if the fall seems slighter in industry, it is no less strong in terms of annual variation (-3.3% compared with -3.6% for services).

However, a more detailed analysis of the situation reveals that the fall in the competitiveness indicator in 2003 was no longer linked to the same causes as those in previous years. To explain this change, it is necessary to point out that this indicator is a function of an external component (foreign prices) and an internal component (domestic wage costs). It is the product of a margin indicator (M = margin on unit labour costs) and a price competitiveness indicator (R) or real effective exchange rate.

So in 2003, the competitiveness conditions of the national economy changed. The fall in the synthetic competitiveness indicator can no longer be explained by a reduction in domestic margins (which remain stable), but rather by a quite pronounced fall in the exchange rate (-3.5% on an annual average compared with 2002) defined as the ratio between foreign prices (adjusted to the exchange rate) and domestic prices. This fall is due mainly to a sharp depreciation in the US dollar and the pound sterling (-16% and -9% respectively on an annual average) against the single currency. Although price competitiveness has only deteriorated in comparison with its main partner countries outside the eurozone, its effect remains no less important since trade with these countries represents close to 12% of the total volume of exports (goods and services combined).



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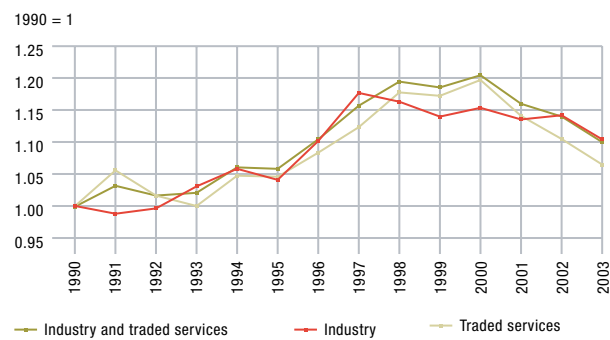
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Graph 3.2.1

Synthetic indicator of competitiveness

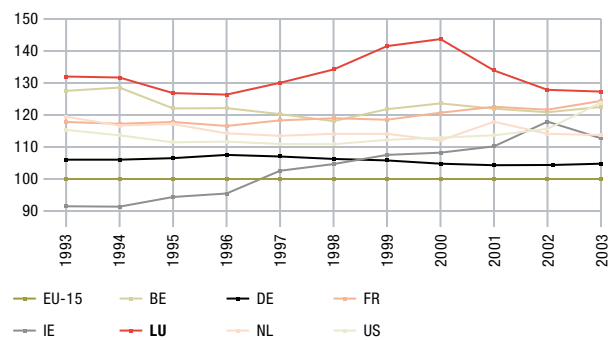
Industry and traded services (excluding financial services and real estate activities)



Source: EUROSTAT, STATEC calculations

Graph 3.2.2

**Hourly labour productivity
GDP in PPS per hour worked
(EU-15 = 100)**



Source: EUROSTAT (structural indicators)

Table 3.2.3

Ranking of Luxembourg in the "Growth Competitiveness Index 2004" and its components

Growth Competitiveness Index (GCI – overall index)	Components		
	Technology Index (1/2 of the GCI)	Public Institutions Index (1/4 of the GCI)	Macroeconomic Environment Index (1/4 of the GCI)
26 th	41 st	14 th	6 th

Source: World Economic Forum

The fall in the synthetic indicator, moreover, is accentuated by a slight upward trend in domestic prices in industry (+1.4%) and in traded services (+2.2%).

The second part of the 2003 report on competitiveness (BOURGAIN et al., 2004) is devoted to the analysis of the margin of manoeuvre that a small, open economy has in setting export prices in comparison with the prices of foreign competitors. Empirical results confirm a degree of independence in export prices in relation to prices of foreign competitors. The degree of dependence is measured by the elasticity of domestic export prices compared with the prices of foreign competitors. A longitudinal analysis per branch confirms the moderate dependence of prices on domestic value-added of the industrial branches in relation to international prices.

In cost equations associated with price formation for exports and production, the influence of the price of intermediate consumption, which are largely imported into a very small open economy, appears relatively high and significant. The influence of consumer prices on cost via wage formation is important only when the price of intermediate consumption is not taken into account.

On the other hand, there are competitiveness indicators that are significant, but not complete, such as change in unit labour costs (see pp. 190 and 191). Moreover, in the context of the structural indicators of the European Union, EUROSTAT publishes an estimate of the change in the level of hourly productivity of labour in the Member States compared with the European average (see graph 3.2.2).

This indicator of the level of productivity has the merit of casting more light on other indicators established on the basis of growth rates or indices (change in relation to a base 100 set in a conventional way). It can be seen that hourly labour productivity in the Luxembourg economy has been at a high level since the beginning of the 1990s, then increases sharply from 1996 to 2000, before declining just as sharply in 2001 and 2002. This decline is due to a considerable reduction in the GDP growth rate (from 9% in 2000 to just over 1% in 2001) which is not compensated by an adjustment of the "labour" factor.

Comparative analyses of competitiveness taking account of Luxembourg are also published by bodies such as the World Economic Forum (WEF, 2004) or the "International Institute for Management Development" (IMD, 2004) of Lausanne.

The "rankings" derive from composite indicators established on the basis of "hard" statistical data, or material or economic data (like GDP growth, change in jobs), and on the basis of the opinions and subjective assessment of economic circles (such as the perception of the degree of corruption). There is a certain parallelism between the decline in competitiveness of the Luxembourg economy from 2001 onwards, reflected by composite indices of the IMD, the WEF or the STATEC synthetic indicator, and the decline in hourly productivity of labour. The graph 3.2.2 could be interpreted in a more "positive" sense, i.e. that the productivity level has returned to its (high) level from before the "financial bubble".

In the "World Competitiveness Scoreboard 2004" of the IMD, Luxembourg occupies 9th place among 60 countries analysed, corresponding to a fall of 7 places compared with the previous year. In this 9th place, Luxembourg comes behind countries such as the United States (1st), Singapore (2nd), Canada (3rd), Denmark (7th) and Finland (8th), but ahead of the Netherlands (15th) Norway (17th), Germany (21st), the United Kingdom (22nd), Belgium (25th) and France (30th).

In the "Growth Competitiveness Index" published in the "World Competitiveness Report" of the WEF, Luxembourg comes in 21st place in 2003 and 26th place in 2004, out of over 100 countries analysed. In this 26th place, Luxembourg ranks between Belgium (25th) and France (27th). In the top places, we find Finland, the United States and Sweden.

These figures must be treated with caution (see particularly on this subject: HATEM, 2004). First of all, the weighting of the various items taken into consideration to calculate the composite index is often rather arbitrary and the final result may be biased by the absence of an item of data or the use of incorrect data. In the "World Competitiveness Index" of WEF, Luxembourg is classified in the group of countries defined as "core innovators". For this country, the overall composite index is composed of a:

- ➔ synthetic technology index, which makes up half the overall index;
- ➔ public institutions index, making up one-quarter of the overall index, which is established entirely based on the subjective perception of economic circles;

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→ macroeconomic environment index, making up the other quarter of the overall index, calculated from objective factors such as the public deficit, "semi-objective" factors such as the "Institutional investor country credit rating", and subjective factors like the perception of corruption (BLANKE Jennifer et al., 2003). In these sub-indices, Luxembourg occupies strongly divergent positions. In 2004, it came in 6th place in the "Macroeconomic Environment Index", 14th place in the "Public Institutions Index", but in 41st place for the "Technology Index". However, half of this "Technology index" consists of an "Innovation sub-index" in which the enrolment rate in higher education (university) plays an important role. The large number of students from Luxembourg studying abroad is not taken into account.

Nevertheless, despite these methodological uncertainties and approximations – such indices may help to identify real weaknesses. And one of Luxembourg's weaknesses is certainly in the field of implementing public innovation policies. The "Innovation Scoreboard 2003" of the European Commission (EUROPEAN COMMISSION, 2003) also rates Luxembourg under the European average. Admittedly, in that case too, the methodology can be criticised. However, an objective item of data like the low level of public spending on R&D cannot be overlooked (see also the data on innovation and R&D in chapter 3.3).

While innovation is usually considered favourable to growth, it should not be considered a miracle remedy. The European Commission states on the Internet site of the "Innovation Scoreboard": *"Innovation is not the only way to achieve high per capita income levels. Luxembourg shows the potential of a niche specialization in financial services and Norway benefits from the existence of vast natural resources. Similarly, a high SII (Summary Innovation Index) does not always guarantee a high per capita income level as shown by Finland, Sweden and Japan"*.

By setting up the Competitiveness Observatory in 2004, the Luxembourg government acquired the means to collect, analyse and compare existing national and international information, as well as carrying out or arranging studies and research into competitiveness. An external expert, Prof. Lionel Fontagné, was commissioned to submit a report on Luxembourg's competitive position, consisting of a proposal for a competitiveness trend chart taking the form of a set of indicators divided into several categories (e.g. education, innovation, social cohesion, entrepreneurship, etc.), identified as fundamental for Luxembourg's competitiveness (FONTAGNÉ, 2004).

This chart should enable Luxembourg to be positioned in comparison with its main competitors and will also form the basis of an early-warning mechanism, warning the government and the social partners to take any measures necessary if any of the indicators turns "orange" or "red". Prof. Fontagné gives the following analysis of the competitiveness of the Luxembourg economy:

"Having taken advantage of elements of sovereignty to construct a complete financial cluster, Luxembourg has benefited from cluster effects and its small size limits the negative externalities borne by its larger neighbours. So Luxembourg has less to fear from the vagaries of the financial markets which affect every financial centre, than from changes in its institutional and regulatory environment within the European Union.

The problems listed... are well known: very rapid increase in public spending, inflation, unit labour costs out of control, rising unemployment, questions about the sustainability of welfare spending and pensions for the macroeconomic context. Inefficiency of the education system, duality of the labour market, limited entrepreneurial mentality, delay in the implementation of new technologies (particularly in government) and difficulties in reform with regard to the more microeconomic dimensions.

Luxembourg's success has been due to its ability to create a strong competency in every respect out of this initial distortion. This strategy has been an appropriate response for an economy devastated by the decline in its industrial core. One can consider that the acceptance of this distortion at Community level was a subsidy for the reconversion of the Luxembourg economy.



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Innovation and R&D: strengths and weaknesses of Luxembourg

That time is over, and European partners are becoming more incisive. Now it is a matter of striking a new balance between exploiting sovereignty in tax and regulatory matters, and the ability to derive advantage from the European integration process. This new balance involves diversifying the risks, making the externalities on neighbouring countries more diffuse and, last but not least, moving ahead at full speed into the knowledge-based economy. However, it is probably from this last viewpoint that the G.D. is least well prepared. The Luxembourg competitive model has functioned well until now, but it is time to update it, while preserving the key asset which is social cohesion.

The highly specialised cluster model based on attracting foreign resources, located in a small-sized economy practising tax competition to attract businesses and financing a generous social system while maintaining a balanced budget, has probably reached its limits now."

The Fontagné report proposes a certain number of measures in order to:

- develop higher education and research, a field in which Luxembourg has lagged behind;
- train those with low qualifications; this proposal reflects the concerns of the Luxembourg state in terms of employability; a "training voucher book" should be handed to pupils leaving school early, which they can use throughout their working life;
- introduce a "minimum training wage"; the employee would receive a salary equal to the minimum full-time salary; the state would finance part of the wage paid by the company and the training would be paid for at the minimum wage by debiting it from the trainee's training voucher book;

- modulate the pay indexation system (i.e. automatic linking of wages to changes in the cost of living) by a training credit: starting from the observation of the necessity for life-long learning and the purchasing power safety net which nevertheless forms the system for employees at the bottom of the wage scale, it is desirable to substitute the current system with a double-trigger system. Once the minimum wage is exceeded by a certain percentage, the effects of index-linking on wages are capitalised (rather than distributed) in an individual training savings account paid into by the company but independent of it, in order to guarantee the mobility of workers;

- deregulate the information and communication technology sector in Luxembourg;

- encourage business start-ups;

- open up the civil service to foreigners and attract foreign skills from the new Member States and non-member countries, and therefore adopt a much more ambitious immigration policy.

In the context of the "Lisbon Strategy", the establishment of a European research and innovation area is one of the priorities. The Barcelona European Council in March 2002 set the objective of increasing overall EU spending on R&D and innovation with a view to reaching 3% of GDP. Two-thirds of this total investment is due to come from the private sector. In particular, the aim is to attract and retain research talent in Europe. One of the structural indicators adopted to monitor the implementation of the Lisbon Strategy is the number of researchers in relation to the working population. The Community average is estimated at 5.7 researchers per 1,000 people in the labour market in 2001. In 2000, with a rate of 8.8 per 1,000, Luxembourg came in second position behind Finland.

Luxembourg's excellent position in the rankings is due to companies such as Goodyear, Dupont de Nemours and Delphi, which have large research centres. With nearly 900 scientists, the GOODYEAR research and development centre in Colmar-Berg is the group's largest centre in Europe, and the second-largest worldwide, after the headquarters in Akron (USA).

The Lisbon objective also provides for an investment in R&D of 3% of GDP in 2010. For the moment, this objective does not appear attainable. Almost all the Member States of the European Union have attained an investment of 2% of GDP in R&D. However, the rate of growth in recent years is too low to reach 3% in 2010.

According to the "Frascati Manual" (OECD, 2002), *"Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications."*

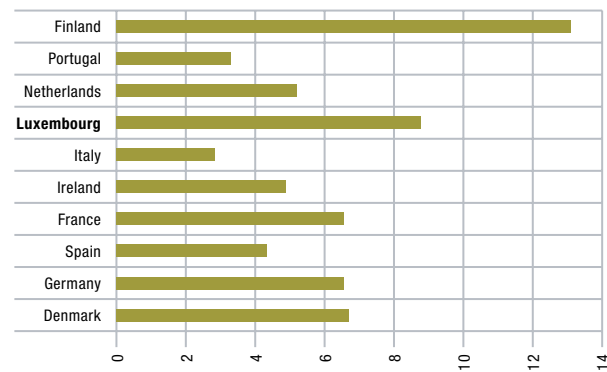
The structural indicator adopted at European level to measure R&D investment is GERD (Gross Domestic Expenditure on Research and Experimental Development) as a percentage of GDP. The survey on resources devoted to R&D was launched for the first time in Luxembourg in the reference year 2000. The second study will be conducted for the reference year 2004. A "slimmed-down" study will be carried out for the reference year 2002, for which the data will only be available by the end of 2005.

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Graph 3.3.1

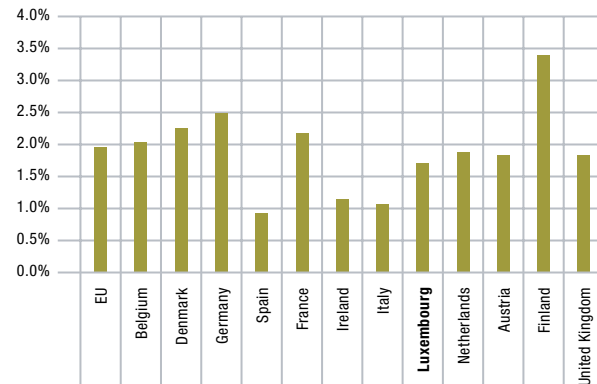
Number of researchers per 1,000 of active population in 2000



Source: EUROSTAT (Data taken from the Community survey on innovation, coordinated with a survey on companies' R&D resources for Luxembourg, Ministry of Culture, Higher Education and Research).

Graph 3.3.2

GERD - Gross Domestic Expenditure on Research and Experimental Development - in 2000 (as % of GDP)



Source: EUROSTAT

Graph 3.3.3

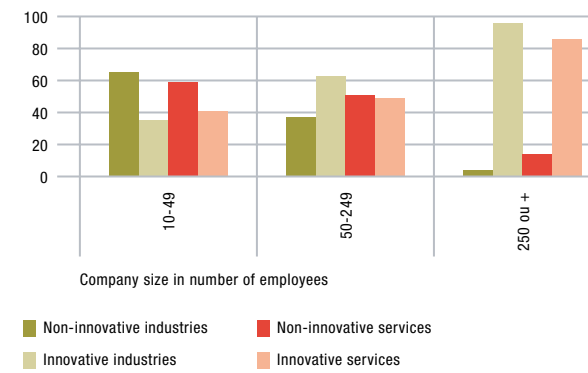
Proportion of GERD financed by industry and the state in 2000



Source: EUROSTAT (GERD = Gross Domestic Expenditure on Research and Experimental Development)

Graph 3.3.4

Innovative companies by sector and by size in Luxembourg (as % of all companies)



Source: CIS3 (1998-2000), WARNER Uwe (2005)

The GERD indicator in % of GDP consists of a percentage of the GERD financed by industry and the percentage of GERD financed by the authorities. It should be pointed out that this indicator measures the R&D investment in the economy, but does not measure innovation and inventions.

In 2000, the Community average for public and private investment in R&D was 1.95% of GDP, while in Luxembourg, 1.71% of GDP was invested in R&D. As to the proportion of GERD financed by industry, the Community average is 56.35%. With a rate of 91.01%, Luxembourg rates well above the Community average for investment in R&D financed by the private sector. Compared with Community level, where the percentage of GERD financed by the public sector was 34.25% in 2000, Luxembourg is characterised by low public investment in R&D (7.67%).

However, the recent foundation of the University of Luxembourg (2003) and a National Research Fund (1999) should contribute to improving the situation.

In a manner of speaking, R&D is the "input" for innovation. Innovation activities and businesses' propensity for innovation constitute the second aspect of the issue. Statistics and studies on "Research & Development" and on innovation in the Grand Duchy of Luxembourg are quite recent. The first studies emerged after the steel crisis in the 1980s and are situated within the context of the redeployment of industrial policy. Statistics only developed in a meaningful way with Community policy during the 1980s. Likewise, innovation has only developed as a specific instrument of industrial policy since the 1980s, and the first Public Research Centres (PRCs) came into being with the 1987 law.

In addition, the law of 27 July 1993 provides for budget contributions by the State to the efforts deployed by businesses in the field of R&D, while the "Société Nationale de Crédit et d'Investissement" (SNCI) is empowered to make loans for innovation.

LUXINNOVATION GIE, National Agency for the Promotion of Innovation and Research, whose origins date back to 1984, was relaunched in 1998 in the form of an "economic interest group" (EIG).

The Community Innovation Survey (CIS), conducted under the aegis of Eurostat in every Member State of the European Union, collects individual data on businesses' innovation activities. For the time being, this has been carried out on three occasions, corresponding to the periods 1990-1992 (CIS1), 1994-1996 (CIS2) and 1998-2000 (CIS3).

These surveys were carried out on the basis of definitions of innovation given by the "Oslo Manual" (OECD and EUROSTAT, 1997). Technological innovations in products and processes (TPP) cover technologically new products and processes, as well as substantial technological improvements to products and processes that have been accomplished. A TPP innovation has been accomplished once it has been launched onto the market (product innovation) or used in a production process (process innovation). TPP innovations involve all sorts of scientific, technological, organisational, financial and commercial activities. A company that is a TPP innovator is a company that accomplishes technologically new or significantly improved products or processes during the period under consideration.

A recent STATEC Cahier économique reviews the situation of the development of the institutional framework of research and innovation (KERGER et al., 2005), as well as scientific research carried out on the subject in Luxembourg (ALLEGREZZA, 2005). It is particularly the results of the "Community Innovation Survey" (CIS) – concerning the years 1998-2000 – which are analysed in this publication (see the bibliographical references).

A company is said to be innovative once it has at least innovated in a product or a process. During the reference period 1998-2000 (CIS3), approximately half of the companies surveyed (44.7%) were innovative.

Among these innovative companies, 21.5% have only innovated in relation to products, 38.2% only in relation to processes and finally 40.3% innovated in relation to products and processes. Innovation is more frequent in industry (47% of innovative companies) than in services (44% of innovative companies). In all sectors combined, large companies (250 employees or more) are the most innovative (see graph 3.3.4). 91% of large companies pursue innovation activities, compared with 52% of medium-sized firms and 29% of small firms. Innovation in industry is more strongly correlated to the size of firm than in services.

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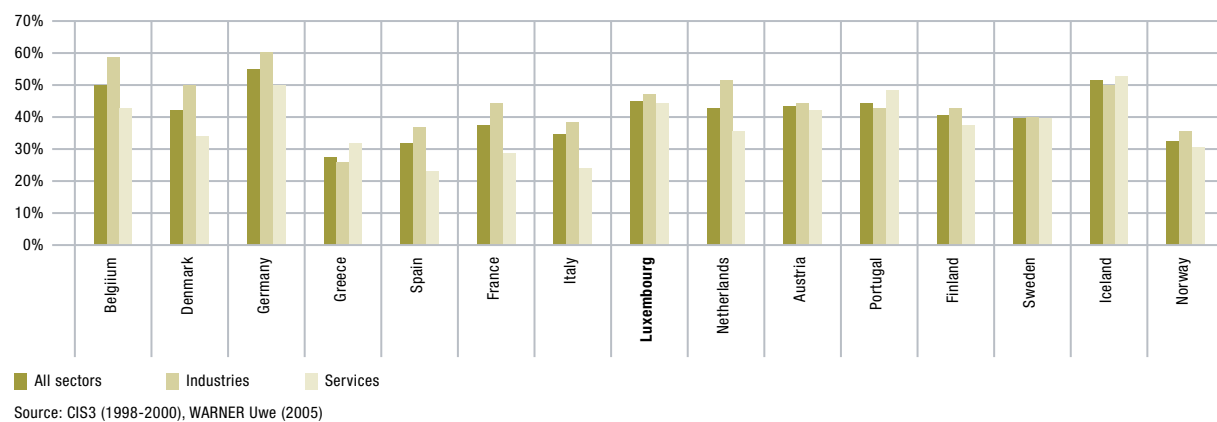
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GENEVOIS Anne-Sophie, WARNER Uwe (2005), *Mesures de l'innovation et illustrations empiriques, Cahiers économiques du STATEC, n° 97, pp. 43-74*

Graph 3.3.5

Innovative companies in Europe (as % of all companies)



Large manufacturing companies are more innovative (96%) than large service companies (86%), while the proportion of innovative small firms tends to be lower in industry (35%) than in services (59%) (DAUTEL, 2005a). In the European comparison (see graph 3.3.5), the proportion of innovative companies in Luxembourg is close to the EU-15 average (WARNER, 2005). In the services sector (whose importance in the economic fabric is particularly great in Luxembourg), the proportion of innovative companies is highest in Germany, followed by Portugal, Iceland and Luxembourg.

Apart from the effect of size and the sector of economic activity, the introduction into the analysis of additional variables shows that companies' propensity to innovate is also dependent on its proportion of university graduates, the growth in wage-earning employment, type of company (group or non-group and territory of origin of the group) and the dynamic of renewal of its main product (DAUTEL, 2005b).

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3.4

Information and communication technologies (ICT) in 2003-2004: towards an information society

In March 2000, the European Council of Lisbon presented a strategy aimed at making the European Union the most competitive and the most dynamic economy in the world from 2010. Information and Communication Technologies (ICT), which are one of the driving forces behind the productivity of companies (OECD, 2003) are supposed to play a decisive role in achieving that objective. The "eEurope 2002" action plan is born out of this ambition. Its objective is to extend the connectivity of the Internet in Europe making sure that everybody in the European Union – private individuals, schools, companies, public services – will have access to the Information and Communication Technologies and will get maximum benefits from them. The second "eEurope 2005" action plan, approved in June 2002 by the European Council of Seville, is centred on European productivity, the improvement in the quality and the accessibility of the services for the benefit of all European citizens.

OECD (2003), *ICT and Economic Growth. Evidence from OECD countries, industries and firms*, Paris

With this in mind, the Luxembourg government has set up the "eLuxembourg" action plan, the aim of which is to implement actions on a national level. With the intention of observing and assessing the progress made by Member States in respect of the promotion of the information society, the European Commission has progressively equipped itself with an arsenal of statistical indicators. The Luxembourg government has signed up to this logic by carrying out surveys of households and companies. These surveys were entrusted:

- on the one hand, to the Institut Luxembourgeois de Recherche et d'Études Sociales [Luxembourg Institute of Research and Social Studies] (ILReS), with comparative European results being published as part of the Eurobarometer;
- and, on the other hand, to the CEPS/ Insee under the aegis of EUROSTAT and STATEC, with comparative European results being published by EUROSTAT.

Added to this is a survey by the company "Mindforest" concerning the presence and the quality of the web sites of Luxembourg companies. STATEC was given the task of coordinating the surveys and analysis. The detailed results of the 2003 surveys are commented on in STATEC's bulletin No. 3/2004 which also analyses the methodological differences of these surveys and the differing results arising from them (HILDGEN, MOLLING, 2004). In 2004, so as to reduce the burden of response, a single survey (done by the ILReS) was conducted on households. This survey is also used as a database for the European results published by EUROSTAT.

HILDGEN Martine, MOLLING Victor et al. (2004), *Les Technologies de l'information et de la communication auprès des ménages et des entreprises au Grand-Duché de Luxembourg en 2003*, Bulletin du STATEC, n° 3/2004 www.statec.lu/html_fr/statistiques/bulletin/Bull_TIC_2004.pdf

Table 3.4.1

Internet in homes in 2004

	**EU	BE	DK	DE	EL	ES	IE	IT	LU	AT	NL	PT	FI	SE	UK
Home access rates to the Internet	47%	*41%	69%	60%	17%	*25%	*36%	*34%	59%	45%	*59%	26%	51%	*64%	56%
High speed connection rates of households	16%	...	36%	18%	0%	...	*1%	...	16%	16%	*20%	12%	21%	...	16%

Source: EUROSTAT

* = 2003 figures; ** average of the countries where figures are available ... = not available

Table 3.4.2

Use of the Internet by individuals in 2004

	EU	DK	DE	EL	ES	IE	IT	LU	AT	PT	FI	SE	UK
Regular use of the Internet by individuals**	43%	70%	50%	17%	*29%	*25%	26%	59%	46%	25%	63%	75%	49%
E-commerce effected by individuals ***	21%	22%	29%	1%	5%	10%	*4%	32%	13%	3%	24%	30%	28%
Security – Percentage of persons who have installed an antivirus programme during the last three months	21%	18%	24%	8%	...	9%	...	58%	18%	11%	19%	21%	24%
Security – Percentage of persons who have updated an antivirus programme during the last three months	27%	46%	28%	6%	...	10%	...	52%	22%	13%	33%	39%	26%
Security – Percentage of persons who have used an online authentication system (password, PIN, etc.) during the last three months	25%	49%	18%	4%	...	7%	...	36%	15%	9%	47%	42%	20%

Source: EUROSTAT

* 2003 figures

** Percentage of persons who have gone onto the Internet, on average, once a week

*** Percentage of individuals who have ordered/purchased goods or services for their personal use through the Internet during the last three months

... = not available

The Internet, which represents the largest of all networks, is now an essential tool that is used to exchange data, to communicate, to search for information, to effect purchases or to educate oneself. 67% of Luxembourg homes had a computer in 2004. In Luxembourg, 59% of households were connected to the Internet in 2004, compared to 45% in 2003. Based on the 2004 rate, Luxembourg is above the European average. The high speed (DSL) connection rate was 16% in 2004 (compared to 7% in 2003); the average high speed connection of the Community was also about 16% in 2004. High speed connections have been showing an increase since 2001 – the year during which only 1% of Luxembourg homes were connected by DSL – while ISDN connections have remained the same. The European Council of Brussels also decided in December 2003 to work for the increase of broadband and high speed communications which should reach one-half of Internet connections in 2005.

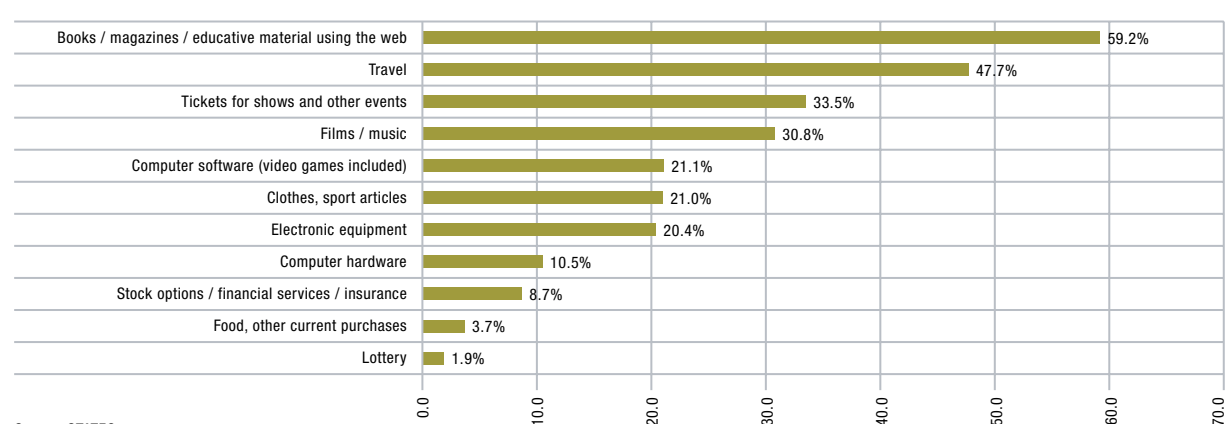
As for general use of the Internet by individuals, Luxembourg has 59% of regular users – the percentage of people who go onto the Internet, on average, once a week – above the EU-15 average of 43%. The difference compared to Nordic countries is, however, still significant. With 32% of individuals who have traded on the Internet (the percentage of private individuals who have, over the past three months, ordered/bought goods or services for their personal use through the Internet), Luxembourg is amongst the top countries of the EU (21%). It should be noted that the rate of private individuals who have traded on the Internet was only 13% in 2002 and 18% in 2003 in Luxembourg and it has therefore increased significantly in 2004.

Households in Luxembourg use the Internet, above all, for communicating (91%), followed by looking for information on goods and services online (81%), relations with public authorities, i.e. looking for information on public authorities (55%), purchases and sales of goods and services and banking operations (53%) and, finally, training and education via the Internet (21%). The main types of purchases carried out in Luxembourg (see graph 3.4.3) are for books/magazines (59%), travel (48%), tickets for shows or other events (34%), and films or music (31%).

In addition, a strong correlation is noted between antivirus protection and the proportion of individuals trading electronically. In Luxembourg, the rate of individuals that have taken precautionary measures relating to computer security is high (see table 3.4.2). At the other extreme are Portugal, Greece and Ireland. The rate of use of e-commerce shows the effect of this.

Graph 3.4.3

Purchases on the Internet for private use in the last 12 months in Luxembourg (2004)



Source: STATEC

As far as the decision to become an Internet user is concerned, the results of a 2003 STATEC study (DI MARIA, ALLEGREZZA, 2003) bring to the fore a social numerical split, rather than a numerical split linked to age or to sex: people at home (which are mainly women, but the female variable is not significant when replaced by the home variable) and retired people (who are elderly persons, but age-linked variables are not significant) are, all other things being equal, people who are less likely to be/become Internet users. It seems, therefore, that people do not go to the Internet, but, conversely, people come across the Internet in their active life. The equipment and knowledge of the tool are prerequisites to using it. Internet users are generally self-taught, but the higher the level of education, the more likely it is that the person will be an Internet user. Lastly, those aged between 25 and 29 years old more often tend to be Internet users.

In Europe, the use of the Internet by companies differs depending on the size and/or geographical location. According to the EUROSTATS data (for 2003, excluding companies of less than 10 employees), small- and medium sized businesses are less connected to the Internet than large companies. By way of illustration, only 84% of small- and medium sized businesses in the EU-15 have access to it, while, for companies with more than 250 employees, the average is 99% in the same zone. It is among the companies of Nordic countries that the Internet is most widespread. In Finland and Sweden, the rate of access to the Internet of companies is 98% and 95% respectively, while in Portugal only 71% of companies are connected. With a rate of 86%, the access to the Internet of Luxembourg companies is close to the average for the EU-15.

It should also be noted that "high speed" connection is more widespread among companies than in homes. In 2003, 46% of Luxembourg companies had a high speed connection to the Internet (compared to 41% in the EU-15).

E-commerce opens doors to the international market. It allows a wider range of potential customers to be reached without taking account of the limitation of space. This advantage is even more beneficial for small- and medium-sized businesses, allowing them thereby to compete with the large companies and to expand distribution of their products to an international market. By breaking down e-commerce into purchases and sales made by companies (see graph 3.4.6), it is found that companies from the majority of European countries use the Internet to make purchases rather than to sell their products.



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ALLEGREZZA Serge, DI MARIA Charles-Henri (2003), *Utilisations et utilisateurs d'Internet au Luxembourg. A la recherche des facteurs déterminants*, Note de Conjoncture du STATEC, n° 2/2003, pp. 81-93
www.STATEC.lu/html_fr/statistiques/note_de_conjoncture/ndc2_2003.pdf

Table 3.4.4

The main results of the household ICT survey 2003 and 2004

		2004	2003
The computer environment	% of private individuals using the Internet in the 3 months preceding the survey	65%	53%
	% of private individuals using the Internet regularly (at least once a week)	59%	48%
	% of households with access to the Internet	59%	45%
Places of access	Internet café	3%	4%
	school, university, etc.	11%	19%
	at home	90%	82%
	at work	41%	49%
Internet uses	order or purchase of goods and services for their personal use	32%	18%
	sending and receiving emails	91%	90%
	looking for information on goods and services	81%	88%
	reading and downloading games and music	44%	33%
	e-banking	53%	44%
	reading/downloading papers online	43%	42%
	request for information from public authorities	55%	47%
Electronic security	% of private individuals who have updated security systems on computers during the last three months	52%	30%
	% of private individuals who have used an online authentication system (password, PIN, digital signature on the Internet)	36%	22%
	% of private individuals who have installed an antivirus programme during the past three months	58%	31%
Security problems encountered	fraudulent use of payment cards	0.6%	1.5%
	computer virus involving the loss of information or of time	50%	25%
	misuse of personal information sent on the Internet	10%	4%

Source: STATEC

Luxembourg (with 14% for purchases and 11% for sales) is above the average of the EU-15 (12% and 7%, respectively) in 2003. The front runners are Sweden with 23% for purchases and Holland with 19% for sales. At the other end, Spain and Italy share last place with 3% for purchases via the Internet, as well as 1% and 2% respectively for sales.

The determining factors for the distribution of e-commerce in companies are complex. A study published in STATEC's publication "Economie et statistiques" ["Economy and statistics"] (ALLEGREZZA, 2004) attempts to grasp the impact of the business cycle situation observed by a sample of company managers in 2002 and that expected for 2003 replying to the "Eurochambres" survey of the Luxembourg Chamber of Commerce.

The survey took place after the bursting of the "new economy" bubble. The results of the econometric analysis suggest that it is expectations that guide the adoption of e-commerce as a new means of distribution of goods and services, but the business cycle variables are not statistically significant.

A third major point of the "eEurope" initiative concerns online public services. According to the Fontagné report "*electronic management is a resource that public authorities use to improve the efficiency with which they serve the public*" and "*through information and communication technologies, public services can both reduce their operating costs considerably and improve the quality of the services provided*" (FONTAGNÉ, 2004).

As part of the benchmarking used to assess the impact of the "eEurope" action programme, two basic indicators have been established. The first indicator measures the degree of sophistication of the basic public services available online (CAPGEMINI, 2005). These public services are divided into two categories (citizens and companies) and subdivided into about twenty subcategories. For citizens, this involves income tax, looking for work, social security contributions, personal documents, vehicle registration, building permits, statements to the police, public libraries, birth and marriage certificates, registration in higher education, announcement of changing address, and health services.

Table 3.4.5

Internet in companies in 2003

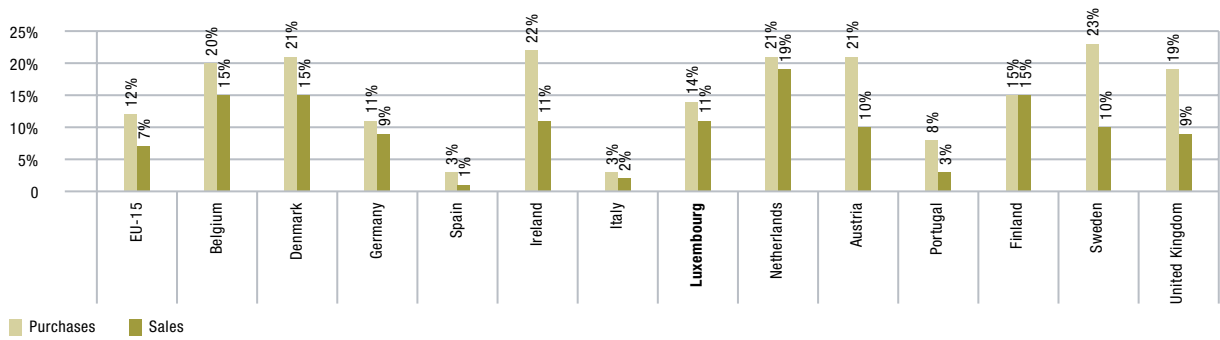
	EU-15	BE	DK	DE	EL	ES	IE	IT	LU	AT	NL	PT	FI	SE	UK
Access rates of companies to the Internet	84%	92%	98%	85%	87%	84%	86%	83%	86%	90%	86%	71%	97%	95%	81%
High speed connection rates of companies	41%	51%	75%	46%	...	54%	20%	33%	46%	51%	39%	27%	69%	64	30%

Source: EUROSTAT

... = not available

Graph 3.4.6

Purchases and sales made via the Internet by companies in 2003



Source: EUROSTAT, data not available for France and Greece

For companies, the following areas were used: social security contributions, corporate tax, VAT, new company registration, submission of data to the national office of statistics, customs declarations, licences linked to the environment and public purchasing. The assessment grid contains 5 levels: Level A0 (0 – 24%) no site or no practical use, Level A1 (25 – 49%) purely informative site, Level A2 (50 – 74%) site with unilateral interaction, Level A3 (75 – 99%) site with bilateral interaction and Level A4 (100%) site with total interaction, without needing additional "off-line" interaction.

The degree of sophistication of Luxembourg public services is 53% in October 2004, which places the Grand Duchy in last place in Europe. Luxembourg has, however, made significant progress between 2001 and 2004: the degree of sophistication went from 15% in 2001 to 53% in 2004, i.e., after Austria and Belgium, the biggest increase during that period. This development has allowed Luxembourg to move closer to Germany (66% degree of sophistication in October 2004), Greece and Switzerland (55%). Luxembourg is, however, still a very long way off the scores achieved by Sweden, Austria, the United Kingdom, Ireland or Finland (see graph 3.4.7).

A second indicator measures the percentage of public services wholly available online, i.e. those having reached level A4 of the services analysed for the "*Percentage of sophistication of basic public services available online*" indicator. This involves sites with total interaction, without needing additional "off-line" interaction. The aggregated indicator of public services wholly available online is calculated through the ratio between the number of public services wholly available online and all of the online public services analysed. This indicator also shows Luxembourg in last place in Europe, despite the progress from 2001 to 2004, years in which the percentage of public services wholly available online in Luxembourg went from 5% (October 2001) to 20% (October 2004). It should be noted that in Sweden (top of the list), 74% of public services are wholly available online in October 2004 (see graph 3.4.8).



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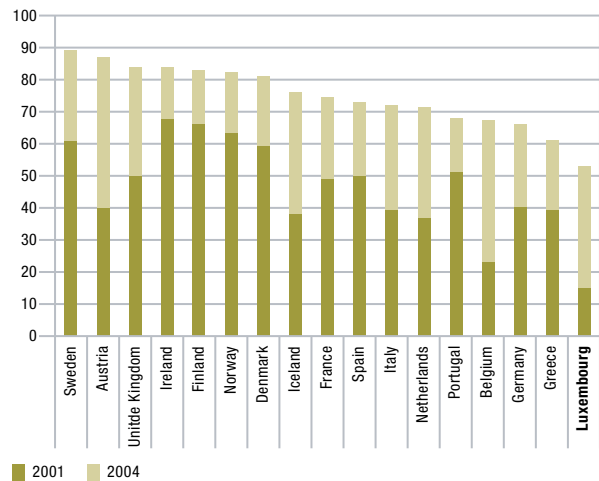
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Graph 3.4.7

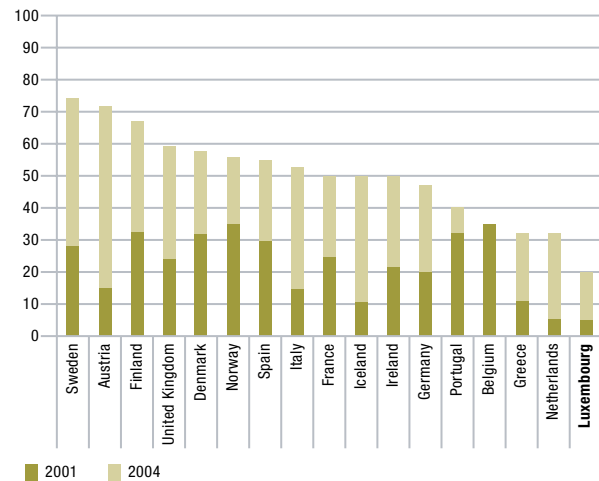
Online sophistication of public services, 2001-2004



Source: CAPGEMINI (2005)

Graph 3.4.8

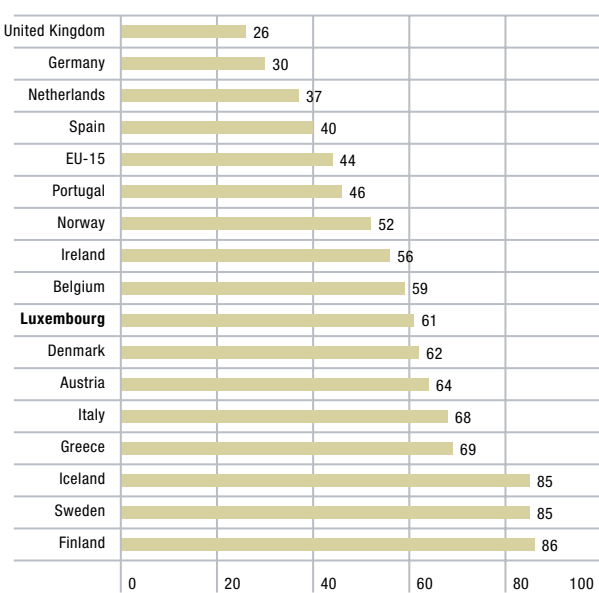
Full availability online of public services, 2001-2004



Source: CAPGEMINI (2005)

Graph 3.4.9

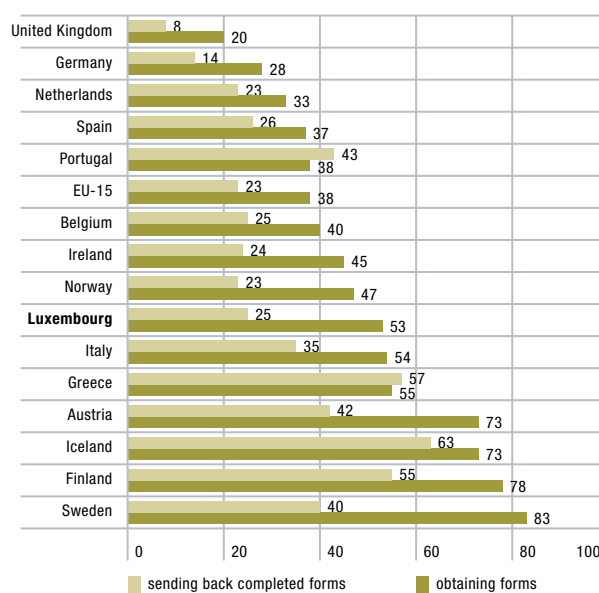
Percentage of companies that found information on Web sites of public authorities in 2003



Source: EUROSTAT (2005)

Graph 3.4.10

Percentage of companies that interacted with public authorities, by type of interaction, in 2003



Source: EUROSTAT (2005)

The two indicators mentioned above only involve the supply of online public services. The indicators for demand or use of public services online make it possible to qualify the unfavourable report for Luxembourg which emerges from the "sophistication indicator" (which is in fact an indicator of the sites' "technicality"). In 2003, 61% of Luxembourg companies found information on the sites of public authorities, while only 44% of companies in the EU-15 did so. Finland and Sweden show percentages that are clearly higher than this average. The result for the United Kingdom – where the degree of sophistication of the public sites is relatively high, but where only 26% of companies would have found information on these sites – should be noted. A high level of technicality is not necessarily synonymous with efficiency in the sphere of looking for information.

Besides looking for information, downloading and sending back forms constitute the two other levels of interaction with the public authorities. As for the percentage of companies that have interacted with public authorities, it is noted that Luxembourg is slightly above the European average. However, the low level of sophistication of Luxembourg's public sites plays a significant part in this area. Whereas 53% of Luxembourg companies interacted with public authorities in 2003 by downloading forms (38% in the EU-15), the percentage of companies that sent back forms electronically is only 25% in Luxembourg (which is only slightly higher than the European average of 23%).

Since the year 2003, the World Economic Forum has published a composite index called "Networked Readiness Index" (NRI). This index is based on three linchpins or sub-indexes. The first linchpin – "Environment Component Index" – picks up the regulatory and legislative environment, as well as the infrastructures which are at the heart of the development of the ICTs. The second linchpin – "Readiness Component Index" – takes into account the levels of preparation of the main agents of the national economy (companies, citizens and government) to use the potentialities of the ICTs (access of companies and citizens to the ICTs, availability of online public services, etc.).

The third linchpin – "Usage Component Index" – concerns the effective use of the ICTs by companies, citizens and the State and, in particular, the degree of propagation of e-commerce. In the 2004 NRI, published in the Global Information Technology Report 2004-2005 (WORLD ECONOMIC FORUM, 2005), Luxembourg is in 17th place out of the 104 countries analysed. In the comparison with European countries, it would be in the middle. According to the NRI, the Nordic countries would do much better than Luxembourg (which the EUROSTAT indicators also suggest). But on the other hand, Luxembourg would be better positioned than countries such as France, Belgium, Ireland, Austria, Spain and Portugal.

Table 3.4.11

Networked Readiness Index 2004 (NRI – 2004, World Economic Forum, 104 countries taken into consideration)

1	Singapore	1.73	17	Luxembourg	1.04
2	Iceland	1.66	18	Israel	1.02
3	Finland	1.62	19	Austria	1.01
4	Denmark	1.60	20	France	0.96
5	United States	1.58	21	New Zealand	0.95
6	Sweden	1.53	22	Ireland	0.89
7	Hong Kong	1.39	23	United Arab Emirates	0.84
8	Japan	1.35	24	Korea	0.81
9	Switzerland	1.30	25	Estonia	0.80
10	Canada	1.27	26	Belgium	0.74
11	Australia	1.23	27	Malaysia	0.69
12	United Kingdom	1.21	28	Malta	0.50
13	Norway	1.19	29	Spain	0.43
14	Germany	1.16	30	Portugal	0.39
15	Taiwan	1.12
16	Holland	1.08			

Source: World Economic Forum (2005)

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see the "benchmarking" results of the eEurope 2002 and eEurope 2005 action plans
www.europa.eu.int/information_society/eeurope/2005/all_about/benchmarking/index_en.htm
www.europa.eu.int/information_society/europe/2002/benchmarking/index_en.htm

Information Society (European Commission site)
www.europa.eu.int/information_society/index_fr.htm
Information Society and Media Directorate-General (European Commission)
www.europa.eu.int/comm/dgs/information_society/index_en.htm
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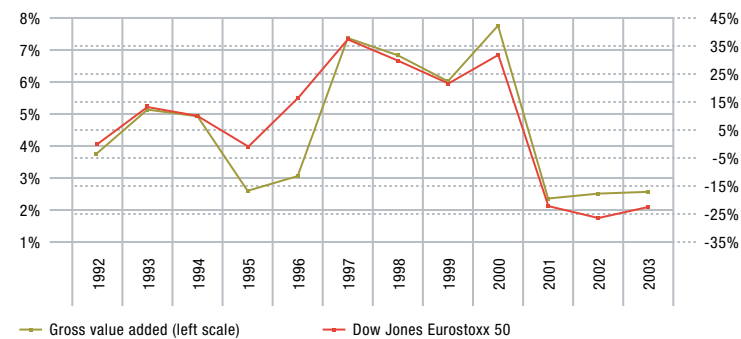
Stock market indices and economic growth

The Luxembourg economy is characterised primarily by the predominance of its financial services sector, which represents approximately 30% of the total value-added in 2003. According to the CPIS survey (Coordinated Portfolio Investment Survey) conducted by the IMF, Luxembourg was the fourth-largest creditor and the seventh-largest debtor with regard to cross-border portfolio investments in 2002. How does the Luxembourg finance sector react to the international financial environment? Is it heavily dependent on the international environment? Do the other sectors of the economy, which also partly depend on the financial sector, also feel the influence of the financial markets? Is Luxembourg different from other European countries in that respect?

It is possible to use stock market indices to evaluate the international financial environment quantitatively. The indicator chosen here is the Dow Jones Eurostoxx 50, a reference European stock market index, consisting of a basket of 50 European equities. It can be traced back as far as 1986 in the Eurostat database. STATEC has performed regressions between value-added in volume terms and this stock market index (deflated by the prices of GDP), for several European countries. It appears that countries for which the "stock market index" variable appears most relevant in explaining the development of value-added in volume terms are the Netherlands, Luxembourg and Portugal.

For Luxembourg, the correlation is particularly interesting from 1992 onwards if we set it within a "dynamic" vision. From that date onwards, a revival (or slump) in stock market indices corresponds to a revival (or slump) in terms of value-added, with the exception of 2002. In the graph 3.5.1, the two curves – growth in value-added in volume terms and change in the Eurostoxx 50 index – are relatively well superimposed, albeit with a slight divergence in the period 1996-97. It is also evident that the downturn in the business cycle in 2001, which had a considerable influence on Luxembourg growth, is shown very clearly in the stock market indices. These results suggest strongly that the Luxembourg economy, not just the financial sector (even if there is no reason to challenge its influence on the other sectors) is strongly linked to the international environment.

Graph 3.5.1
Stock market indices and growth in gross value added (GVA) in Luxembourg



Source: STATEC, EUROSTAT

This observation will not come as a surprise to anyone, given that Luxembourg is a small country whose economy is open to the outside world. On the other hand, what does appear more interesting is the use of stock market indices to assess the status of the business cycle. Obviously, these have an impact on the performance of the financial sector, but also provide a wealth of information on all economic sectors. They are the result of an almost infinite quantity of variables that affect each other via "virtual equations" of unimaginable complexity. Admittedly, they incorporate economic indicators, but also reflect political, strategic or even sociological information. Moreover, they are situated in a three-dimensional temporal environment: past (observations), present (current events) and future (expectations). Therefore, by their nature they are supra-synthetic indicators.

It may prove useful, particularly in the case of Luxembourg, to consider this type of indicator to assess the environment of the business cycle, in parallel with forecasting models or even by implementing them in these models. If we want to make a "direct" forecast, i.e. on the very strong hypothesis that the evolution of stock market prices determines that of value-added, we are looking at a "coincident" type indicator. In other words, we cannot make a forecast for 2005, because we have no information on how stock prices will evolve in 2005. Working on the hypothesis that they would stabilise at September 2004 levels for the rest of the year 2004, this would lead to an increase in stock market indices of the order of 12% in 2004.

If this value is carried into the graph above, that would correspond to growth nearing 5% in volume for Luxembourg value-added for 2004. This result, given the strength of the underlying hypotheses, remains closer to extrapolation than a genuine forecast established in the proper way, and cannot replace such a forecast.

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3.6

International business cycle indicators: their forecasting capability for the Luxembourg economy

International business cycle indicators are qualitative indicators based on opinion surveys among large groups of economic players, such as consumers, company CEOs, financiers, etc. The reason these indicators are useful is the absence of recent (real-time) data on economic activity in Luxembourg. As a consequence, it may be useful to apply indicators that have a correlation with the current development of the Luxembourg economy, particularly lagging or coincident indicators, or for the future trend via leading indicators.

There are many international business cycle indicators, like those used by the European Commission (economic climate indicators and business cycle indicators), IFO (Institut für Wirtschaftsforschung, ZEW (Zentrum für europäische Wirtschaftsforschung – Konjunkturerwartungen), the Belgian National Bank (BNB), the OECD (eurozone and Luxembourg) or the Purchasing Managers Index (PMI) of the Institute of Supply Management (ISM). However, according to the study conducted by STATEC (SINNER, 2004), there are a number of indicators that are more strongly correlated with the real evolution of the Luxembourg economy, particularly the economic climate indicator of Luxembourg industry used by the European Commission (lagging or coincident) the IFO indicator (leading over a quarter) and the OECD eurozone indicator (leading over two quarters).

These indicators are devised from the results of business cycle surveys. They relate to several items of technical data, such as production, order levels, stock levels of finished products, employment and salaries, demand, suppliers' delivery times and price levels.

The questions may relate either to recent activity, or to prospects for development, and the majority of them call for a negative (-), positive (+) or unchanged (=) response. In the majority of cases, it is only the balance of the positive and negative responses that are taken into account, as unchanged responses are treated as invalid. So, by way of illustration, of 30 positive, 20 negative and five unchanged responses, the balance would be 10 (30-20=10). The indicator represents the weighted average of the balances of the various responses.

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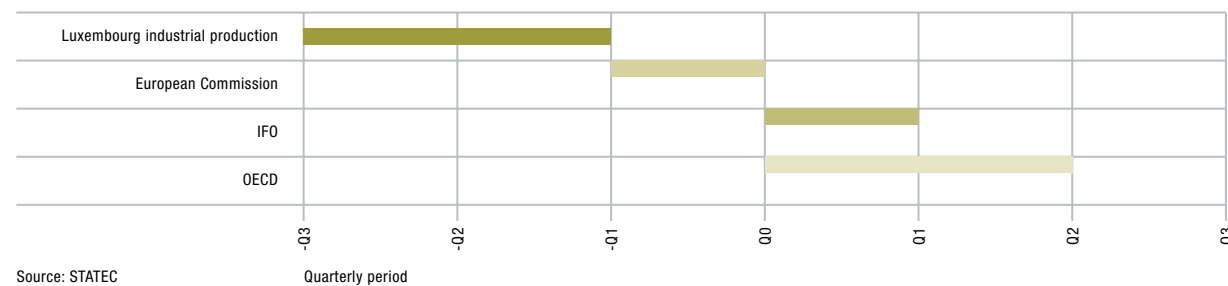
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Graph 3.6.1

Time lag between the information and the data being available



Source: STATEC

Quarterly period

For the European Commission's economic climate indicator, the questionnaire relies essentially on three items of technical data, i.e. on the status of order books, the total stock of finished products and the outlook for production, relating to Luxembourg industry. This indicator will provide information on the expectations for Luxembourg industrial production over the previous three months (see graph 3.6.1).

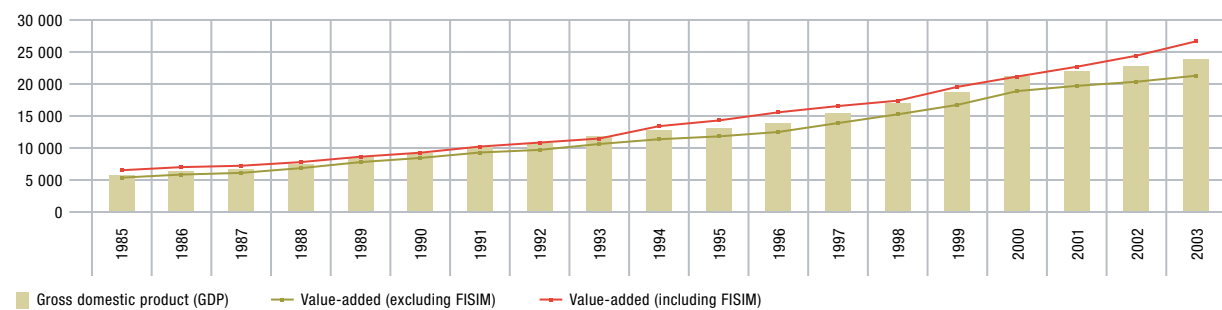
The IFO indicator, where the questions relate to expectations concerning the level of production, prices, orders and stocks over the coming six months, measures the economic development of Germany over the same period. It enables forecasting with relative accuracy of Luxembourg industrial production two to three months in advance.

Finally, the OECD indicator for the eurozone consists of several indicators, such as orders, stocks, confidence indicators, stock market indicators, interest rates, new car registrations, etc. for each country in the zone. This indicator enables forecasting of Luxembourg industrial production six months ahead, with acceptable margins of error.

To summarise, if we are in period Q0 (see graph 3.6.1), we only have real information on Luxembourg industrial production up to the third month preceding today's date (i.e. up to -Q1). To compensate the lack of information between the last three months (-Q1) and today (Q0), we can use the European Commission's indicator. The IFO indicator provides reliable indications about the evolution of Luxembourg industry over the next quarter (Q1) and finally the OECD indicator offers a relatively accurate picture of the evolution over the next six months (Q2).

GDP, value-added and FISIM: the case of Luxembourg

Graph 3.7.1
GDP and value-added, 1985-2003 (in millions of euro)



Source: STATEC

GDP (Gross Domestic Product) is the aggregate that synthesises the final result of the generation of income on the economic territory by resident units. It can be viewed in three ways:

- Production viewpoint: GDP is equal to the total of gross value-added of the various institutional sectors or various branches of business, plus taxes minus subsidies on products;
- Expenditure viewpoint: GDP is equal to the total of domestic end-use of goods and services (actual final consumption, gross fixed capital formation, inventory change), plus exports, minus imports;

→ Income viewpoint: GDP is equal to the total of primary income generated during the production process (compensation of employees, taxes on production and imports minus subsidies, earnings before interest, taxes, depreciation and amortization).

In Luxembourg, a particularly important component of GDP is formed by financial services. Treatment of financial services by national accounting, and specifically the evaluation of the production of financial intermediation services, as well as its breakdown among users, poses particular problems. (ORIGER, MICHAUX, 2004).

The SNA 1993 (United Nations System of National Accounts) makes a distinction between two types of production by financial intermediaries:

- directly invoiced services, such as commissions on foreign exchange transactions, investment advice, holding accounts, custody of securities, portfolio management, domiciliation, rental of strong boxes, etc. This production is valued, like most other services in the economy, based on amounts invoiced;

→ financial intermediation services indirectly measured by the difference between property income received and debit interest on third-party deposits (FISIM). The main production by financial institutions is financial intermediation, i.e. the collection of funds from depositors, and their conversion into loans. This production is not invoiced directly and is therefore measured, by convention, as equal to the total property income received by the banks minus the total interest paid out.

At the heart of this analysis is the principle whereby the creation of financial instruments, as such, does not generate value-added. By way of example: a bank accepts deposits by households for an amount X and makes this sum available to businesses. The banks liabilities increase by the same amount as its assets. So the creation of financial assets "Transferable deposits" and "Loans" does not generate any value-added.

On the other hand, these positions have different compensation terms, as the interest paid out by the bank on households' deposits is lower than the interest that it charges on loans. The appropriateness of incorporating this interest differential into the sequence of accounts of financial companies has been the subject of much discussion.

Economic theory considers that interest flows are, by their nature, property flows: they reward the provision of funds. In this capacity, they come under the heading of distribution of value-added. If the interest were considered as generating value-added, all sectors would become producers of services. The compilers of the national accounts solved the problem by emphasising the specific nature of financial intermediation: the intermediary takes on an exposure by taking on commitments in its own name, by means of the funds collected. In so doing, it is providing a service, i.e. the conversion of preferences, rewarded by the interest differential.

The conversion of maturity and risk preferences is therefore the element that generates the value-added. The interest differential merely measures indirectly the service provided by the financial intermediary.

In the system of national accounts, in the account of goods and services, all production must be allocated. The equation below must be verified for all goods or services:

Production + imports = Intermediate consumption (of productive branches) + final consumption (households, public and private administrations) + gross capital formation (gross fixed capital formation and inventory variations) + exports.

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Table 3.7.2

Value-added, FISIM and GDP (in millions of euros)

	1998	1999	2000	2001	2002	2003
From margin on interest to FISIM (financial intermediation)						
Interest and dividends received (NA concept)	26 476.0	25 113.5	33 432.8	33 538.4	26 783.9	21 145.2
- Interest paid out (NA concept)	-23 096.7	-20 969.3	-29 695.3	-29 061.8	-21 099.5	-15 279.5
Gross margin (NA concept)	3 379.3	4 144.2	3 737.5	4 476.5	5 684.4	5 865.7
- Income on equity	-1 122.0	-1 170.6	-1 401.1	-1 457.1	-1 592.4	-401.4
Financial intermediation services indirectly measured (FISIM)	2 257.4	2 973.7	2 336.4	3 019.4	4 092.0	5 464.3
Gross value added (GVA)						
Gross value added (GVA)						
Agriculture	141.8	144.7	143.3	139.9	139.4	130.3
Industry (including energy)	2 329.1	2 350.1	2 524.6	2 627.6	2 644.9	2 839.9
Construction	1 026.7	1 087.8	1 170.8	1 338.3	1 457.4	1 539.0
Services (including "non-traded" services)	13 974.3	16 042.4	17 365.4	18 591.6	20 187.7	22 215.8
- Financial intermediation services indirectly measured (FISIM)	-2 257.4	-2 973.7	-2 336.4	-3 019.4	-4 092.0	-5 464.3
Value added: total of branches	15 214.5	16 651.2	18 867.7	19 678.0	20 337.3	21 260.7
From value-added to GDP						
Value-added: total of branches	15 214.5	16 651.2	18 867.7	19 678.0	20 337.3	21 260.7
+ Taxes on products	1 976.5	2 265.7	2 603.4	2 580.7	2 710.9	2 942.0
- Subsidies on products	-183.5	-177.9	-192.6	-238.9	-242.8	-246.8
Gross Domestic Product (GDP)	17 007.5	18 739.1	21 278.5	22 019.8	22 805.5	23 955.9

Source: STATEC (National Accounts; NA concept = National Accounts concept)

For directly invoiced goods and services, the statistical sources normally allow more or less precise allocation to the various users and the ultimate purpose of their use (intermediate consumption or end-use, i.e. final consumption, gross capital formation or exports) as these costs appear directly in the spending on goods and services by the sectors/branches concerned.

This is not the case for the production of financial intermediation (FISIM) which is rewarded indirectly by interest flows. Two questions arise: who consumes the production of financial intermediation: the creditor, the debtor or both? And which statistical method should be used to allocate the production of financial intermediation among the various users?

For statistical reasons, until the mid-1990s, the international systems of national accounting SNA (United Nations System of National Accounts) and ESA (European System of Accounts), did not allocate FISIM to the users of these services. It was therefore accepted (for reasons of statistical simplification) that all this production is consumed by all the other sectors/branches of the economy or rather a notional branch/sector (therefore as intermediate consumption), which has the consequence that the effect of FISIM on the total of value-added or GDP is zero.

The revised SNA of 1993, while leaving the choice to the countries, nevertheless recommends allocating FISIM to the various uses. The revised ESA of 1995, which is the European version of the SNA of 1993, however, does not leave the choice to the countries. After lengthy discussions in the technical working groups of Eurostat and the Council (under the Luxembourg Presidency), the principle of allocation of FISIM was adopted at the beginning of 1998, and the method of allocation of FISIM was adopted in 2002 after a period of trial calculations. The date of implementation of the new methodology was set at 1 January 2005, and the period for the retroactive calculations will start with the reference year 1995. The FISIM will therefore be incorporated during 2005 into the calculation of GDP and the value-added, which will have the effect of a significant increase in the level of Luxembourg's GDP.

In other words, the national accounting conventions used until now do not allow the relative share of financial institutions in the total value-added or in GDP to be established correctly. The traditional ratios of value-added/total value-added or value added/GDP overestimate the sector's role, while the subterfuge of not taking account of FISIM to determine the total of value-added underestimates the sector's role.

The question of accounting for FISIM does not just have an accounting aspect. The transition from an industrial to a services society must lead to a process of reflection on the nature and the accounting for services provided by businesses in this post-industrial society, in particular in specific, highly dynamic segments such as financial services (MEIER, 2001).

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Prices and price levels: international comparisons

Overall and long-term, inflation in consumer prices and wages in Luxembourg has not diverged fundamentally from that of its major trading partners, i.e. Belgium, France, Germany and the Netherlands. The small size of the country and the degree of openness of the economy mean that inflation is largely imported, which explains the parallelism. The striking events during the past 30 years included the oil shocks of 1974 and 1979, the rise in the US dollar in the years 1980-1985, the oil-price slump in 1986-1987 and the overheating in Germany in 1991/1992 following reunification.

Starting from the second half of 1999, inflation in Luxembourg accelerated, mainly due to the effect of higher oil prices. In 2000, the rate of inflation largely exceeded that of neighbouring countries and remained higher than the average of the EU-15 (and the eurozone) in 2001. It was soon concluded that Luxembourg had "fallen out of step with inflation in the eurozone" (BCL, 2000).

Moreover, as always in Luxembourg during a period of accelerating inflation, the issue of automatic index-linking, which provides for automatic pay rises to reflect the cost of living, was back on the agenda. It is worth noting that from 1965 onwards, all collective bargaining agreements had to contain an index-linking clause, and the system was made universal by a law in 1975.

It is feared that this system was responsible for a "self-ignition" phenomenon, whereby consumer price inflation is maintained by automatic index-linking of wages to increases in consumer prices.

Some people think that in the event of an exogenous shock (e.g. an oil shock) on consumer prices, the index-linking mechanism could cause more inflation than a wage-formation system based only on negotiation, at least in the short term. A recent study (ADAM, DA COSTA, 2002) led to the identification of 24 prices that were highly sensitive to index-linking, as they account for 15.6% of the total weighting of the consumer price index (IPCNI).



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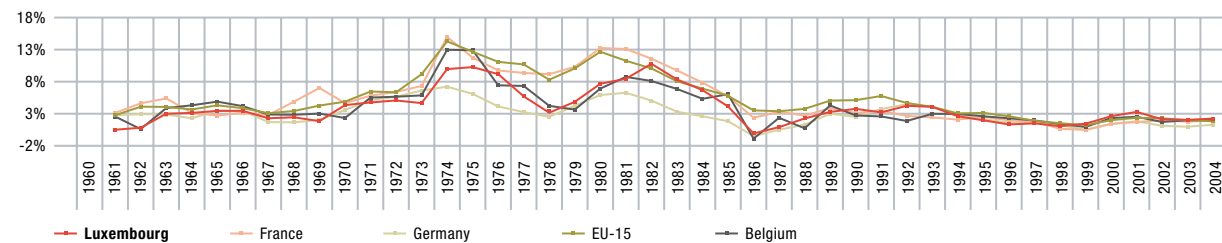
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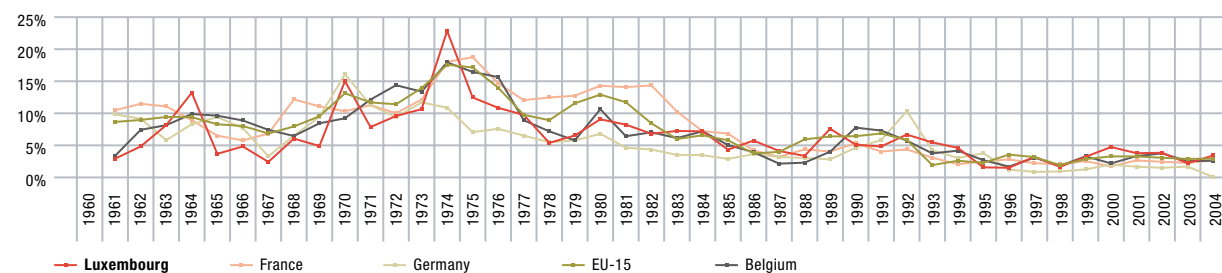
Graph 3.8.1

Rate of inflation (consumer price index), 1960-2004
(annual change in %)



Graph 3.8.2

Change in average nominal wage costs, 1960-2004
(annual change in %)



Source: European Commission (AMECO)

In the short-term (within one year), these prices generated an additional increase in inflation of 0.11 percentage points to 0.21 points. By way of comparison, the scale of the maximum direct impact is slightly higher than monthly inflation measured as an average between 1999 and 2001 (average monthly inflation between January 1999 and December 2001 was 0.16%). In other words, inflation of 0.21% is equivalent to 1/12th of an annual inflation rate of 2.5%. However, overall, the international comparison led to the conclusion that there is no evidence of higher inflation in Luxembourg for goods that are sensitive to index-linking of salaries. In addition, if we refer to the overall price indices and in the light of annual inflation rates, it does not appear that Luxembourg has experienced higher inflation over the decade 1990-2000.

This fact is even more remarkable since in other countries where growth was strong, such as Spain and Ireland, inflation rates were much higher during the 1990s. On an annual average during the period 1991-2000, the deflator of private consumption (established on the basis of national accounts) exceeded 4% on these two countries, whereas it was only 2.4% in Luxembourg and 2.9% in the eurozone countries.

Since January 2000, STATEC has been drawing up a national consumer price index (NCPI) as well as the harmonised consumer price index (HCPI). For the HCPI, the weightings have been established on the basis of consumption on national territory since 2000 (previously, the data was identical to that of the NCPI). This means that in the case of the HCPI, consumption by non-residents on Luxembourg territory is taken into consideration.

However, consumption by non-residents has very special characteristics: a preponderance of purchases of fuel and tobacco, no rent, etc. This does not pose any problem for the other European Union countries. But, in the case of Luxembourg, which is characterised by its small geographical size, a high number of cross-border workers and a sizeable flow of persons in transit on its road network, the results of the HCPI are heavily biased (for the HCPI, see: EUROSTAT 2001 and 2002).

Table 3.8.3

Harmonised consumer price indices (HCPI), 1996-2004

Country	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average 1996-2004
Belgium	1.8	1.5	0.9	1.1	2.7	2.4	1.6	1.5	1.9	1.7
Denmark	2.1	1.9	1.3	2.1	2.7	2.3	2.4	2.0	0.9	2.0
Germany	1.2	1.5	0.6	0.6	2.1	1.9	1.3	1.0	1.8	1.3
Greece	7.9	5.4	4.5	2.1	2.9	3.7	3.9	3.4	3.0	4.1
Spain	3.6	1.9	1.8	2.2	3.5	2.8	3.6	3.1	3.1	2.8
France	2.1	1.3	0.7	0.6	1.8	1.8	1.9	2.2	2.3	1.6
Ireland	2.2	1.2	2.1	2.5	5.3	4.0	4.7	4.0	2.3	3.1
Italy	4.0	1.9	2.0	1.7	2.6	2.3	2.6	2.8	2.3	2.5
Luxembourg					3.2	2.7	2.1	2.0	2.2	1.9
*NCPI					3.8	2.4	2.1	2.5	3.2	2.1
**HCPI	1.2	1.4	1.0	1.0	3.8	2.4	2.1	2.5	3.2	2.1
Netherlands	1.4	1.9	1.8	2.0	2.3	5.1	3.9	2.2	1.4	2.4
Austria	1.8	1.2	0.8	0.5	2.0	2.3	1.7	1.3	2.0	1.5
Portugal	2.9	1.9	2.2	2.2	2.8	4.4	3.7	3.3	2.5	2.9
Finland	1.1	1.2	1.4	1.3	3.0	2.7	2.0	1.3	0.1	1.6
Sweden	0.8	1.8	1.0	0.6	1.3	2.7	2.0	2.3	1.0	1.8
United Kingdom	2.5	1.8	1.6	1.3	0.8	1.2	1.3	1.4	1.3	1.5
EU-15	2.4	1.7	1.3	1.2	2.1	2.3	2.1	2.0	2.0	1.9
Eurozone	2.2	1.6	1.1	1.1	2.3	2.3	2.3	2.1	2.1	1.9

Source: EUROSTAT

* NCPI = National Consumer Price Index;

** HCPI = Harmonised Consumer Price Index

The NCPI differs from the harmonised index in that its weighting continues to rely on consumption spending by resident households only (as to the methodological aspects, see: KERSCHENMEYER, 2003 and graph 3.8.6). Non-residents' consumption of diesel and petrol, as well as tobacco, on Luxembourg territory, is high. This characteristic is connected with the price differential "in favour" of Luxembourg resulting from divergences in tax systems. VAT, excise duties and other taxes are lower in Luxembourg than in neighbouring countries. A recent study by STATEC even shows that an increase in oil prices leads to an increase in the price differential through the differential in VAT and specific duties. An increase in the price differential leads to an increase in the volume of sales in Luxembourg (AISSAOUI, 2005).

The weight of fuel, tobacco and alcohol in the HCPI is therefore much higher than in the NCPI. The graph 3.8.6 indicating the weighting of the HCPI and the NCPI in 2000 and 2004 shows the importance of the weighting of alcohol, tobacco and fuel (transport) in the HCPI and the relatively low weighting of these divisions in the NCPI. Furthermore, given that the weightings are calculated on the basis of total spending on consumption, this graph also shows the impact of the overall consumption of non-residents in Luxembourg. The gap between the HCPI (which includes consumption by non-residents) and the NCPI was 19.6% in 2000, and it reached approximately 25% in 2004 (for spending by cross-border workers in Luxembourg, refer also to chapter 3.9).

The heavy weighting of fuel in the HCPI explains that the oil price shock of 1999 to 2000, and then during part of 2003 and in 2004, had more impact in the HCPI than in the NCPI. The relatively high rate of inflation in Luxembourg at European level in 2003 and in 2004 from the HCPI angle can be explained by the methodology underlying the establishment of the HCPI. With an "NCPI" inflation rate (which is more significant for Luxembourg) of 2.1% in 2002, 2.0% in 2003 and 2.2% in 2004, the Grand Duchy is around the European average. It can be seen that the Netherlands, Belgium and Germany recorded relatively low inflation rates in 2004, while France came in slightly above the European average.

One can also show the data in the form of centred moving averages, a simple smoothing method appropriate for correcting seasonal effects and to show a trend (see graphs 3.8.7 and 3.8.8 indicating the pattern of inflation from 1996 taken from LARUE, 2005). Furthermore, it may be useful to apply the concept of "underlying inflation": this excludes energy and seasonal foods from the calculations. The various "underlying inflation" curves for Luxembourg and in neighbouring countries show a smoother profile than those of the overall index. This is because the data is subject to less interference from the very irregular pattern of petroleum product prices (in other words, the series are less volatile).

From 1996 to mid-1999, Luxembourg experienced inflation that was lower overall than that of the eurozone. Then, up to the start of 2002, it was well above the European average, with the differential being 0.5 percentage points between the two if one considers "underlying inflation", i.e. the index excluding energy and seasonal products. This difference can be explained in particular by the very dynamic economic growth of Luxembourg over the years 1997 to 2000 (8% by volume and on average over that period), a phenomenon which exerted a degree of pressure on prices and wages up to 2001. Thereafter, and until today (the latest data taken into consideration is that for December 2004), the two series have moved closer together again.

For each of the countries represented, it should be noted that inflationary cycles (slowdowns, accelerations) are relatively well synchronised. Differences do appear, however, due to the specific features of each country: let us cite, as an example during the recent period, the price increases connected with health care spending in Germany due to the reform of the refund system in 2004, as well as the very heavy tax increases on tobacco in France since 2003.

For practical reasons, so as not to overload the graphs, other countries in the eurozone were not taken into consideration. However, it is interesting to observe them, because most of them have experienced rates of inflation (see comparative table 3.8.3) and rates of economic growth above the average for this zone. It is necessary to be aware that the aggregate rate of inflation for the eurozone is heavily influenced by a country such as Germany, which has a weight of approximately one-third in the eurozone.



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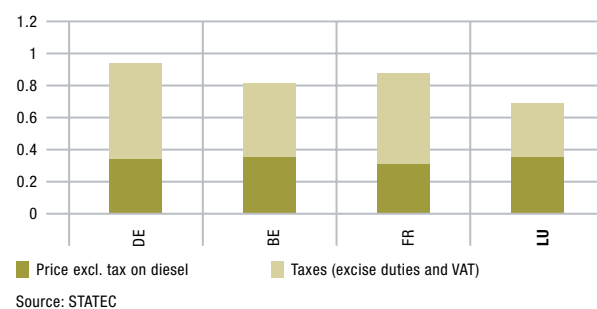
Graph 3.8.4

**Fuel prices at the pump in 2004: Super 95
(in EUR, average for the year 2004)**



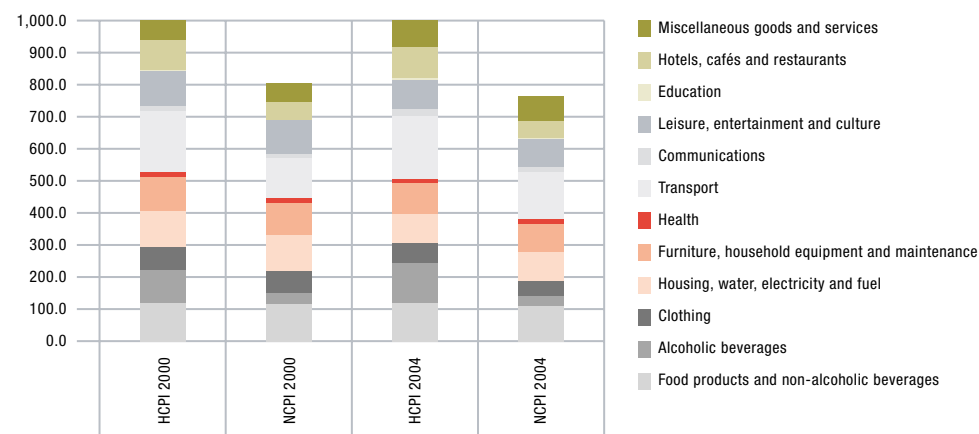
Graph 3.8.5

**Fuel prices at the pump in 2004: diesel
(in EUR, average for the year 2004)**



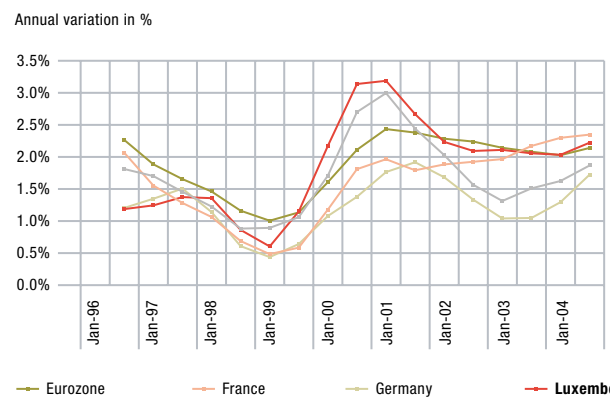
Graph 3.8.6

**Comparison of weightings of HCPI and NCPI in Luxembourg
in 2000 and 2004***



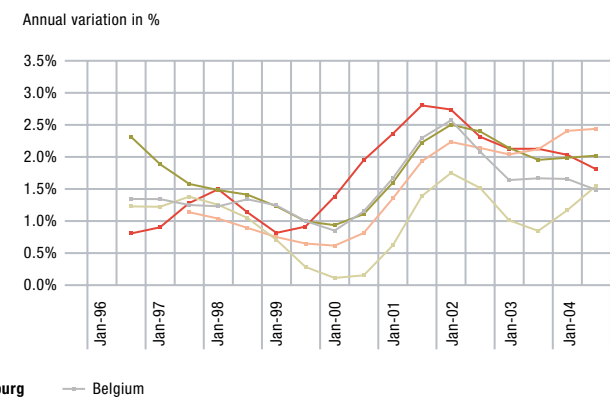
Graph 3.8.7

**Inflation, 1996-2004
(consumer prices, overall index)**



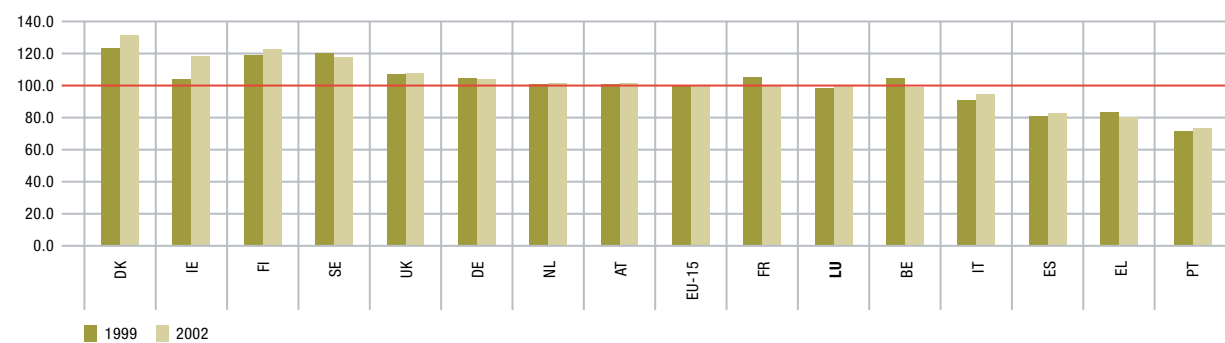
Graph 3.8.8

**Underlying inflation, 1996-2004
(consumer prices, excluding energy and seasonal foods)**



Graph 3.8.9

**Price levels compared in 1999 and 2002
(EU-15 = 100)**



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[www.europa.eu.int/comm/eurostat/newcronos/
reference/display.do?screen=welcomeref&open
=/&product=STRIND_ECOREF&language=en&depth=2](http://www.europa.eu.int/comm/eurostat/newcronos/reference/display.do?screen=welcomeref&open=/&product=STRIND_ECOREF&language=en&depth=2)

However, Germany has been characterised by low economic growth over recent years, particularly because it has to bear the high cost of the reunification process. Growth lower than that of most other eurozone countries is also accompanied by lower inflation.

Over the whole period 1996-2004, Luxembourg has been very close to the average of the eurozone, whether with regard to inflation, for the overall index or for the one which excludes energy and seasonal foods. Among the elements that militate in favour of Luxembourg, one may naturally suppose that the virtually immediate geographical proximity of shops in neighbouring countries has a constraining effect on the prices of consumer goods in the domestic market, although this effect is limited by the opportunity cost of having to travel there.

Prices in Europe can also be compared in terms of level. The price levels compared are the ratio between the Purchasing Power Parities (PPP) and the exchange rates for the market for each country. The ratio is expressed in comparison with the EU average (EU-15 = 100). PPPs are the monetary conversion rates that convert economic indicators expressed in national currencies and in a common currency known as Purchasing Power Standard (PPS), which evens out the purchasing power of various national currencies and enables significant comparisons to be made. While the comparative price level of a country is higher (lower) than 100, the country concerned is relatively expensive (cheap) compared with the EU average.

From 1993 to 1998, the index in Luxembourg was higher than 100. Luxembourg was therefore relatively expensive compared with the Community average. In 1999, there was a turning point and the index fell below the Community average to 98.1. The index remained below 100 until 2002, but it has been increasing since 2002 and reached an estimated value of 99.7 in 2002.

In 2002, Denmark (130.7), Ireland (118.3), Sweden (117.3) and Finland (122.7) had the highest index and were therefore relatively expensive compared with the Community average. With an index of 73.5, 79.7 and 82.4 respectively, Portugal, Greece and Spain are cheap compared with the Community average. Luxembourg occupies a median position.

Table 3.8.10

Price of telecommunications and electricity

Country	Price of telecommunications - National calls ¹		Price of telecommunications - Calls to the United States ²		Price of electricity - Industrial users ³		Price of electricity - Households ⁴	
	1997	2003	1997	2003	1997	2003	1997	2003
BE	2.25	0.56	7.50	1.94	0.0746	0.0764	0.1191	0.1120
DK	0.98	0.66	6.72	2.39	0.0467	0.0697	0.0639	0.0947
DE	2.88	1.22	7.41	1.23	0.0845	0.0697	0.1270	0.1267
EL	3.74	0.77	7.00	2.95	0.0580	0.0614	0.0619	0.0606
ES	3.23	0.88	6.17	1.53	0.0703	0.0528	0.1050	0.0872
FR	2.15	0.96	6.78	2.34	0.0635	0.0529	0.1005	0.0890
IE	2.77	0.82	4.61	1.91	0.0691	0.0762	0.0816	0.1006
IT	2.34	1.22	7.26	2.12	0.0713	0.0826	0.1671	0.1449
LU	0.37	0.31	7.37	1.44	0.0737	0.0675	0.1071	0.1191
NL	0.95	0.49	8.48	0.85	0.0570	...	0.0877	0.0970
AT	3.87	0.67	9.21	3.77	0.0765	...	0.0984	0.0926
PT	3.23	2.53	8.25	2.94	0.0749	0.0673	0.1278	0.1257
FI	0.84	0.88	8.31	4.84	0.0414	0.0566	0.0727	0.0738
SE	0.82	0.30	5.40	1.12	0.0430	0.0666	0.0675	0.0838
UK	1.46	1.13	3.92	3.37	0.0604	0.0539	0.0971	0.0959
EU-15	2.35	1.00	6.63	2.13	0.0679	0.0647	0.1081	0.1034

Source: EUROSTAT (2004), Structural indicators

¹ The indicator gives the price in euro of a national call (200 km, for Luxembourg, obviously less within the limits of national territory) lasting 10 minutes, made at 11 a.m.; on a weekday (including VAT). The prices refer to the month of August of each year. The conversion into euro was made on the basis of the exchange rate for August 2002 for the whole period, in order to reflect the real change in prices and not that of exchange rates. Normal tariffs are used, without special prices: Exchange rates from August 2002 for the whole period.

² The indicator gives the price in euro of an international call (to the United States) lasting 10 minutes, made at 11 a.m. on a weekday (including VAT). The prices refer to the month of August of each year. Normal tariffs are used, without special prices: Exchange rates from August 2002 for the whole period.

³ This indicator gives the prices of electricity invoiced to industrial end-consumers who are defined as follows: annual consumption of 2 000 MWh, maximum power of 500 kW and annual charge of 4 000 hours. The prices are given in euros (excluding taxes) per kWh and are the prices applicable on 1 January of each year.

⁴ This indicator gives the prices which are defined as follows: annual consumption of 3 500 kWh, of which 1 300 kWh at night-time (standard dwelling of 90 m²). The prices are given in euros (excluding taxes) per kWh and are the prices applicable on 1 January of each year.

In the context of the attempts at structural reform in Europe, several EUROSTAT "structural indicators" relate to the development of prices in the field of networks that are liberalized or in the process of liberalisation (telecommunications, electricity and gas). First of all, we observe a fall in prices in the field of telecommunications prices in Europe, and particularly in Luxembourg, where prices are situated below the average in the Europe of 15. As to the price of electricity, industrial users will probably see them fall overall in Europe, if we leave out countries like Sweden, Finland or Denmark; in these countries, price levels were largely below the Community average in the mid-1990s. Electricity prices for industrial users also fell in Luxembourg, but they are slightly above the average for European countries.



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3.9

Expenditure by cross-border workers in Luxembourg

Over 110,000 employees leave home in France, Belgium or Germany to come to work in the Grand Duchy of Luxembourg. During the past 10 years, cross-border workers have played an increasingly important role in the development of the Luxembourg economy. Due to the scale of this involvement, it is essential to pinpoint various aspects of this population and measure the socio-economic impact of the cross-border phenomenon for Luxembourg.

From a statistical viewpoint, it is also a matter of enabling Luxembourg to meet the statistical obligations formulated by European Union bodies. This involves, among other things, estimating in the Grand-Duchy's public statistics (balance of payments and national accounts) the proportion of expenditure made by cross-border workers in Luxembourg. Therefore, STATEC and CEPS/INSTEAD have decided to conduct an in-depth study on cross-border workers.

The first study conducted in 2002 by STATEC and CEPS/INSTEAD on the expenditure by cross-border workers in Luxembourg showed that they spent around EUR 790 million in Luxembourg (SCHULLER, ZANARDELLI, 2003). In 2003, a second survey was organised on the same theme. Two objectives were pursued for this second survey. The first consisted of validating the estimate of cross-border expenditure obtained in 2002: the unprecedented character of this survey – bearing in mind that no information was previously available on the theme of spending by cross-border workers in Luxembourg – required a second estimate, especially as there was no external source to provide such validation. The second objective involved analysing the change in expenditure by cross-border workers between 2002 and 2003, by identifying the items of expenditure that had changed and checking whether this change was identical for cross-border workers residing in France, Belgium and Germany.

The total average spending per cross-border worker estimated for 2003 is very close to that estimated for 2002. It amounted to EUR 7,750 per year (revised data) in 2002 and EUR 7,833 per year in 2003. The average spending by cross-border workers, estimated in current euros, changed very little between 2002 and 2003. This low average variation does, however, mask certain disparities, particularly by country of residence and by the various expense headings.

Table 3.9.1

Change in annual average spending per cross-border worker (in euros) by country of residence between 2002 and 2003

	France	Belgium	Germany
2002	7 916	8 331	6 452
2003	8 125	8 079	6 654

Sources: cross-border surveys 2002, 2003, STATEC, CEPS/INSTEAD

Table 3.9.2

Change in average annual spending (in EUR) by heading and by country – 2002/2003

	All three countries		France		Belgium		Germany	
	2002	2003	2002	2003	2002	2003	2002	2003
Fuel	1617	1673	1581	1613	1590	1638	1761	1892
Shopping	1237	1160	1120	1095	1604	1446	1071	937
Restaurants, canteens and cafés (work)	800	734	785	708	795	766	851	766
Accommodation expenses	209	274	209	299	281	306	109	158
Leisure and culture	151	171	151	163	191	210	95	139
Other expenses	182	231	140	198	260	282	197	254

Sources: cross-border surveys 2002, 2003, STATEC, CEPS/INSTEAD

Note to assist the reader: the grey figures correspond to statistically significant changes.

Between 2002 and 2003, we observe a slight fall in spending by cross-border workers resident in Belgium (-3%) and a slight increase in that by cross-border workers residing in France (+3%) and in Germany (+3%). In terms of levels, differences between average spending are narrowing:

→ French cross-border workers, who were already very close to their Belgian counterparts in 2002, because they only spent 5% less, now spend as much in Luxembourg as Belgian cross-border workers.

→ German cross-border workers, who spent nearly EUR 2,000 per year less than Belgian cross-border workers in 2002, have narrowed the gap considerably. Although the average spending by Belgian cross-border workers in 2002 was almost 30% higher than that of the Germans, the gap was narrowed by 9 percentage points to 21% in 2003.

The stability of average spending per cross-border worker is not reflected at macroeconomic level in view of the significant change (+4%) in the number of cross-border workers between 2002 and 2003. For this reason, the increase in the total expenditure by cross-border workers settled at 5.1%. According to an initial estimate, it rose from around EUR 790 million in 2002 to reach approximately EUR 830 million in 2003. It also corresponds to a little over a quarter of the net salary of cross-border workers.

The stability of the average expenditure of cross-border workers in Luxembourg between 2002 and 2003 is undeniably a guarantee of the quality of the estimates provided by the surveys. So, the objective of validation pursued by this second survey has been attained. Moreover, the spending behaviour of cross-border workers is relatively stable from one year to another.

Few changes have been observed, and where they have, the change concerns a marginal item in overall spending. The question of stability of spending behaviour by cross-border workers should perhaps be raised. The first survey conducted in 2002 highlighted the specific character of the spending behaviour of cross-border workers compared with "conventional" spending behaviour, i.e. taken overall. This is because the spending behaviour of cross-border workers in Luxembourg constitutes only a fraction of their overall spending behaviour. In addition, their decision to buy in Luxembourg results in a complex weighing-up of goods and services acquired in geographically distinct places. More detailed analyses will seek to highlight the determinants of these purchasing decisions.

3.10

Demography:

dynamic growth,

questions of mobility

and housing

Demographic change

The demographic change in Luxembourg from the 1980s is characterised by sustained dynamism. The total population of Luxembourg increased from 363,500 in 1980 to 451,600 on 1 January 2004. The average rate of growth of the Luxembourg economy between 1985 and 2000 exceeded 5%. The average growth of employment was approximately 3.5% per year over the same period. The labour requirements could be met only from beyond the country's borders, i.e. by immigrant and cross-border workers.

It was mainly the net migration that caused the variations in the total balance of change in population. It can also be seen that the curve for net migration is virtually parallel to that of the rates of growth of the economy. The falls in net migration in the mid-1960s and from 1974 to 1982 correspond to the years of economic slowdown. The same scenario (i.e. a reduction in net migration, which nevertheless remains broadly positive) recurred from 2001 onwards (see graph 3.10.1).

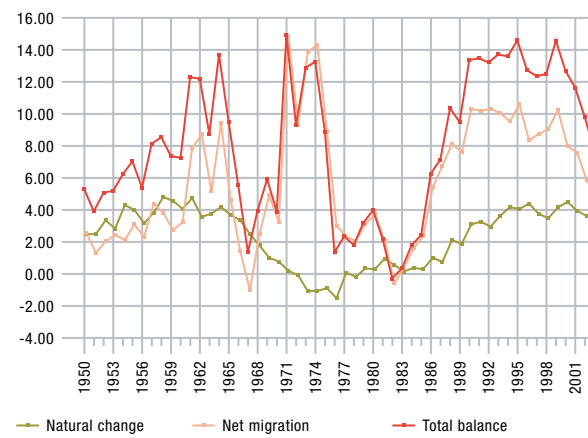
So immigration seems to fulfil a function of damping the effects of the business cycle. This function is often associated with the "rotation" model. In this model, immigration consists of young men living alone, only having short-term contracts, and not settling down for the long term.

In Luxembourg, this model prevailed until around 1965, and was characterised, among other things, by the size of the overall migratory flows (arrivals and departures) denoting a pronounced rotation, concerning particularly Italian workers. From the mid-1960s, there was a change in model which is reflected in the net migration per gender and in the male/female ratio (proportion of male to female immigrants). An increase in female net immigration can be observed, as well as a steady fall in the male/female ratio. In the 1990s, the net migration per gender was virtually identical. In other words, family immigration (particularly by Portuguese) was predominant from the 1970s onwards (LANGERS, 2003).

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Graph 3.10.1
Population change in Luxembourg from 1950 to 2003
(in ‰)



Source: STATEC

Table 3.10.2
Population of Luxembourg by nationality
in 1991 and 2001

	1991		2001	
	Number	Proportion in the overall population	Number	Proportion in the overall population
Total	384 634	100.0%	439 539	100.0%
Luxembourgers	269 269	70.0%	277 254	63.1%
Foreigners	115 365	30.0%	162 285	36.9%
of which Portuguese	39 303	10.2%	58 657	13.3%
French	13 203	3.4%	19 979	4.5%
Italians	19 077	5.0%	18 996	4.3%
Belgians	10 255	2.7%	14 800	3.4%
Yugoslavs*	2 241	0.6%	11 065	2.5%
Germans	8 874	2.3%	10 052	2.3%
British	3 190	0.8%	4 331	1.0%
Dutch	3 361	0.9%	3 692	0.8%
Spanish	2 505	0.7%	2 799	0.6%
Others	13 356	3.5%	17 914	4.0%

Source: STATEC (Population censuses 1991 and 2001)

* including former Yugoslavs

The contribution of immigration is first of all quantitative. The 2001 population census provided the opportunity to update and fine-tune the demographic statistics (STATEC, 2003). Foreigners, originating from over 140 different countries, numbered 95,800 in 1981, 118,000 in 1991 and 162,300 in 2001, corresponding to an increase of nearly 70% in 20 years. The total population rose from 363,500 in 1980 to 440,000 in 2001, whereas the population of Luxembourg nationals rose only slightly, from approximately 270,000 in 1981 to 277,300 in 2001. This increase is explained almost exclusively by the foreigners acquiring Luxembourg nationality. As to the relative importance of the various nationalities among the foreigners, the Portuguese were the largest group, followed by the French, Italians and Belgians.

Between 1970 and 2000, the population of Luxembourg increased by over 30%, while the demographic growth only reached 6% in Belgium, 17% in France, 9% in Germany (without the new Länder) and 23% in the Netherlands. Population growth in Luxembourg is also largely above that in regions such as Saarland, Lorraine, Rhineland-Palatinate and Wallonia, which form part of the "Grande-Région" (see graph 3.10.3).

Immigration also had a certain influence on the population structure. Immigrants, who are generally of working age (i.e. relatively young and of reproductive age), have a positive influence on the age pyramid. Due to the growth in immigration and this age structure of the immigrant population, the annual number of births of foreigners has been growing continuously since 1985.

In 2001, this number exceeded the number of births among the indigenous population for the first time. The excess of births over deaths of foreigners rose from around 1,000 in 1985 to 2,200 in 2001. There was a slight deficit of births over deaths among Luxembourgers. In 2001, 63.5% of the indigenous population were in the 15-64 age bracket (active population) while the corresponding percentage of the foreign population was 73.5%. On the other hand, 14.4% of the indigenous population were between 65 and 79 years of age in 2001, while this percentage was only 5% for the foreign population (for more details, see: LANGERS, 2003).

Whereas, in the mid-sixties, the total fertility rate (TFR) in Luxembourg came close to 2.4 children per woman, it then fell, after an almost continuous regression, to 1.4 in the second half of the eighties before a recovery that has kept it above the 1.6 threshold. In 2000, the TFR reached 1.8 children per woman (see graphs 3.10.4 and 3.10.5). The mean age of women at childbearing (all birth ranks combined) fell between 1950 and 1980 from 28.7 to 27.1 years. The ensuing increase resulted in a mean age of 29.5 years in 2002 (see graph 3.10.6). From the breakdown of fertility rates by nationality (indigenous and foreign), it emerges that the gap between the TFRs has narrowed considerably. Around 1970, the average number of children per woman was still 2.4 among foreigners while it was only 1.9 children among the indigenous population.

Today, that gap has narrowed to a few tenths of a percentage point. By examining, for 2003, the profiles of graphs of five-yearly fertility rates (see graph 3.10.10), it can be seen that despite a rapprochement in terms of intensity, timing differences remain. On average, foreign women have their children at a younger age. To find out more about the patterns of fertility and birth rates in Luxembourg, the reader may refer to STATEC Bulletin No. 7/2004 (LANGERS, 2004)

The author of the study published in STATEC Bulletin No. 7/2004 also deals with the question of the "Second Demographic Transition" (SDT): "*The persistence of fertility levels lower than the replacement level of 2.1 children per woman is, according to the dominant paradigm, due to the 'Second Demographic Transition' (SDT), which came after the first which lasted from the end of the 19th to the mid-20th century. A drop in fertility, perceived as an adjustment to the decline in mortality, characterises that first transition. It is connected with the emergence of a new model of formation of families, marked by birth control practised within marriage and the reduction in permanent celibacy and the age of marriage. The salient point is the attitude to children, who benefit from an enormous emotional and financial investment by their parents.*



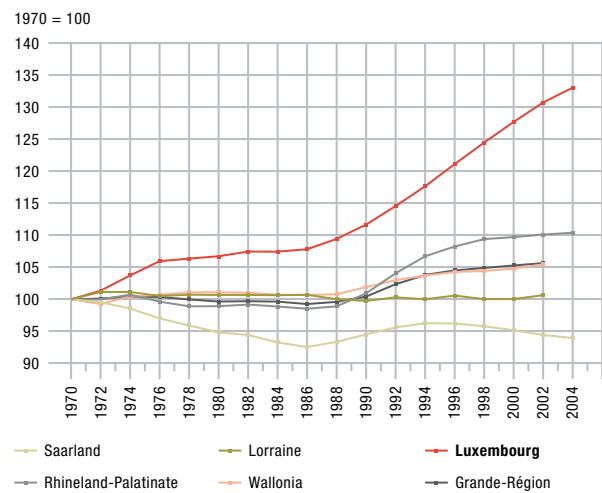
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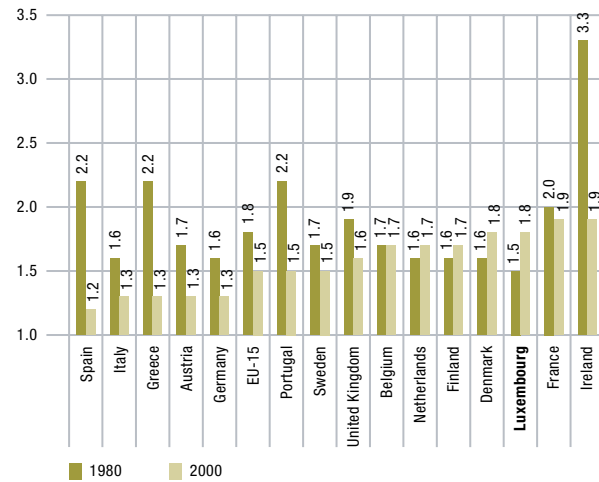
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Graph 3.10.3
Population change in Luxembourg and in the Grande Région



Source: STATEC et al. (2004)

Graph 3.10.4
Total fertility rate



Source: STATEC, EUROSTAT

NB: Total fertility rate: Instead of evaluating the average number of children of the various real generations, we can consider a fictional generation consisting of the 30 generations aged between 15 and 44 years, a given calendar year. By adding up their respective fertility rates, the total fertility rate is obtained.

During the 1960s, the industrialised countries reached a new stage in their demographic development, defined as the ‘Second Demographic Transition’ (SDT). While fertility is still falling, this is not due to the dissemination of new methods of contraception allowing total control over procreation, but because there has been a profound change in the system of ‘societal’ values. Aspirations of a different type appeared in younger generations with the spread of ‘living arrangements’ that no longer correspond to the traditional family.

Procreation, which is increasingly dissociated from marriage, is felt from the weakening of the role played by the child. The child is only one of the aspects among others enabling adults to develop as individuals.

The importance assumed by this ‘adult self-realization’ is considered a sign of a considerable advance in ‘post-materialist’ values. From the socio-demographic viewpoint, it is manifested by an increase in divorce and cohabitation, as well as the fact that women are no longer prepared to sacrifice their career on the altar of the family... Among the signs that heralded the SDT were the fall in the marriage rate for single people, the increase in the divorce rate and that of the proportion of births outside marriage.” (LANGERS, 2004, p. 267)

In Luxembourg, the trend in the relevant indicators moved clearly in the direction of the SDT:

- the fall in the marriage rate of single people, both men and women, is shown clearly by the fall in the indicator of first marriages; If the behaviour of single people at different ages remains the same as at present, only half of them will contract a first marriage;
- almost half the marriages will end in divorce if the propensity to divorce according to the duration of marriage observed in recent years continues into the future; it should be remembered that due to increasing cohabitation, a proportion of the break-ups were not recorded by the statistics on marital status;

→ the increase in the proportion of births outside marriage is generally considered an indication of increasing cohabitation (non-marital relationship); from less than 5% in Luxembourg between 1970 and 1978, this percentage rose to nearly 25% today.

The comparative graphs on the change in birth and death rates in the Grande-Région from 1970 onwards show the specific features of Luxembourg (STATEC et al., 2004; see graphs 3.10.8 and 3.10.9). The contrast with the Saarland is very obvious. The Saarland and Luxembourg started with a comparable birth rate in 1970 (12‰ and 13 ‰). In 2002, the birth rate fell only slightly in Luxembourg compared with 1970 (12‰), while in the Saarland region, it fell to 7‰.

The mortality rates were virtually identical in the Saarland and Luxembourg in 1970 (around 12‰). In 2002, the mortality rate in the Saarland was maintained at this level, while in Luxembourg, it was only 8.4‰. Moreover, in recent years, the birth rate in Luxembourg has been the highest among the regions that form the Grande-Région, while the mortality rate was lower. That was not the case in 1970. In Luxembourg, the two rates were around the average in the Grande-Région at the time. The curves for the five-year fertility rates in the Grande-Région (see graph 3.10.11) show that, on average, women resident in Luxembourg have their children later in life than in neighbouring regions.

These demographic factors mean that the dependency rate of elderly people is lower today in Luxembourg than in most other European countries. This rate (population over 65 years of age/population between 15 and 64 years of age) was 21% in Luxembourg in 2000, while it was 26% in Belgium and approximately 24% in Germany and France.

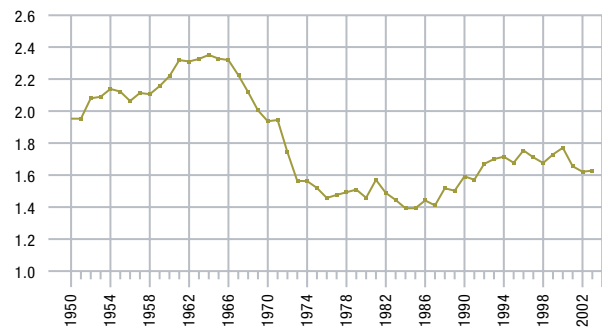
The growth in employment and the use of immigrant and cross-border labour lead to a reduction on the load coefficient of the contributory pension schemes (number of pensions per 100 persons insured) from 48.5 in 1995 to 41.2 in 2002 (with regard to the question of ageing and the demographic projections, see also pp. 128 and 129). The positive influence of the demographic structure on social security spending and the soundness of the public finances (which contribute to a large extent to the social security) are considerable.

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Graph 3.10.5
Total fertility rate in Luxembourg, 1950-2003



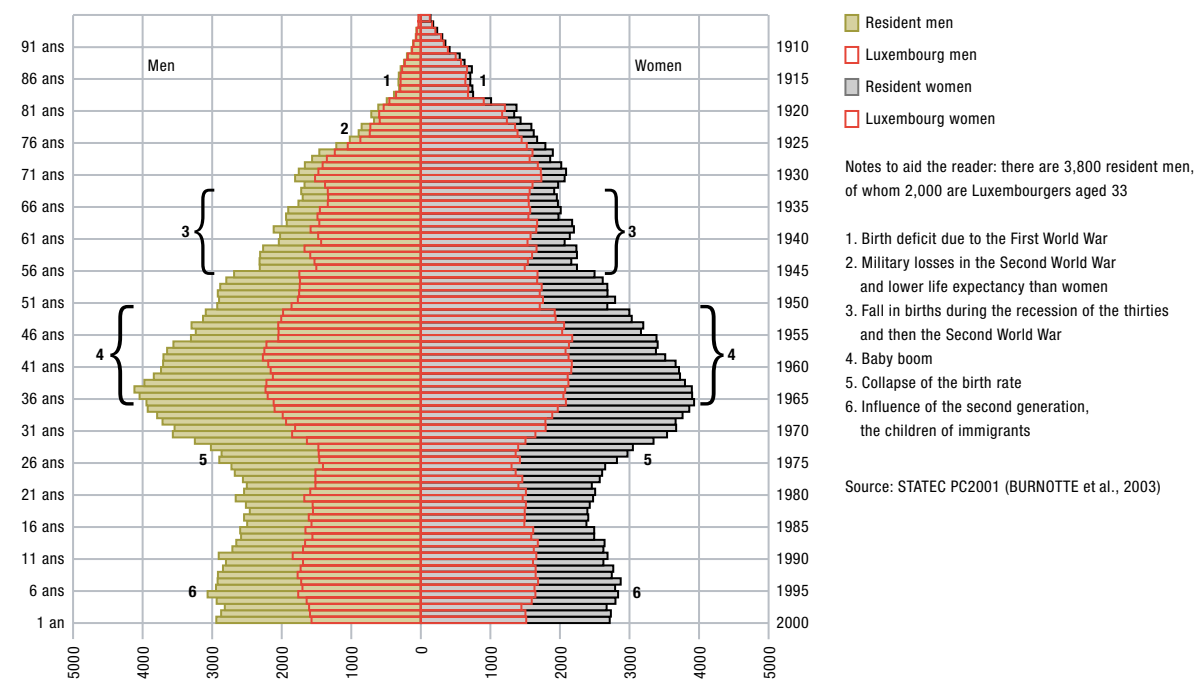
Source: STATEC (LANGERS, 2004)

Graph 3.10.6
Mean age of women at childbearing, 1950-2003



Source: STATEC (LANGERS, 2004)

Graph 3.10.7
Age pyramids of Luxembourgers and residents of Luxembourg



Notes to aid the reader: there are 3,800 resident men, of whom 2,000 are Luxembourgers aged 33

1. Birth deficit due to the First World War
2. Military losses in the Second World War and lower life expectancy than women
3. Fall in births during the recession of the thirties and then the Second World War
4. Baby boom
5. Collapse of the birth rate
6. Influence of the second generation, the children of immigrants

Source: STATEC PC2001 (BURNOTTE et al., 2003)

The sound public finances also allow the implementation of a competitive fiscal policy, particularly in terms of taxation on labour (concerning the taxation of labour, see pp. 59-60 and 192-194).

The age pyramid not only describes the population at the time of its recording by the 2001 census, it also bears the marks of the demographic history of the 20th century (BURNOTTE et al., 2003). It shows the development of a population due to the variations in mortality and fertility and the contribution of immigration through time. We can also discern in these statistics the accidents of history, moments of crisis during which the birth rate has fallen, and times of war with its victims.

The pyramid can be analysed as follows: "It shows at the same time the population as a whole, the Luxembourgers and by subtracting them from the whole population, the population of non-Luxembourgers. The comparison of the two sides of the pyramid clearly shows the greater life expectancy of women. The deficit in births during the First World War, marked by a plateau, can be seen better on the women's side, because their numbers were even greater. The fall in the number of men born in the early 1920s probably corresponds to the toll that this generation had to pay during the Second World War as well as a shorter life expectancy than women. The situation of the economic recession in the 1930s, followed by the war, explains the low birth rate in that period. Then came the baby boom, starting at around the end of the 1950s, which only waned at the end of the 1960s.

This boom was less pronounced among the Luxembourg population than among the foreign population. The 1970s were characterised by a sharp decline in the birth rate due to the higher age at which women were having their first child. Although fertility has increased, the broadening of the base of the pyramid can be explained by immigration. Indeed the second generation, the children of immigrants, are taken into account in the resident population, and there are many of them. At the top of the pyramid, at least 80% of those over 70 years of age are of Luxembourg nationality. The average age of residents is 37.6 years, whereas Luxembourgers are slightly older on average (40.4 years). So foreigners are an essential complement to the growth and dynamism of the population of the Grand Duchy" (BURNOTTE et al., 2003, pp. 17-18).

Mobility and housing

The growth in the population (and the increasingly sizeable proportion of cross-border workers in employment) also poses problems of mobility and land planning. Although the percentage occupied by built-up areas and communication routes increased significantly over the decade 1990-2000, from 7.4% (18,136 ha) in 1990 to 10% (25,860 ha) in 1999, these mobility problems do not really result from the overall population density which, at approximately 170 inhabitants/km² in 2001, remains well below the densities reached in Belgium (336 inhab./km²), Germany (230 inhab./km²), the Netherlands (470 inhab./km²) or in a region like the Saarland (416 inhab./km²).

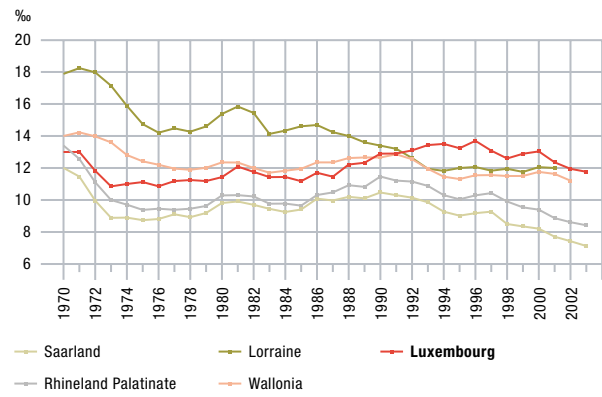
The increasingly frequent saturation of the Luxembourg road network is primarily a consequence of the increase in the number of road-users and an increase in the distances driven. The number of commuters, i.e. those persons residing in Luxembourg and working in a local authority area other than the one where they reside, has increased considerably (see maps 3.10.13 and 3.10.14). In 1981, 49.5% of the working population (73,000 people) in Luxembourg were commuters, whereas this percentage was 68.6% (111,000 people) in 2001 (see maps 3.10.13 and 3.10.14). In 2001, there was a very large number of local authority areas where 80% of their workers "commute", particularly in the suburbs of Luxembourg City and around Nordstadt (the Ettelbrück-Diekirch area in the Centre-North of the country).

In addition, these commuters are increasingly converging on the same centres of employment (see map 3.10.12). In 1981, as in 2001, the three most important employment catchment areas, i.e. Luxembourg City and its suburbs, the south of the country and the Nordstad offered employment to approximately 75% of the population with a job (75% in 1981 and 73.9% in 2001). Nevertheless, the average conceals important differences. Luxembourg City and its suburbs increased by 5.4 points, Nordstad remained stable (0.6 point up) and the south lost 7.1 points, or 7,000 jobs lost in 20 years, particularly due to job cuts in the steel industry.

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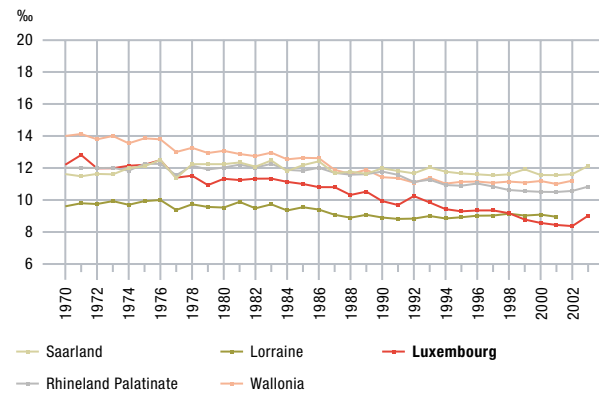
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Graph 3.10.8
Change in birth rate in the Grande-Région, 1970-2003



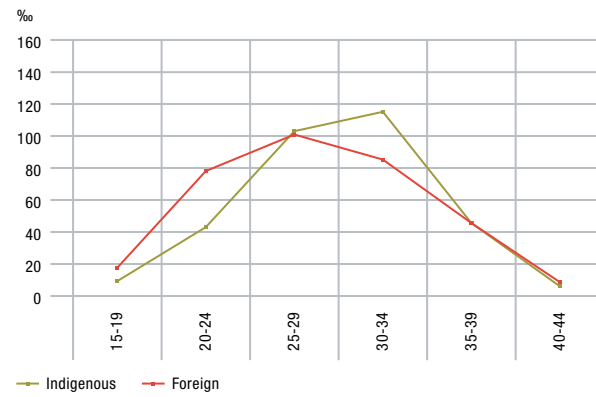
Source: STATEC et al. (2004)

Graph 3.10.9
Change in death rate in the Grande-Région, 1970-2003



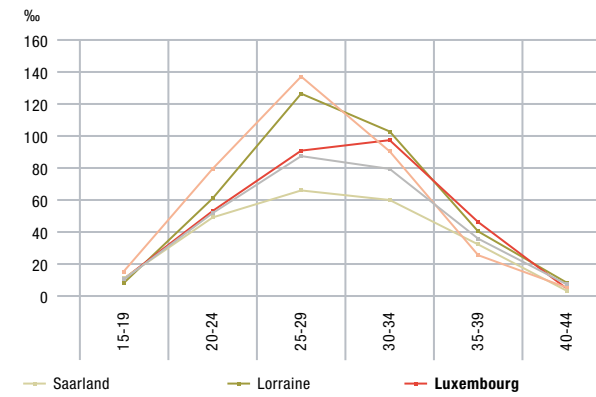
Source: STATEC et al. (2004)

Graph 3.10.10
Fertility rate by nationality in Luxembourg, 2002



Source: STATEC (LANGERS, 2004)

Graph 3.10.11
Fertility rate by age group in the Grande-Région, 2002



Source: STATEC et al. (2004)

The number of domestic commuters has to be combined with cross-border workers employed in Luxembourg, whose number rose from 13,400 in 1981 to over 105,000 in 2003. Only 6% of these cross-border workers travel by public transport and 75% of the cross-border workers work in the capital, its suburbs and the south of the country (CASTEELS, PIROTH, 2004).

The surveys of cross-border workers in 2002 and 2003 to determine their spending in Luxembourg (see chapter 3.9) also enabled data to be collected on cross-border workers' travel between home and work (GERBER, RAMM, 2004 and 2004a). Compared with 2002, the average distance of travel by cross-border workers increased slightly in 2003, rising from 43.7 to 44.3 kilometres for a single trip between home and place of work.

This average distance corresponds to almost triple that of workers resident in Luxembourg; the latter, according to the 2001 census, travel an average of 13.1 km to their place of work, or 30 km less than cross-border workers. The average travelling time is also relatively high. Cross-border workers take an average of 42.3 minutes for the trip to work, whatever the mode or means of transport. Or for a return trip almost one-and-a-half hours of travelling. In fact, half of cross-border workers take over 45 minutes to get to work in the Grand Duchy.

The need for Luxembourg to have a land-use planning policy and an overall approach to mobility was emphasised by the governmental declaration of 1999. An interministerial working group on "Mobility", set up in December 2000, was charged with putting this into practice. In January 2002, the work of the group resulted in an interim report on mobility in the field of rail transport. At the same time, the "Mobility" project must be part of an "integrated" land-use planning approach. With this in mind, a study was commissioned from consultancies ("Integratives Verkehrs- und Landesentwicklungskonzept"). The development of abandoned industrial land on the Belval site in the south of the country is certainly the flagship project in the field of land-use. Moreover, in 2003, a new master plan for land-use was adopted on the basis of the law of 21 May 1999 (see the Internet sites mentioned on p. 186).

Economic and demographic growth also has an impact on the real estate market. The demand for housing has obviously increased. Several statistical series confirm this growth in demand. In the first place, building permits granted by local authorities increased considerably from the early 1980s onwards (see table 3.10.16). The number of homes for which building permits were issued rose from 2,499 for 1980 to 3,739 in 1999, before dropping to 2,956 in 2002 in parallel with the economic downturn. The authorised built volume rose from 3,127,000 m³ in 1980 to 6,188,000 m³ in 1999, then to 5,194,000 m³ in 2002. The fact that the total number of *buildings authorised* remains rather stable shows that (despite many residents' preference for single-family houses) apartment buildings are booming.

The number of apartment buildings granted building permit rose from 100 in 1980 to 311 in 2002, while the number of single-family houses granted building permit, which was 1,541 in 1980, fell back to 948 in 2002. Finally, it can be seen that the volume of non-residential buildings granted building permit (mainly office buildings) grew spectacularly, which was a reflection of the favourable economic conditions. The statistics drawn up by STATEC concerning completed buildings show a similar pattern (STATEC, 2003a and 2004a). Another indicator of the demand for housing: the total of mortgages granted for properties located in Luxembourg rose from 324 in 1980 to 3,863 in 2003 (of which 2,755 were for the residential sector).

In consideration of the change in the population and economic growth, an increase in property prices was foreseeable. According to the figures available, it was not so much the price of the buildings but rather the price of land that rose steeply. From 1994 to 2001, the price of construction per m² of living space for completed housing increased more slowly than the median disposable income. On the other hand, as far as building plots were concerned, a sharp increase was observed. Despite the imperfections due to problems of definition and provenance of data, the statistics available enable the following conclusions to be drawn (COMMISSION DU BÂTIMENT, 2004, pp. 27-29):

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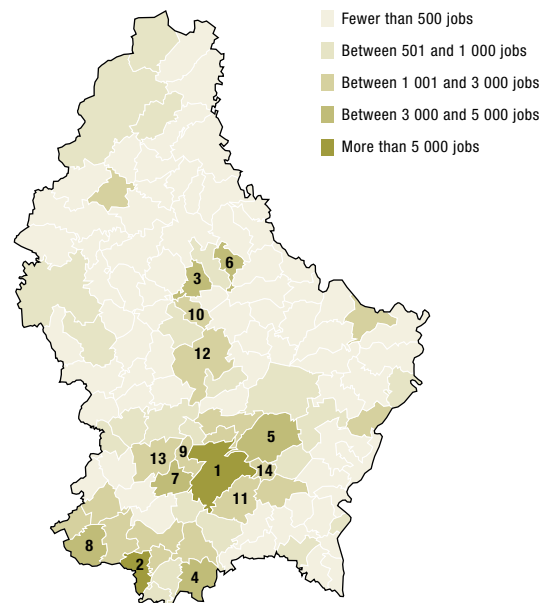
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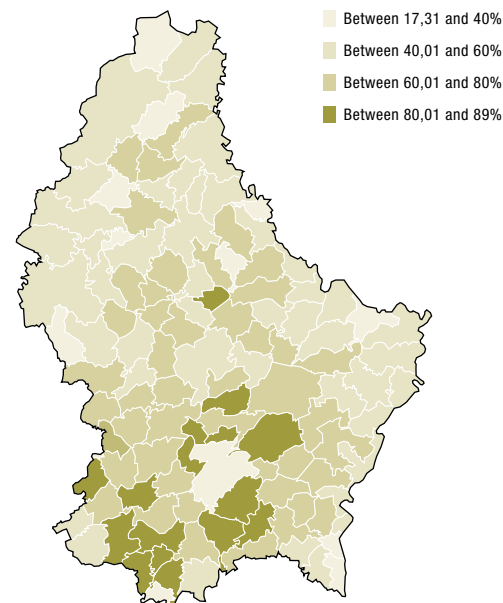
Map 3.10.12
Number of jobs per local authority area in 2001



Note to assist the reader: Luxembourg City is the local authority offering most jobs.

Source: STATEC PC2001
Map background: Land Registry and Topography Administration

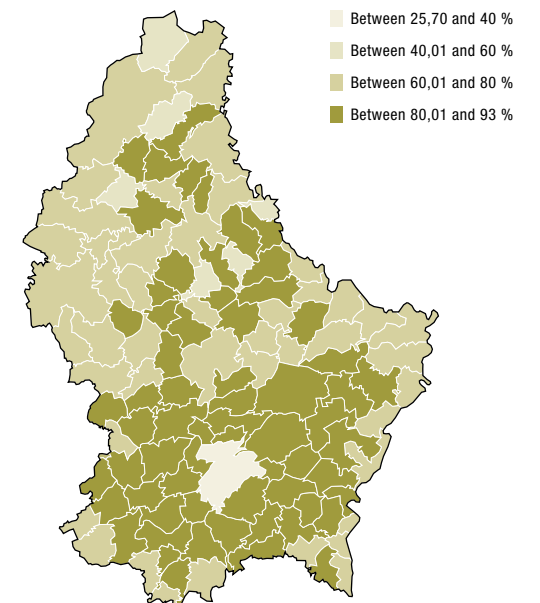
Map 3.10.13
Percentage of domestic commuters per local authority area of residence in 1981



Note to assist the reader: in 1981, between 60.01 and 80% of persons resident in Junglinster and working in the Grand Duchy leave their local authority area of residence to work.

Source: STATEC PC 1981 and PC 2001
Map background: Land Registry and Topography Administration

Map 3.10.14
Percentage of domestic commuters per local authority area of residence in 2001



Note to assist the reader: in 2001, between 60.01 and 80% of persons resident in Hosingen and working in the Grand Duchy leave their local authority area of residence to work.

- the number of sales of plots fell by 2.6% on an annual average and the area sold reduced by 0.4% on annual average over the period 1986-2001;
- the growth in prices of building plots was 10.2% on an annual average from 1986-2001, so the price of plots multiplied by 4.3.

In nine years, the average price per are for the whole country increased by EUR 9,185 (+217%), rising from EUR 7,884 in 1994 to EUR 17,069 in 2002.

It should be noted that the level of property prices diverges sharply, depending on the location. The average price of houses on sale per local authority area (which, in principle, include the price of land) is highest in the suburbs of the City of Luxembourg, whereas in the less densely populated regions of the north of the country (Wintrange,

Troisvierges, Weiswampach, etc.), selling prices are lowest. In the local authority areas in the south of the country (Differdange, Esch/Alzette, etc.) the prices are slightly below the Luxembourg average.

A comparative study conducted by the European Central Bank (ECB, 2003) on the price of housing, construction costs and the prices of land in real terms clearly shows that the growth in the price of building plots is higher in Luxembourg than in other European countries. The most recent statistics on the change in retail prices of property and building plots were published in STATEC Bulletin No. 6/2004 (STATEC, 2004b). They confirm the explosion in prices of land, particularly from 1998 onwards (see graphs 3.10.18 and 3.10.19).

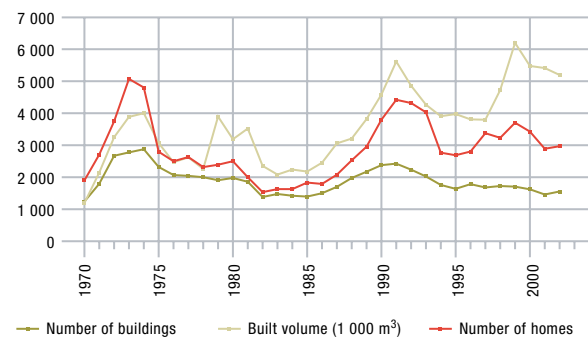
Housing stock has grown in every local authority area in the country. The relative increase in the number of new homes between 1991 and 2001 is higher than the median in the outskirts of Luxembourg City (Steinsel, Bertrange, Leudelange, etc.), in the area between the centres of Ettelbrück and Luxembourg City (Tuntange, Mersch, Fischbach, Junglinster, etc.) as well as (a new and interesting phenomenon) in rural local authority areas in the north of the country, such as Wintrange, Winseler, Eschweiler or Boulaide, where property prices have not yet reached the high levels of the suburbs and outskirts of Luxembourg City.

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Graph 3.10.15
Building permits



Source: Local authority administrations, STATEC

Table 3.10.16
Building permits – New buildings

Specification	Buildings		Homes	Volume built
	Year	Number	Number	in 000s of m ³
Total construction	1980	1 997	2 499	3 127
	1985	1 389	1 830	2 196
	1990	2 330	3 796	4 620
	1995	1 609	2 676	3 987
	1999	1 698	3 739	6 188
	2000	1 642	3 411	5 450
	2001	1 479	2 846	5 421
	2002	1 517	2 956	5 194
Single-family houses	1980	1 541	1 541	1 400
	1985	1 012	1 012	942
	1990	1 595	1 595	1 478
	1995	1 163	1 163	1 152
	1999	1 121	1 121	1 128
	2000	1 091	1 091	1 096
	2001	972	972	995
	2002	948	948	966
Apartment buildings	1980	100	928	450
	1985	79	805	333
	1990	259	2 149	866
	1995	167	1 503	610
	1999	264	2 352	1 051
	2000	271	2 193	952
	2001	219	1 723	812
	2002	311	1 869	922
Non-residential buildings	1980	356	30	1 277
	1985	298	13	921
	1990	476	52	2 275
	1999	313	266	4 008
	2000	280	127	3 403
	2001	288	151	3 614
	2002	258	139	3 306

Source: Local authority administrations, STATEC

Table 3.10.17

Price of housing, costs of construction and price of land in real terms (average annual change in %)

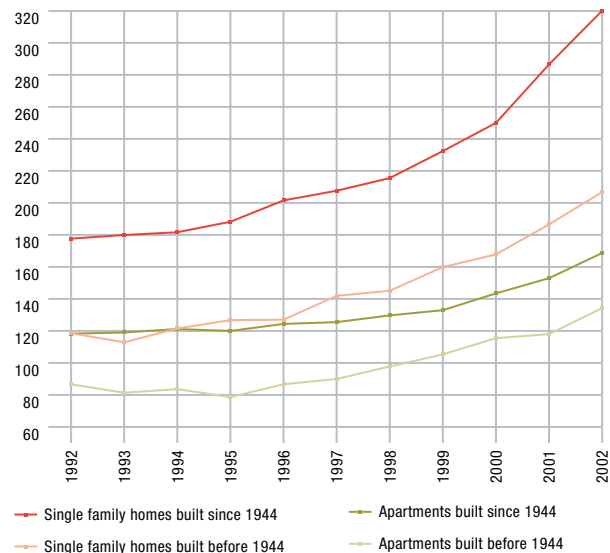
	Belgium 1981-2001	Denmark 1980-2001	Germany 1980-2001	Luxembourg 1980-2001	Netherlands 1980-2001	Austria 1980-2001	Portugal 1994-2001	United Kingdom 1980-2001
Price of housing	1.2	1.0	0.5	2.6	2.3	3.5	0.4	3.0
Construction costs	-0.5	0	0.1	0.3	0	1.2	0.7	1.4
Price of land	1.8	1.2	1.1	6.3	1.9	3.1	2.9	5.2

European Central Bank (2003)

NB: All the variables are adjusted using the Implicit Private Consumption Price Index. The price of land concerns the following periods; 1990-1999 for Austria and 1981-2000 for the United Kingdom. In the case of Portugal, the construction costs refer to the period 1994-2001. Germany is considered within its pre-unification borders.

Graph 3.10.18

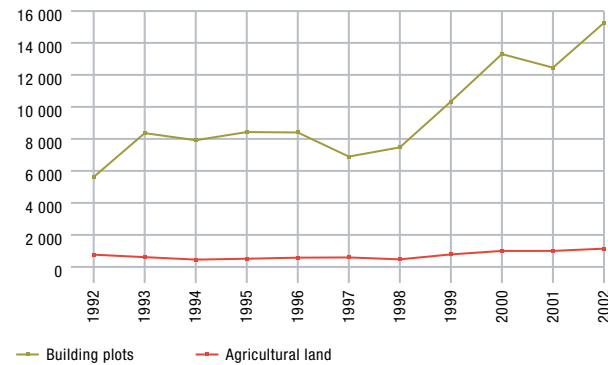
Residential properties: change in the average selling price per property (in thousands of euros) from 1992 to 2002



Source: STATEC (Bulletin No. 6/2004)

Graph 3.10.19

Building plots: change in average selling prices per are (in euros) from 1992 to 2002



3.11

Wages and salary costs: how are they measured?

Wages can be interpreted from the viewpoint of "cost", "purchasing power" and, finally, from a "wage structure" viewpoint.

Wage costs

Statistics on wage costs in Luxembourg come mainly from three sources: national accounts, the social security general inspectorate (IGSS) and the labour cost survey carried out every four years by STATEC under the aegis of EUROSTAT.

Unlike "national accounts" wage costs, "IGSS" wage costs do not include gratuities to officials (13th month), or employers "social security contributions for local authority employees, or employers" voluntary social security contributions (pension funds, company cars, etc.) or fictitious contributions (pensions on non-contributory schemes).

Furthermore, the IGSS figures are truncated at a level equivalent to seven times the legal minimum wage (maximum declarable income, maximum for social security contributions are five times the legal minimum wage). Wage costs from the "national accounts" viewpoint are higher (in level) than from the "IGSS" viewpoint. Moreover, the national accounts provide information on annual labour costs and not on hourly or monthly costs. It is preferable to use the "national accounts" methodology in a long-term perspective (annual data).

Based on data derived from national accounts, a comparison can be made of the change in annual wage costs in Europe (see the table 3.11.1 indicating annual average nominal wage growth per employee).

This comparison of nominal costs may be misleading, since it does not take account of changes in labour productivity. The comparison in terms of unit labour costs and real unit wage costs contributes significant information (see below). Nevertheless, the comparison of change in annual average nominal wage per employee makes an initial contribution to the comparative approach.

In the long-term trend of annual average nominal wages, we first of all observe the high growth rates in the years 1971-1980, which correspond to equally high rates of inflation. The lower inflation rates from the mid-1980s onwards are accompanied by more moderate growth rates in nominal wages in Europe. The rise in wages accelerated from the beginning of 1999, driven by inflation and by the favourable economic climate.



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Table 3.11.1

Nominal wage per employee Annual rate of change in %

	1961-1970	1971-1980	1981-1990	1991-2000	1999	2000	2001	2002	2003	**2004
BE	7.9	12.2	5.4	3.1	3.4	2.1	3.6	3.7	2.5	2.7
DE*	8.6	8.3	3.3	3.3	1.2	2.1	1.7	1.5	1.6	0.0
EL	9.4	18.3	19.6	9.9	6.5	5.8	5.2	9.2	4.0	6.5
ES	14.1	20.4	10.4	5.1	2.7	3.5	3.8	4.2	4.2	3.7
FR	9.5	13.7	7.4	2.5	2.3	1.8	2.7	2.4	2.3	3.3
IE	9.8	18.6	9.2	5.0	4.6	8.6	7.7	5.0	4.7	5.4
IT	10.7	18.5	11.8	4.0	2.6	3.1	3.2	2.5	3.8	3.4
LU	6.7	10.6	5.9	3.7	3.6	4.7	3.9	3.7	2.1	3.3
NL	10.6	11.0	2.3	3.3	3.7	4.7	5.5	6.2	3.9	2.4
AT	8.6	10.1	5.3	3.3	1.9	1.8	1.4	1.7	2.1	2.5
PT	9.7	22.6	19.1	9.1	5.4	6.7	5.7	4.4	4.1	3.1
FI	9.8	15.1	9.8	3.0	2.2	3.7	4.7	1.9	3.3	4.1
DK	10.7	12.0	6.8	3.3	2.2	4.2	4.6	3.2	3.6	3.3
SE	8.5	11.4	8.5	4.7	1.3	7.5	4.5	2.7	2.4	3.4
UK	7.0	19.1	8.4	4.9	4.4	5.6	5.4	4.5	4.1	5.2
Euro zone	9.7	12.9	6.9	3.5	2.2	3.7	2.9	2.7	2.6	2.2
EU-15	9.0	13.3	7.2	3.8	2.5	3.4	3.4	3.0	2.9	2.8

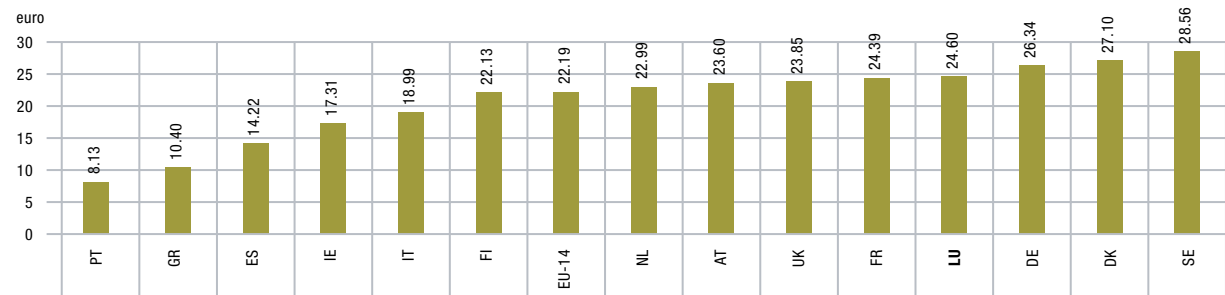
Source: European Commission (AMECO)

* Germany: new Länder included from 1991 onwards;

** forecasts for 2004.

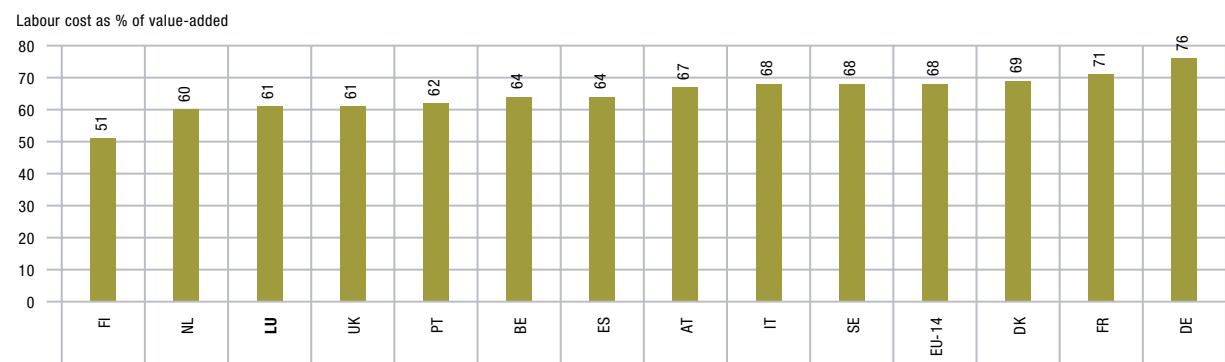
Graph 3.11.2

Hourly labour costs in industry and services, 2000



Graph 3.11.3

Unit labour costs in industry, 2000



Source: EUROSTAT, STATEC (Labour cost survey, 2000)

From 2001 onwards, in parallel with the economic turnaround, the increase in salaries slowed again in the eurozone and in the EU-15. From 1999 to 2002, Luxembourg recorded one of the highest increases in the eurozone (4.0% on average from 1999 to 2002, compared with 2.8% over the same period in the eurozone). In 2003, the rate of increase in wages in Luxembourg is one of the lowest, but the rate of wage increases in 2004 seems to be rising again (a sign of the economic recovery).

Besides these two sources, the *four-yearly survey on labour costs*, carried out pursuant to Council regulation EC 530/1999, allows knowledge to be fine-tuned concerning the level and structure of wage costs as well as monthly working time. The survey is very useful from a European comparative perspective.

The concept of costs used within the context of this survey includes all expenditure linked directly to employment of workers. These costs can be broken down into direct costs (gross pay, bonuses and gratuities, pay for days not worked and paid holidays, pay in kind, etc.) and into indirect costs (compulsory social security contributions payable by employers, employers' voluntary social security contributions, vocational training costs, etc.).

As the results of the survey are published only after a rather long time, short-term results should not be expected. The comparison of hourly labour costs between European countries does however provide interesting additional indications. In addition, the comparison is made on the basis of hourly costs, which eliminates the bias introduced by differences in working time.

Hasty interpretation of the graph 3.11.2 concerning hourly labour costs in the EU-15 (derived from the survey on labour costs) may lead to the conclusion that Luxembourg is part of the leading group of high-wage countries. In 2000, hourly labour costs in industry and services (including the indirect costs, i.e. mainly employers' social security contributions) were EUR 24.6 in Luxembourg; this is above the EU-15 average where hourly labour costs were only EUR 22.19. (EUROSTAT 2003a; CASALI 2003).

But this comparison is also biased, because it does not take account of the differences in level of productivity (value-added, or GDP per person employed). However, the level of GDP per person employed in Luxembourg is much higher than in most other European countries. In 2003, the GDP per job was approximately EUR 81,000 in Luxembourg, compared with an average of EUR 56,000 in EU-15. The unit labour costs, which reflect the relationship between labour costs and productivity allows a more realistic comparison of labour costs. Considering the unit labour costs in industry, it can be observed that the position of Luxembourg compared with other countries is far from unsatisfactory (see graph 3.11.3). However, Luxembourg can only remain competitive in the field of labour costs thanks to its low indirect labour costs.

In 2000, the indirect costs were 14% in Luxembourg, but 21% in Finland, 23% in Germany, 28% in France, 30% in Sweden (see graph 3.11.4 indicating the structure of labour costs).

Moreover, we find the same differences between branches of the economy, as in the "national accounts" view (see graph 3.11.15). While hourly labour costs in the "Hotels and restaurants" sector were only EUR 13.3 in 2000, they reached EUR 42.1 in the financial sector.

The reversal in the economic cycle in 2001 had negative consequences on productivity due to a retarded adjustment in the "labour" factor to lower rates of growth in value-added. On the other hand, nominal wages continued to rise. Logically, unit labour costs were affected negatively. The slowdown in the pace of growth had similar consequences in other European economies, even if the impact was less radical than in Luxembourg.

It should be borne in mind that from 2000 to 2001, the rate of GDP growth in Luxembourg fell from 9% to just over 1%, while employment continued to grow by more than 5% in 2001. To assess the consequences of the reversal in the economic cycle on the level of unit labour costs in Luxembourg in European comparisons, a certain detachment is required.

A further step needs to be taken in the analysis of wage costs. Unit labour costs do not take account of the selling price of a product on the market. By way of example, an increase in average wages can be due to a better selling price. The real unit labour costs, where the nominal unit cost is divided by the price of the value-added, corrects this bias. In the long term, real unit labour costs should not deviate greatly from a horizontal trajectory.



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Graph 3.11.4

Labour cost structure in industry and services, 2000



Source: EUROSTAT, STATEC (Labour cost survey, 2000)

It now appears even more clearly that the increase in real unit labour costs during the years of the slowdown were mostly cyclical: they followed a phase of sharp falls and will (most probably) be followed by a further period of falls, which started in 2003/2004 and which is mainly due to a considerably fall in unit wage costs in financial services (see the table 3.11.5 indicating productivity and unit wage costs). So, between 1985 and 2003, real unit labour costs, on average, remained rather stable.

The graph 3.11.6 indicating the change of labour productivity and real wages per employee in Luxembourg highlights variations in real unit wage costs from 1961 to the present day. It can be seen that real wages are going through an overall change compatible with the change in productivity, except for the second half of the 1970s, where high growth rates in salaries are combined with a slight increase in productivity. The increase in real unit labour costs in 2001 and 2002 is due less to an explosion in real wages than a decline in productivity.

With regard to the trend in real unit labour costs (which reflects the development of the proportion of wages in the added value) in Luxembourg in comparison with neighbouring countries and Europe in its entirety (see graph 3.11.7), we notice a significant fall in the second half of the 2000 years; a fall which is more marked in Luxembourg than in other European countries (see also on the trend in wage costs: OGBL, LCGB, 2005). This fall is followed by a substantial increase in the real unit labour costs in 2001 and 2002, without however reaching the 1995 level. From 2003, moreover, the rise is curbed.

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Table 3.11.5

Productivity and unit labour costs in Luxembourg

	1985-2000	1985-2003	2000	2001	2002	2003
	Change in %					
Productivity¹						
Financial services ²	1.1	0.4	-1.5	-11.6	0.1	2.4
Other traded sectors	2.7	2.4	2.1	0.8	0.9	1.2
Overall economy	2.7	2.2	2.0	-1.6	0.1	1.1
Unit labour costs						
Financial services ²	3.2	3.5	5.2	15.9	5.6	-5.2
Other traded sectors	1.4	1.8	3.4	5.3	3.3	2.5
Overall economy	1.8	2.2	3.1	7.5	4.2	1.3
Real unit labour costs						
Financial services ²	1.7	0.2	11.3	6.1	-7.4	-18.5
Other traded sectors	-0.3	0.0	0.5	2.5	2.2	-0.1
Overall economy	-0.1	-0.2	2.8	2.9	-0.7	-4.9

¹ As measured by gross value added in volume of total employment (expressed in hours)

² Including FISIM – Financial Intermediation Services Indirectly Measured (interest spreads)

Source: STATEC

Graph 3.11.6

Labour productivity and real wages in Luxembourg, 1961-2005 (annual change in % and trend)



Source: STATEC (National accounts)

Graph 3.11.7

Trend in real unit labour costs



Source: European Commission, AMECO database. Forecasts for 2004-2006.

Table 3.11.8

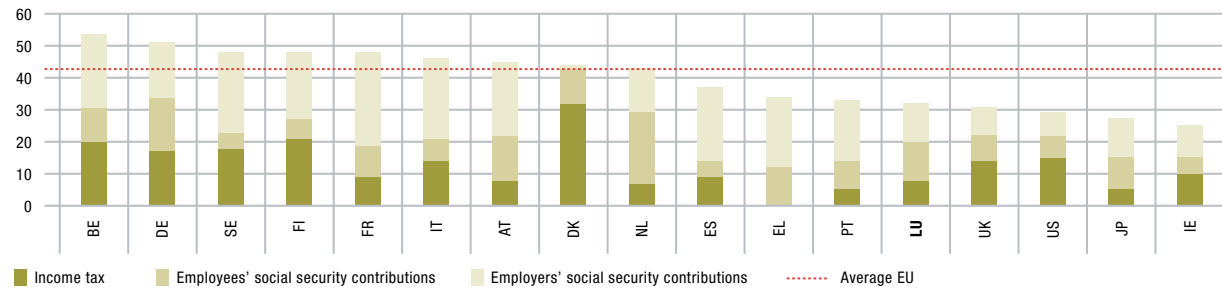
Real wage per employee (deflator of private consumption) Annual rate of change in %

	1961-1970	1971-1980	1981-1990	1991-2000	1999	2000	2001	2002	2003	**2004
BE	4.6	4.7	1.2	1.2	2.1	-0.3	1.1	2.0	0.8	0.7
DE*	5.7	3.0	0.8	1.0	0.9	0.6	0.0	0.3	0.5	-1.7
FR	5.1	3.5	1.0	0.7	1.8	0.3	1.0	0.5	0.3	1.6
LU	4.1	3.8	1.1	1.3	2.1	2.1	0.7	1.5	0.2	1.0
NL	6.3	3.5	0.0	0.9	1.9	1.4	0.8	3.4	1.5	1.3
Euro zone	5.8	3.2	0.7	0.6	1.0	0.4	0.5	0.5	0.6	0.2
EU-15	5.1	3.0	0.9	0.8	1.3	1.4	1.1	1.0	0.9	0.9

Source: European Commission (AMECO) * Germany: new Länder included from 1991 onwards; ** forecasts for 2004.

Graph 3.11.9

Level and structure of compulsory deductions as a % of labour costs in 2003 (income tax and social security contributions paid by employees and employers)



Source: OECD (2004) NB: Deductions for a single person with one salary equal to that of the average manual worker.

Purchasing power of wages

Salaries can also be interpreted from the "purchasing power" viewpoint. The national accounts will provide a first approximation of the change in salaries from this viewpoint. The pay per employee went from a nominal value of EUR 22,000 in 1985 to EUR 45,300 in 2003, or growth of 105%. This figure tells us little about the development of purchasing power, because this is not net pay, nor does it take account of inflation. And taking account of the increase in prices, real growth in wage per employee was approximately 40% between 1985 and 2003. The European Commission's AMECO database allows comparison of real wage per employee (deflator of private consumption) from the beginning of the 1960s (see table 3.11.8).

The real wage growth rates (purchasing power) in Luxembourg were lower than in neighbouring countries and the European average in the 1960s (see also graph 1.1.1). However, this reveals nothing about the level of pay, which remained far higher in Luxembourg than in other countries. From the 1970s onwards, the rates of growth in real wages in Luxembourg started to exceed those in neighbouring countries in a lasting way (at least those of France, Germany and the Netherlands) and most other European countries. In 1999-2000, the increase in purchasing power was also significantly higher in Luxembourg (flourishing economy). It should be noted that the "30 glorious years" definitely deserve their name: the rate of growth in real salaries was at a much higher level up to 1974 than in the years thereafter.

Other data published by EUROSTAT (2003b) and OECD (2004) provide another comparative view of gross and net annual salary levels in Europe. According to EUROSTAT data, the gross annual wages for a full-time employee in Luxembourg industry reached EUR 31,807 on average in 2000. This puts Luxembourg among the leading European countries. In Switzerland (EUR 43,267), in Denmark (EUR 39,162), in the United Kingdom (EUR 35,465), in Germany (EUR 35,880), gross wages were higher. In Portugal (EUR 10,631), in Italy (EUR 19,128), in France (EUR 25,402), in the Netherlands (EUR 30,750), in Belgium (EUR 31,181) and in Sweden (EUR 30,643), wages were lower than in Luxembourg (EUROSTAT 2003b).

Table 3.11.10

Net annual earnings of employees in manufacturing industry (in EUR), 1996 and 2002

	Single person without children		Rate of growth (in %)	Married couple with two children and a single income		Rate of growth (in %)
	1996	2002		1996	2002	
BE	15 948	18 259	14	21 803	24 452	12
DK	18 691	23 373	25	23 328	28 575	22
DE	17 709	19 542	10	23 565	27 043	15
EL	7 564	9 666	28	9 055	11 531	27
ES	10 838	13 099	21	11 767	14 538	24
FR	13 499	16 077	20	15 827	18 782	19
IE	12 755	21 188	66	14 852	25 538	72
IT	13 136	15 430	17	15 014	18 856	26
LU	19 721	24 446	24	26 241	32 494	24
NL	16 050	22 052	37	18 980	25 588	35
AT	15 972	17 104	7	19 671	21 810	11
PT	5 431	6 956	28	5 999	7 888	31
FI	14 683	19 201	31	17 137	21 607	26
SE	15 930	18 368	15	17 734	20 857	18
UK	14 558	24 029	65	16 140	27 964	73
NO	19 732	27 684	40	23 727	31 913	35
CH	28 749	34 389	20	33 619	40 003	19
US	25 887	23 055	-11	28 597	26 995	-6

EUROSTAT (2004a)

NB: Net pay = gross pay – social security contributions – taxes + family allowances (for families with children).

The differences in the tax systems mean that the hierarchy of countries is not the same in terms of net pay. As the tax pressure (social security contributions by employees and taxes) in Luxembourg is less than in most other European countries (see graph 3.11.9 indicating the level and the structure of compulsory deductions), net pay is among the highest in Europe. In 2002, among the member countries of the EU, Luxembourg and the United Kingdom had the highest levels. However, Switzerland and Norway are ahead of these two countries in the case of the wages of a single person (EUROSTAT, 2004a).

It should also be noted that net pay represents the part of their income that employees can actually spend. In comparison with gross pay, it includes neither social security contributions, nor taxes, but does include family allowances. So, net pay depends on a person's family circumstances. For all countries, the net pay of employees with children is higher than that of single persons. This is due to tax systems that are favourable to families, or to family allowances, or to the combined effect of these two factors. Luxembourg is in the extreme position in this field (see the graph 3.11.12 indicating the deductions from gross wages per category of family).

Table 3.11.11

Net annual earnings of employees in manufacturing industry (in PPS), 1996 and 2002

	Single person without children		Rate of growth (in %)	Married couple with two children and a single income		Rate of growth (in %)
	1996	2002		1996	2002	
BE	15 805	18 236	15	21 607	24 422	13
DK	16 152	18 149	12	20 159	22 189	10
DE	17 174	18 887	10	22 854	26 136	14
EL	9 739	11 580	19	11 659	13 815	18
ES	13 581	15 369	13	14 746	17 058	16
FR	12 979	16 021	23	15 275	18 718	23
IE	13 665	17 971	32	15 913	21 661	36
IT	16 393	16 426	0	18 737	20 073	7
LU	20 496	23 887	17	27 273	31 752	16
NL	16 983	21 622	27	20 084	25 089	25
AT	15 846	17 141	8	19 516	21 857	12
PT	7 864	9 084	16	8 686	10 302	19
FI	12 642	16 190	28	14 755	18 218	23
SE	12 759	14 677	15	14 203	16 666	17
UK	17 212	20 926	22	19 083	24 352	28
NO	16 408	18 953	16	19 730	21 848	11
CH	45 075	50 450	12	57 712	58 686	2
US	18 295	22 554	23	20 210	26 409	31

EUROSTAT (2004a)

NB: Net pay = gross pay – social security contributions – taxes + family allowances (for families with children). The PPS enables the effect of differences in price levels between countries to be eliminated.

The combined effect of the lower tax pressure on wages on employees with children and the payment of sizeable family allowances means that in Luxembourg the net pay of a married couple (with a salary equal to that of the average worker) with two children exceeds even the level of their gross wages (see graph 3.11.12). In other words, deductions are negative. Among other OECD countries, only Ireland is in the same situation.

In the table 3.11.11 indicating net earnings in purchasing power standard, the differences in price levels are eliminated. The annual increase in PPS is much lower than the increase in euro. In Luxembourg, average net earnings in industry increased by 24% in euro, but only by 17% in PPS between 1996 and 2002.



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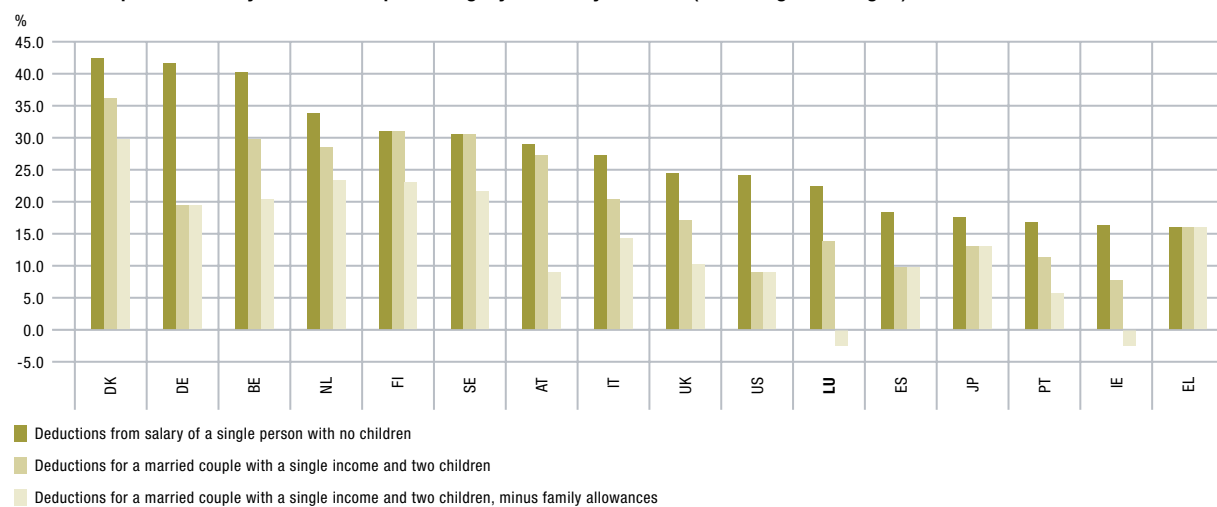
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Graph 3.11.12

Deductions from gross wages (income tax and employees' social security contributions) and the impact of family allowances per category of family in 2003 (in % of gross wages)



Source: OECD (2004) Note to assist the reader: With family allowances, deductions from pay of a married couple with a single salary (corresponding to that of an average manual worker in industry) become negative in Luxembourg and Ireland (-2.6% in both cases). In other words, the level of gross wages is exceeded in this case thanks to the effect of a relatively low level of deductions and high family allowances.

Structure of wages

Concerning the wage structure, the main source of information is the survey on wage structure which is carried out at Community level. In addition, there is the data on pay per employee derived from the national accounts which provide an overview of the level of pay according to economic sectors.

The *survey on wage structure* is carried out every four years and alternates every two years with the labour cost survey. The general objective of the survey is to evaluate, in each European country, the effect of the characteristics of employees and employers on wage levels. One special feature of this survey is the sampling at two levels, with the information gathered relating to the company and its employees. The basis for sampling was the Directory of Companies, supplemented by the records of the social security administration or those of the STATEC surveys.

The scope of the survey corresponds to all legal entities with at least 10 employees and carrying on a business activity covered by sections C to K of the NACE classification (NACE Rev. 1), i.e. manufacturing industry; electricity, gas and water supply; construction; wholesale and retail trade, motor vehicle repairs and household goods; hotels and restaurants; transport and communication; financial intermediation; real estate, renting and business services.

The comparative results of the Community survey on the wage structure in 1995 reveal a quite substantial degree of inequality in distribution of wages in Luxembourg, in comparison with other European countries (LANGERS, 1997; STATEC, 2003).

The population of workers can be classified in samples in ascending order according to gross monthly wages and sharing it into 10 equal parts, each part containing the same number of observations. This results in decile classes and, for a given distribution, there will be nine deciles. The interdecile ratio D9/D1 – the ratio between the 9th decile (the highest salaries) and the 1st decile (lowest salaries) – measures the inequality of the distribution of wages. In Luxembourg, based on 1995 salaries, the ratio D9/D1 was 2.7. In the United Kingdom (ratio D9/D1 of 3.4), in Ireland (3.4), in Portugal (3.9) and in Spain (3.4), the inequalities were greater. But in Belgium (ratio D9/D1 of 2.3), in Denmark (2.4), in Germany (2.3), in Sweden (2.0), wage inequalities were much lower.

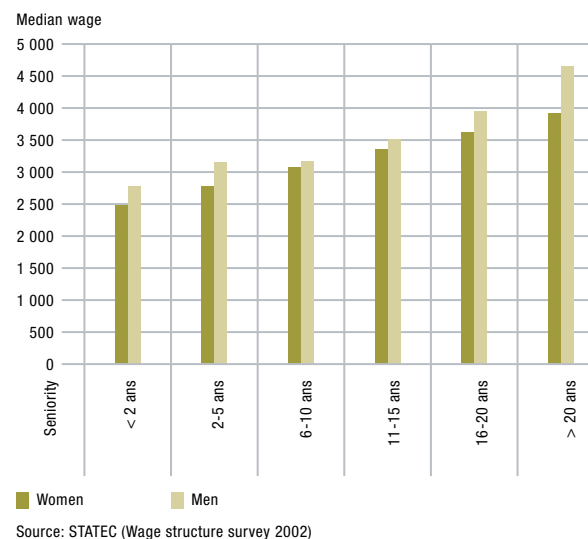
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Graph 3.11.13

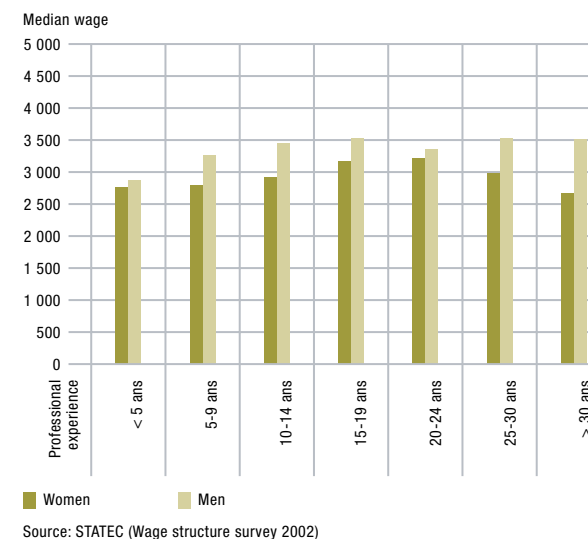
Median wages by seniority



Source: STATEC (Wage structure survey 2002)

Graph 3.11.14

Median wages by professional experience



Source: STATEC (Wage structure survey 2002)

The most recent wage structure survey was carried out in 2002 by Statec and the results of the survey were published in 2004 (FRISING & HAAG, 2004).

Seniority plays a positive role on median wages whatever their nature and the cumulative level of seniority (see graph 3.11.13 indicating wages by seniority). This emphasises the corrective justice of seniority since it pays no regard to the quality or merit of individuals. From an empirical viewpoint, it corresponds to pay policies that index the increase in the general level of prices to wages.

Incidentally, seniority "rewards" women less than men in terms of median wage levels. It emerges that median wage differentials by gender are greater at the start and end of career in favour of male employees (the average of differentials in median wages between men/women is EUR 398 for less than 5 years of seniority and EUR 533 for more than 16 years). However, it can also be pointed out that the effect of seniority between 2-5 and 6-10 years remains positive for men (but marginal, at EUR 20), whereas for women, the effect is significantly more pronounced (EUR 315). Seniority has a character of distributive justice since it evens out the discrepancies in wages between individuals, for example those situated at different hierarchical levels in the company.

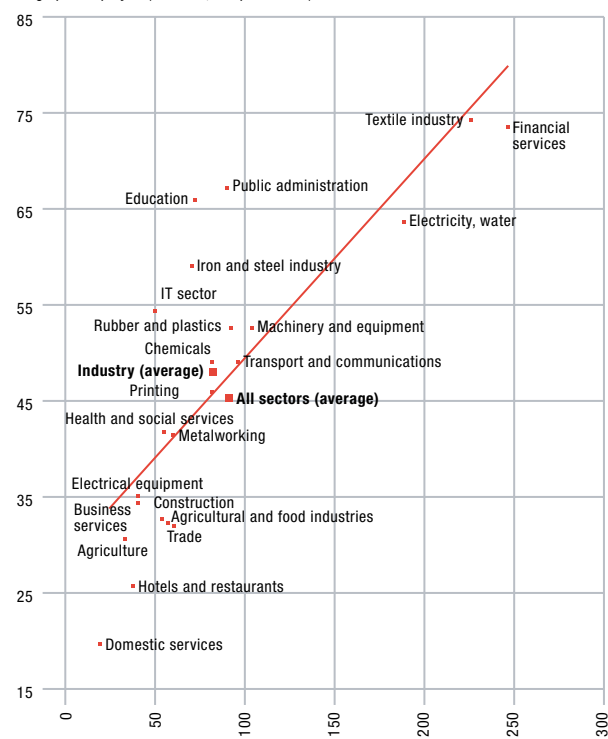
This explanation of differentials in mean pay between men and women due to the effect of seniority could be pursued with benefits in terms of justice, but it could also be rooted in conditions of employment. The type of contract of employment binding the employee to the company thus becomes in turn a factor explaining the variation in distribution of wages.

As professional experience (i.e. the number of years worked) does not appear in the database, it has been calculated in the following way: 2002 (year of the survey) – year of birth – number of years in education – 6 (number of years before going to school). The number of years of education was defined by the conversion of the level of education completed into a number of years "normally" necessary to obtain the qualification in question.

Graph 3.11.15

Wage level and productivity level per sector in 2003

Wage per employee (in EUR 1,000 per annum)



Source: STATEC (2004)

N.B: The National Accounts data do not give information on the wage structure inside the economic sectors or inside companies

The associated graph 3.11.14 highlights a positive correlation between the level of salaries and professional experience up to 20 years of experience, for both men and women. Beyond 20 years of professional experience, the median salary stagnates for men and falls for women beyond 25 years' experience. The latter phenomenon can be explained by women's career breaks which were probably longer for older generations and which are not taken into account when determining professional experience. It should be noted that the slight fall in the median salary of men with 20-24 years of professional experience in comparison with the previous class is explained by a smaller proportion of employees drawn from sectors with high wages, such as financial services for example.

The median salary for men with more than 15 years' experience exceeds that of men with less than 5 years' experience by 22%; this differential is 15% for women.

The *National Accounts* data, even if they do not allow a detailed analysis of the distribution of wages, do give nevertheless an overall view of the wage structure by economic sector. The data must be handled with caution. The average annual pay per employee does not take account of working time, or the frequency of part-time work or the labour qualifications structure. In general, the level of salaries and productivity per sector are positively correlated (see graph 3.11.15).

At the top of the scale, we find sectors with high productivity and pay, such as the modern textile industry and financial services. In financial services (banks, insurance, etc.), the average pay per employee exceeded EUR 73,600 in 2003. At the bottom of the scale, we find sectors where the value-added per person employed is well below the average, and where annual pay is just as "low". This concerns domestic services, hotels and restaurants and, to a lesser extent, agriculture, wholesale and retail trade, business services and construction. By way of example, the average annual pay in the construction industry was EUR 32,100 in 2003.

Table 3.11.16

Breakdown of the workforce by business sector in 2003 (%)

	Employees on the social minimum wage (SMW)	Other employees	Together
Agriculture	1.0	0.3	0.4
Manufacturing	10.0	14.0	13.2
Construction	10.7	10.8	10.8
Wholesale and retail trade	24.9	10.0	13.0
Hotels and restaurants	14.4	1.6	4.2
Transport and communications	4.3	10.2	9.0
Financial intermediation	0.9	15.7	12.7
Real-estate, renting and business services	17.1	12.5	13.4
Other services	16.7	24.9	23.2
Total	100.0	100.0	100.0

Source: Social Security Inspectorate General (IGSS)

Table 3.11.17

Proportion of the workforce on the social minimum wage by business sector in 2003 (%)

	Employees on the social minimum wage (SMW)	Other employees	Together
Agriculture	49.2	50.8	100.0
Manufacturing	15.3	84.7	100.0
Construction	20.1	79.9	100.0
Wholesale and retail trade	38.6	61.4	100.0
Hotels and restaurants	69.3	30.7	100.0
Transport and communications	9.7	90.3	100.0
Financial intermediation	1.5	98.5	100.0
Real-estate, renting and business services	25.6	74.4	100.0
Other services	14.5	85.5	100.0
Total	20.2	100.0	100.0

Source: Social Security Inspectorate General (IGSS)

It should be remembered that in the "business services" sector, sub-sectors with rather high pay (legal services, engineering, etc.) are aggregated with sub-sectors where productivity and pay (as well as the level of labour qualifications) are low, such as cleaning and security guard services.

Therefore, it is not surprising that the largest proportion of workers paid on the social minimum wage (SMW) work in the retail, hotel and restaurant sectors. These two sectors jointly employ a little over 17% of all employees, but almost 40% of employees on the SMW. The proportion of employees on the SMW varies sharply from one sector to another.

For example, while employment on the SMW concerns 20.2% of employees as a whole, this figure rises to 69.3% in the hotel and restaurant sector, 47.4% in the domestic services sector, and 56.9% in the retail trade sector. It can also be seen that one-third of the workforce in the business services sector are on the SMW, and this figure is 25% in the real-estate sector. On the other hand, only 1.5% of employees in the "financial intermediation" sector are on the SMW.

The issue of the effects (presumed negative) of the SMW (introduced in Luxembourg after the Second World War) on the competitiveness of the Luxembourg economy is put back on the agenda every time Luxembourg is faced with a reversal of the economic cycle. This was also the case from 2002 onwards. A recent microeconomic study suggests that the main negative effects observed in similar studies carried out abroad (that means principally a negative correlation between the SMW and employment) also exist in the Grand Duchy of Luxembourg. However, the study concedes that the analysis does not take account of the effects of the increase in the SMW on demand and employment at macroeconomic or even sectoral level (PAMUKÇU: 2004).

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Table 3.11.18

Minimum wages in Europe (January 2004)

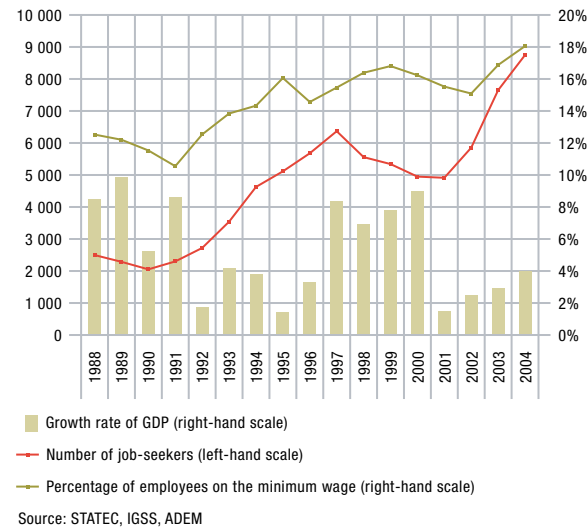
	In EUR	PPS	In % of average monthly gross earnings in industry and services (2002)
Luxembourg	1 403	1 237	49%
Netherlands	1 265	1 202	49%
Belgium	1 186	1 187	...
France	1 173	1 170	...
United Kingdom	1 083	1 084	34%
Ireland	1 073	929	50%
United States	727	797	34%
Greece	605	774	...
Spain	537	625	37%
Portugal	498	663	43%

Source: EUROSTAT (2004b)

NB: PPS = Purchasing Power Standard (enables the differences in price levels to be neutralized)

Graph 3.11.19

Growth, unemployment and minimum wage in Luxembourg



With regard to the SMW in Luxembourg compared with other European countries, EUROSTAT provides some interesting figures (EUROSTAT, 2004b). Luxembourg is normally among the leaders regarding the nominal value of the SMW (see table 3.11.18). If we refer to purchasing power (minimum wage expressed in PPS), the differential is more reduced. In 2002, furthermore, Luxembourg's SMW corresponded to 49% of the average monthly gross earnings in industry and services and in this respect was at the same level as in Ireland and the Netherlands.

Furthermore, there appears to be a correlation between the development of economic growth, unemployment and the number of employees on the SMW. The slowdown in the economy's growth rate between 1992 and 1996 corresponds exactly to an explosion in the number of job-seekers and a substantial increase in the number of employees on the SMW (the percentage increases from 10.5% in 1991 to 16.1% in 1995). The boom years in terms of economic growth from 1997 to 2000 witness a reduction in the number of unemployed and, at certain intervals, a reduction in the proportion of employees on the SMW. The economic turnaround in 2001 and "softer" growth of the following years correspond to a fresh and significant increase in the number of unemployed and in the proportion of employees on the SMW (more than 18% of all employees in 2004).

Moreover, the resulting variations must not conceal a more structural movement, namely the upward trend in unemployment and the proportion of employees on the SMW. In other words, despite the GDP's exceptional growth from 1997 to 2000, the proportion of employees on the SMW and the unemployment rate were not reduced to the levels reached at the beginning of the 1990s.

3.12

Standard of living, poverty and social exclusion in international comparisons

The Treaty of Amsterdam introduced the fight against social exclusion into the provisions relating to the social policy of the European Union (Articles 136 and 137 EC). The Lisbon European Council in March 2000 emphasised that the extent of poverty and social exclusion was unacceptable and that the construction of a European Union favourable to inclusion is necessary as an essential component of the strategic objective of the Union for the coming decade, aiming at sustainable economic development, a quantitative and qualitative improvement in employment and greater social cohesion. Following a decision of the Lisbon European Council in March 2000, confirmed in Nice in December the same year, the open method of coordination was chosen within the context of the fight against poverty and social exclusion in the EU.

The implementation of this approach implies the definition of accepted targets for the EU as a whole, the drawing up of national action plans for social inclusion (NAPIncl) with a view to achieving these targets and the publication of regular monitoring reports. A group of 18 indicators was set at the Council of Laeken (December 2001).

Among the "primary" indicators adopted, we find in particular the risk-of-poverty rate after transfers (proportion of people whose income is below 60% of the median national income), the ratio of quintiles of income S80/S20, the rate of persistent risk-of-poverty (proportion of people with income below the poverty risk threshold – 60% of the median – during the current year and for at least two of the three previous years). The Gini coefficient (ratio between the cumulative proportion of the population ranked according to income levels and the cumulative proportion of total income they earn; it should be borne

in mind that the higher the coefficient, the greater the inequality), the rate of risk of poverty before transfers and dispersion around the poverty risk threshold are classified among the "secondary" indicators.

These indicators are calculated on the basis of the "European Community Household Panel", the first wave of which dates back to 1994. The ECHP is based on a standardised survey and its longitudinal structure enables the same households and individuals to be monitored and questioned for several consecutive years. In Luxembourg, the ECHP survey is conducted by the CEPS under the aegis of STATEC. The comparative results are published by EUROSTAT and form the basis for the "joint reports on inclusion". A number of indicators are listed under the heading "Social cohesion" of the EU's structural indicators.



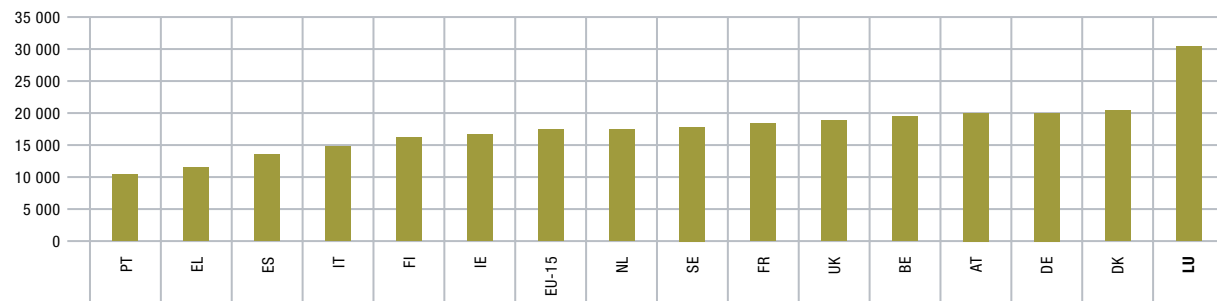
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Graph 3.12.1

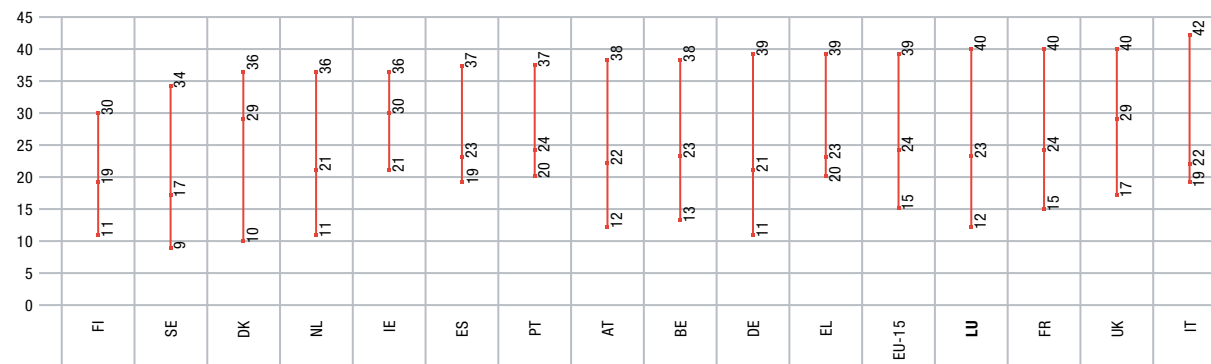
Risk-of-poverty threshold (60% of median income) for a household consisting of two adults and two children in 2001 (PPS)



Source: EUROSTAT (2004)

Graph 3.12.2

Risk-of-poverty rate in 2001 before any social transfers (top), after payment of pensions (middle) and after all social transfers (bottom) (in %)



Source: EUROSTAT (2004)

It should be pointed out that the concept of "risk of monetary poverty" is relative in character. The risk-of-poverty rate is calculated by comparison with the equivalent median income of each country. However, the level of this income is very different from one country to another. By way of example, in Luxembourg the poverty risk threshold (60% of the median income) for a household consisting of two adults and two dependant children was 30,190 PPS or 29,113 euros in 2001. In Greece, it was 11,431 PPS or 8,995 euros (see graph 3.12.1 indicating the risk-of-poverty threshold).

One of the more interesting comparisons involves the poverty risk rate *before* and *after* transfers. According to the results of the ECHP for 2001 (on income in 2000), the risk-of-poverty rate before transfers in Luxembourg is rather high by European comparisons: 40% of individuals in Luxembourg were living on an equivalent income before any transfers which was below 60% of the equivalent median income; this percentage was 39% in the EU-15, but only 30% in Finland and 34% in Sweden. Including pensions and other social transfers, the poverty risk rate in Luxembourg (threshold of 60% of median income) falls to 12% and is among the European countries where the risk-of-poverty rate after transfers is lowest. The positive impact of social transfers on poverty risk in Luxembourg is therefore higher than in most other European countries. Another characteristic of Luxembourg is the very low risk-of-poverty rate of pensioners. The rate is 8% in Luxembourg but 17% in EU-15.

As far as the inequalities measured by the Gini coefficient or the interquintile ratio (S80/S20) are concerned, it is clear that while Luxembourg is not one of the more inegalitarian countries such as the United Kingdom, Ireland or southern European countries, it does not reach the low levels of inequality of Denmark, Sweden or Finland (see the summary table 3.12.6).

Alongside the ECHP (now replaced by the EU-SILC survey), the "*Luxembourg Income Study*" (LIS) – a project that recently celebrated 20 years of existence – is another tool for making international comparisons of disposable income, poverty and inequality (SMEEDING, 2004; ATKINSON, 2004). The research project was launched in 1983 with the support of the Luxembourg Government and the Luxembourg Research Centre CEPS/Instead and, since 2001, the LIS has become an independent non-profit organisation.

The aims of the project are to harmonise national micro-data on living conditions to enable international comparisons, to create a database that is easily accessible to researchers and to promote comparative research. One of the advantages of the data collected by the LIS project is that it takes account of countries outside the European Union, such as Switzerland, Japan and the United States, and allows comparative analysis.

The interdecile ratios (D9/D1, ratio between the total living standards of the 10% of people with the highest living standards and that of the 10% of people with the lowest living standards) and the Gini coefficient calculated from the LIS data confirm that in 2000, Luxembourg was in an intermediate zone where redistribution of income is more egalitarian than in the United States, the United Kingdom, Italy, Russia or Mexico, for example, but less egalitarian than in northern European countries, the Netherlands and in Belgium.

From another viewpoint, the income levels lower than the median (ratio D1/D5) and incomes higher than the median (ratio D9/D5) may move in different directions depending on the country. In Luxembourg, the relative level of income of the poorest individuals is "highest" in relative terms among all the countries taken into account in LIS. In other words, the lowest income (D1) represents 66% of the median income. The highest income (D9) is also very high. It represents 215% of the median income, and is at the same level as in the United States (FÖRSTER & VLEMINCKX, 2004; see also the graph 3.12.3 indicating the gap between low and high incomes).

Inequality in incomes and the relative monetary risk-of-poverty rate are strongly correlated (see graph 3.12.4). Rates of poverty and inequality in Luxembourg are among the lowest in the countries taken into consideration in the LIS project. Incidentally, almost all observations on Luxembourg are below the regression line. That means that a given level of inequality is below average and that the policies to fight poverty (guaranteed minimum income, welfare benefits, etc.) seem to be paying off (ALLEGREZZA et al.: 2004, pp.269-275).

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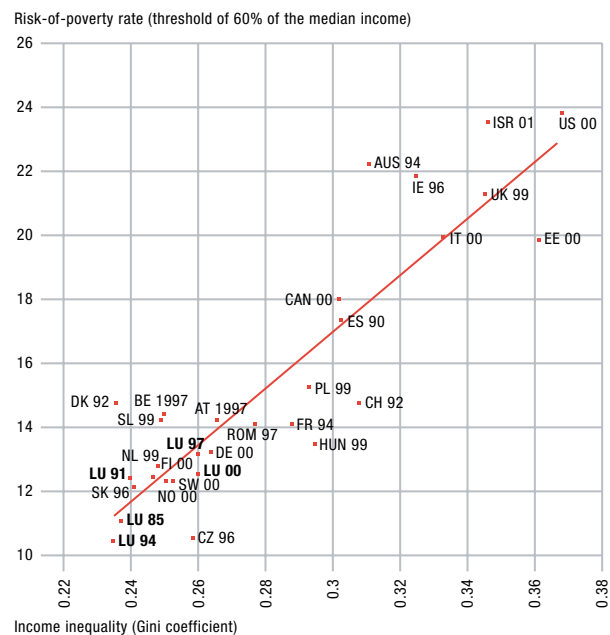
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Graph 3.12.4

Inequality of income and risk-of-poverty rate



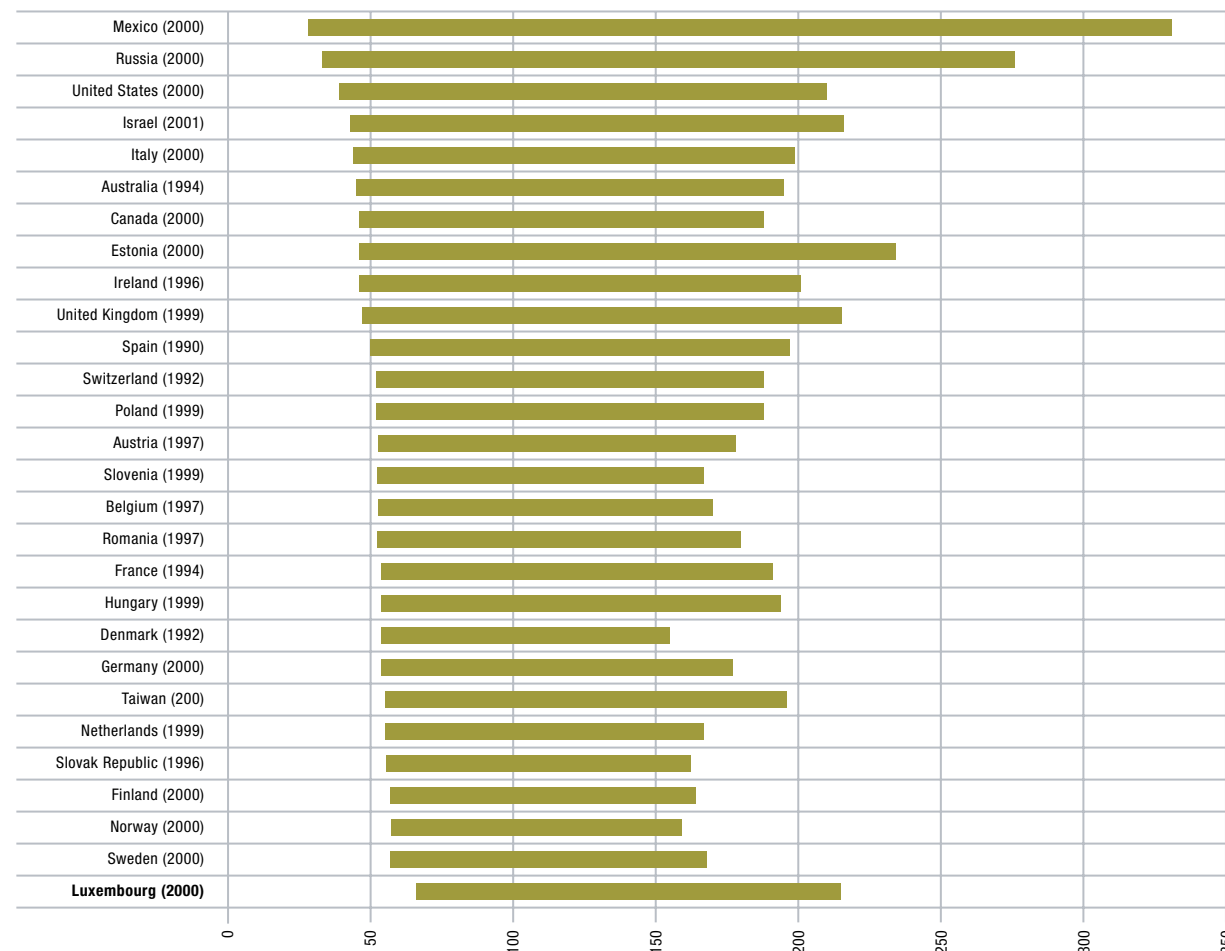
Source: LIS – Key figures (www.lisproject.org) and ALLEGREZZA et al (2004)
 N.B.: Abbreviations of the names of countries monitored in the year of the survey (e.g.: LU 00 = Luxembourg in 2000). We notice, with regard to Luxembourg, that the data for the years 1985-1994 (PSELL1) seems to show a lower inequality coefficient and poverty rate than the data derived from PSELL2 (1995-2001). This seems to be a methodological bias.

The LIS data also allows a regional analysis (ALLEGREZZA et al.: 2004, pp. 275-282). Luxembourg is one of the richest regions in Europe and the level of disposable income is around 70% higher than in neighbouring regions (Wallonia, Rhineland-Palatinate and Saar, Lorraine). Inequality in incomes (Theil coefficient) in Luxembourg is similar to Wallonia, but in Rhineland-Palatinate, Saar and Lorraine, the distribution of incomes is much less egalitarian.

The risk-of-poverty rate of relative to Luxembourg is low. Nevertheless, even better results are achieved for Lorraine, whether this is in comparison to the reference population for France or for Lorraine. We have seen that the poverty threshold is relative (it is calculated in comparison with the median income of the reference population). If we take the population of the Grande-Région as a reference, we notice that relative poverty in Luxembourg is virtually non-existent (below 1%), which has an impact on the perception that the inhabitants of regions on the other side of the border have about the attractiveness of Luxembourg in terms of income (see table 3.12.5).

Graph 3.12.3

Gap between low and high incomes (LIS data) (Lowest and highest deciles of income as a % of median income)



Source: FÖRSTER & VLEMINKX (2004) on the LIS database.
 Note to assist the reader: The length of the bars represents the gap between individuals with the highest and the lowest incomes (D9 and D1). The insertion point of the bars on the left shows the level of low incomes (lower decile, D1) in % of the median income. By way of example, the level of lowest incomes (D1) in Luxembourg represents 66% of the median income. As the bar extends to the right, the level of highest incomes (D9) increases in comparison with the median. In Mexico, the highest incomes (D9) represent 328% of the median income.

Table 3.12.5
 Income distribution in the "Grande-Région" (4th wave LIS)

	Median income					Risk-of-poverty rate		
	Proportion of population	Adjusted by PPA into US\$ at 1994 prices	100 = Grande-Région	Proportion of incomes	Theil coefficient	Regional	National	Grande-Région
Lorraine	21.6%	15 295	104.4	22.5%	0.167	8.2	9.7	8.9
Wallonia	29.1%	13 775	94.1	27.4%	0.098	11.0	14.7	13.0
Rhineland-Palatinate and Saar	45.0%	13 996	95.4	42.9%	0.116	19.0	21.4	18.6
Luxembourg	4.3%	24 340	166.2	7.2%	0.102	10.4	10.4	0.9
Grande-Région	100.0%	14 645	100.0	100.0%	0.135	...		14.1

Source: ALLEGREZZA et al. (2004)
 *threshold of 60% of the median income of the reference population, i.e. region, country or Grande-Région.

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Table 3.12.6

**Summary table: a number of indicators of monetary poverty and inequality in the EU-15 in 2001
(ECHP, Community Household Panel)**

	EU-15	BE	DK	DE	EL	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK
Ratio of quintiles S80/S20	4.4	4.0	3.0	3.6	5.7	5.5	4.0	4.5	4.8	3.8	3.8	3.5	6.5	3.5	3.4	4.9
Gini coefficient	28	28	22	25	33	33	27	29	29	27	26	24	37	24	24	31

Risk-of-poverty threshold - 60% of median annual income - in euro (illustrative values)

Single-person households	8319	9295	11988	9455	4264	5416	8932	8553	6240	13863	8292	9173	3589	8916	10367	10632
2 adults and two children	17469	19520	25175	19855	8955	11374	18756	17961	13103	29113	17414	19263	7538	18724	21770	22327

Risk-of-poverty rate at various thresholds (% of people with a living standard lower than a fraction of the median living standard)

40% of median	5	2	2	3	8	7	4	5	8	3	4	3	6	2	2	5
50% of median	9	6	4	6	14	13	9	15	13	6	6	6	13	6	5	11
60% of median	15	13	10	11	20	19	15	21	19	12	11	12	20	11	9	17
70% of median	23	21	29	19	28	27	23	29	27	21	19	19	28	20	17	26

Risk-of-poverty rate before and after transfers (threshold of 60% of median income)

Before any transfer	39	38	36	39	39	37	40	36	42	40	36	38	37	30	34	40
Including pensions	24	23	29	21	23	23	24	30	22	23	21	22	24	19	17	29
Including all transfers	15	13	10	11	20	19	15	21	19	12	11	12	20	11	9	17

Risk-of-poverty rate by employment status (threshold of 60% of median income)

Salaried employee	6	3	1	4	5	7	6	6	7	8	...	3	7	4	4	5
Self-employed	16	10	15	5	25	20	25	16	18	2	...	24	28	17	24	14
Unemployed	38	32	23	34	39	37	30	54	51	48	23	23	38	21	19	49
Retired	17	21	23	13	32	18	17	39	13	8	3	16	25	11	10	20
Inactive/other	25	21	22	18	23	24	26	33	28	16	12	22	28	22	22	30

Risk-of-poverty rate by household type (threshold of 60% of median income)

1 person	25	21	24	19	32	31	22	57	24	9	12	23	39	35	21	29
2 adults + 2 children	13	11	3	7	14	23	12	17	21	15	9	7	15	5	4	12
2 adults + 3 children	27	7	13	21	26	34	24	37	37	23	17	23	49	5	8	30

Persistent risk-of-poverty rate at various thresholds

60% of median	9	7	6	6	14	10	9	13	13	9	5	7	15	6	...	10
50% of median	5	3	2	3	9	6	3	7	7	3	2	3	8	2	...	5

Source: EUROSTAT (2004)