

DEVELOPING HIGHLY SKILLED WORKERS: REVIEW OF BELGIUM



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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FOREWORD

A major conclusion of the OECD Growth Study was that governments need more effective policies for developing human capital and realising its potential in order to increase productivity and growth. In the framework of the project on *Growth Follow-Up: Micro-Policies for Growth and Productivity*, the OECD is conducting peer reviews of member countries' policies for developing highly skilled workers. Peer reviews are also being carried out on policies for increasing access to venture capital, increasing the diffusion of information technology to business, and enhancing public/private partnerships for research and innovation.

This peer review of Belgium was carried out by the Committee on Industry and Business Environment (CIBE) in October 2004. The report presents recommendations for policy actions based on the strengths and weaknesses observed in the Belgian policy approach to developing highly skilled workers to fulfil future industry requirements. Once a critical mass of countries has been reviewed, a cross-country comparative synthesis report will be prepared with a view to identifying common good policy practices.

This report was prepared by Gunseli Baygan of the OECD Secretariat. It is published under the responsibility of the Secretary-General of the OECD

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ASSESSMENT AND RECOMMENDATIONS

Belgium is a small, open economy with a highly skilled and multilingual workforce. Despite high levels of labour productivity, Belgium continues to face problems in sustaining employment growth. The labour market shows considerable inflexibility in terms of wages and worker movement. High unemployment rates, low levels of labour force participation, and limited regional and sectoral mobility put Belgium's generous social welfare state under increasing pressure. The rapid diffusion of new technologies has led to significant upskilling in various sectors and the creation of new occupations with special skill requirements. While partnerships between the private sector and tertiary education have accelerated in recent years, Belgium has a mismatch in supply and demand for certain labour skills, particularly across regions.

In 2003, the *National Conference on Employment* set a new policy agenda to strengthen work incentives and training provisions. A number of employer and employee-based training programmes were initiated. A certification system to recognise acquired skills and enhance the transparency of training markets will be introduced in the French and Flemish communities. Regional authorities committed themselves to promote worker mobility across and within regions and to improve co-ordination between regional job search agencies. Public resources dedicated to research and development and innovation programmes were increased with a view to enhancing the environment for technical personnel.

However, regional differences in productivity and labour market performance remain. While the low-skilled are the main target of labour market policies, more measures are needed to better utilise the highly skilled labour force. Belgium's complex institutional structure makes policy co-ordination at the regional, community and federal levels difficult. In addition to improved co-ordination, an integrated skills and mobility strategy may be warranted. This would include a better labour market monitoring system and accelerated programmes to enhance worker mobility. In addition, initiatives are needed to leverage more private financing for the generous public training system. A summary of progress and recommendations concerning policies for highly skilled workers in Belgium is given in **Table 1**.

Table 1. Progress and recommendations

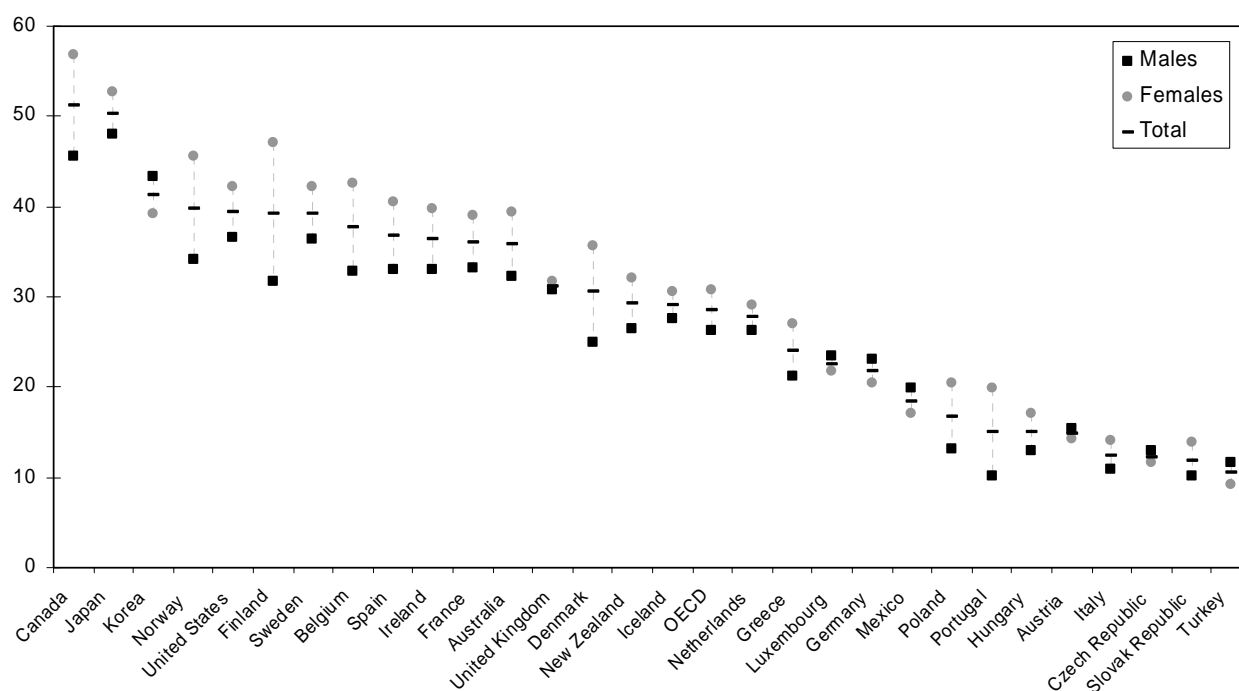
Area	Recent/planned action	Recommendations
Monitoring supply and demand of the highly skilled	Vacancy surveys at regional level and labour market forecasts at national level.	Enhance co-ordination of labour market forecasting and analysis at different levels.
Measures to increase enterprise and individual training	A wide variety of employer and employee-based training programmes at regional level, including vouchers and <i>Skills Centres</i> .	Use public financing to leverage private funding for training and develop a national (and European) skills certification system.
Measures to increase national worker mobility	Introduction of language voucher scheme to enhance mobility across regions.	Enhance wage signals at company and sectoral level and strengthen incentives to increase mobility across regions and between the public and private sectors.
Measures to adjust to international worker mobility	Special work permits for high-skilled professions, and pan-European initiatives to increase worker mobility.	Accelerate efforts to enhance cross-border mobility in Europe and adopt schemes to attract skilled immigrants as well as Belgian expatriates.
Measures to increase workforce participation by highly skilled women	Introduction of gender-neutral job evaluation system and extension of parental benefits and child care provisions.	Reduce tax disincentives to employment of second wage-earners and work with social partners to reduce gender-based wage gaps.
Measure to develop human resources in science and technology (HRST)	Increased public R&D spending at regional and federal levels; <i>BeW/Se</i> network targeting women in science.	Increase public/private research collaborations and linkages with multinational firms; enhance technical careers for women.

TRENDS IN SUPPLY AND DEMAND OF HIGHLY SKILLED WORKERS

Belgium ranks among the leading OECD countries in terms of its stock of human capital. In 2002, the share of the adult population with tertiary education was a little under 30%. Educational attainment among younger cohorts (25-34 year-olds) was higher at 38% (**Figure 1**). This is divided between tertiary-type A and advanced research programmes (18%), and more occupationally-oriented tertiary type-B programmes (20%).

Figure 1. Educational attainment in OECD countries, 2002

(Percentage of the population of 25 to 34-year-olds with tertiary education)



Notes: Includes tertiary type-A education, which corresponds to tertiary academic education (university), and tertiary type-B education, which corresponds to tertiary vocational education (practical/technical/occupationally-specific programmes).

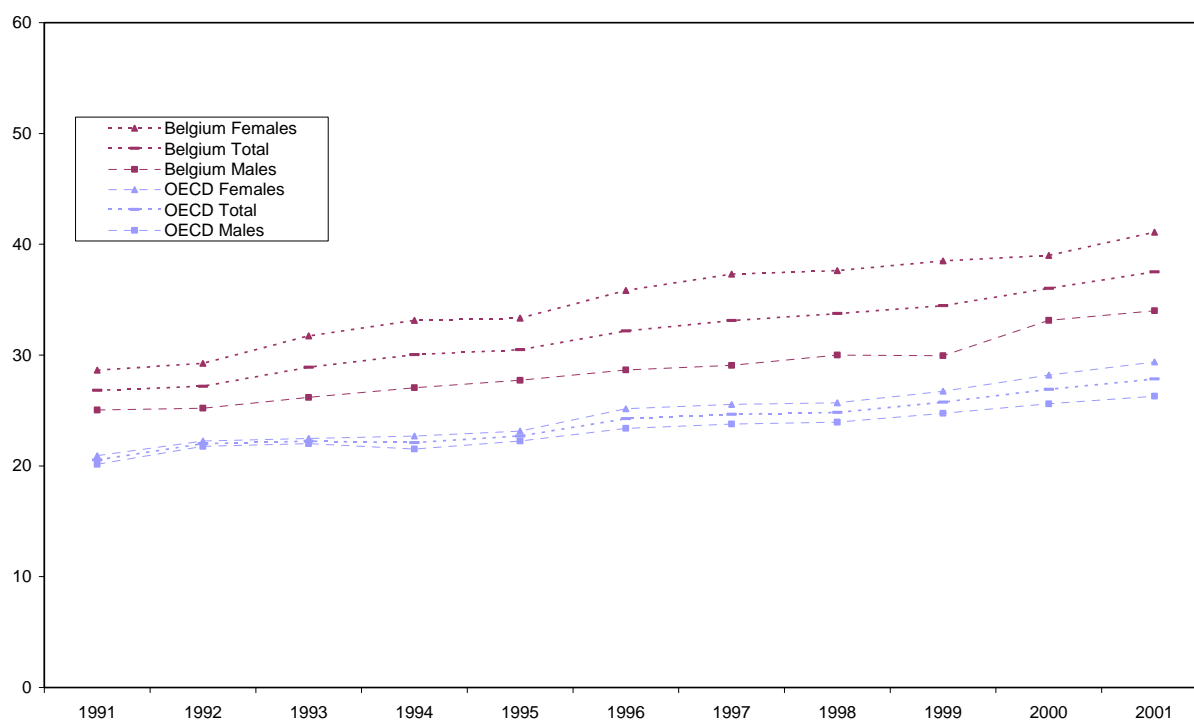
Source: OECD (2004), *Education at a Glance*.

Like other OECD countries, Belgium experienced a rapid increase in educational attainment during the 1990s (**Figure 2**). Rising skill requirements and an increase in unemployment in recent years contributed to this trend. Tertiary education among young Belgian females in particular rose from less than 30% in 1991 to 40% in 2001. In terms of field of study, one out of three university students graduated in social sciences, law or business, followed by humanities and arts. Science and engineering (S&E) degrees represented 25% of total degrees awarded in 2000, around the OECD average. In spite of its well-developed higher education system, Belgium lags behind the leading OECD countries in terms of

graduation rates at the PhD level. While Switzerland, Sweden, Germany and Finland had the highest shares of doctorates in total university degrees at over 2%, less than 1% of university graduates received a doctoral degree in Belgium in 2000 (OECD, 2003a).

Figure 2. Growth in tertiary education, 1991-2001

(Percentage of the population of 25 to 34-year-olds that has attained tertiary education)



Notes: Includes tertiary type-A education, which corresponds to tertiary academic education (university), and tertiary type-B education, which corresponds to tertiary vocational education (practical/technical/occupationally-specific programmes).

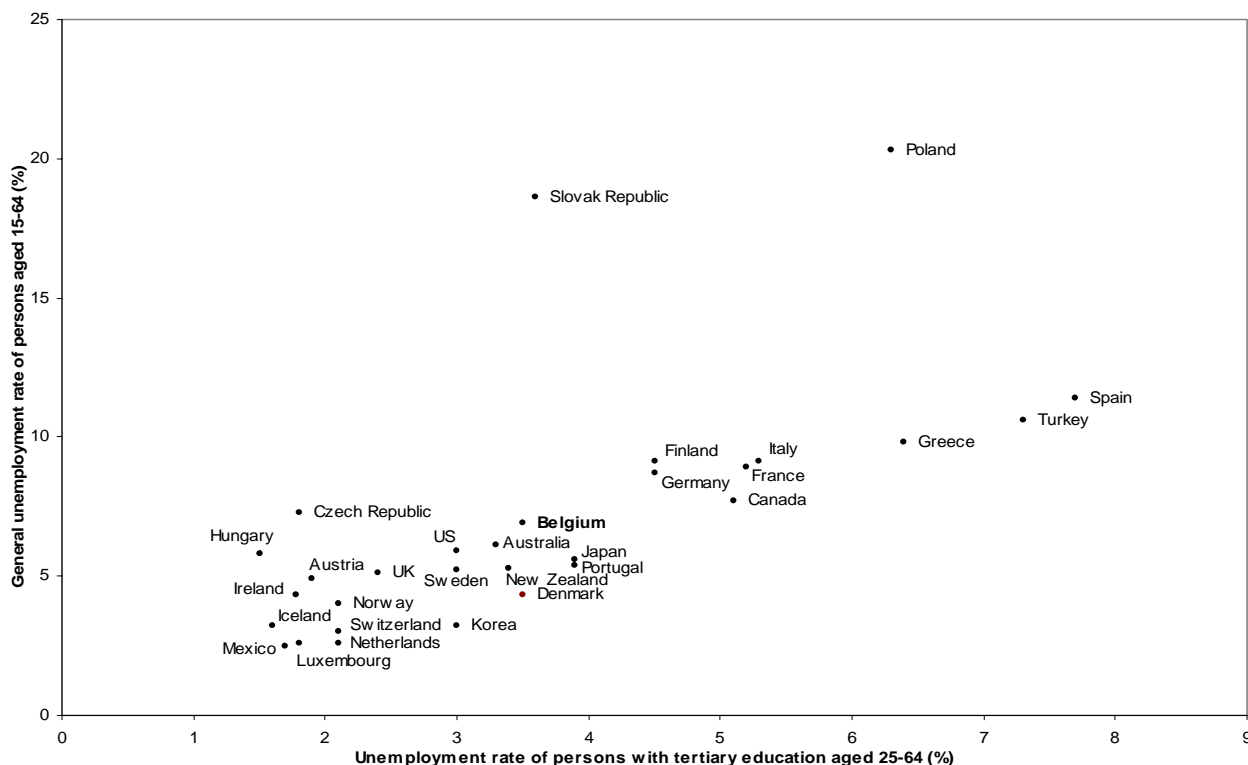
Source: OECD (2003), *Education at a Glance*.

The Special Law of 1989 on *Funding of Regions and Communities* gave each community the right to organise, fund and control its educational system according to its own objectives. Communities - Flemish, French and German-speaking - remain autonomous in areas related to education, vocational training and scientific research. In addition to the federal state, there are also three regions - Flemish, Walloon, and Brussels Capital - which are responsible for economic policy. While there are some differences, in all communities tertiary education consists of a two-track system -- university education and short/long duration non-university education. The movement from the latter track to the former is possible, as prior studies are partially recognised, but such transfer mechanisms are not widely used.

Unrestricted access to the higher education system has contributed to labour market mismatches in Belgium. Despite increasing job assistance services provided by universities, the employment rate of recent graduates continues to show wide sectoral variation. Overall, the Belgium economy has suffered relatively high unemployment. In 2002, the aggregate unemployment rate was almost 7%, although half that for those with tertiary education (Figure 3). Employment growth was significant in ICT services whose share in business sector employment reached around 6% in 2000 (OECD, 2003d). Unfilled job vacancies for computer specialists and electronics and mechanical engineers have been reported due to a shortage of graduates in these fields. In contrast, the ratio of unemployed to graduates has been estimated to exceed

20% among political and social science majors as well as in psychology, history and philosophy in the French Community (Eurybase, 2001).

Figure 3. Comparative unemployment rates in OECD countries, 2002



Notes: Unemployment rate of persons with tertiary education and total unemployment rate.

Source: OECD (2004), *Employment Outlook*.

There are significant differences in labour market performance across regions and age groups. The unemployment rate ranged from 5.7% in Flanders and 10.6% in Wallonia to a high of 16.9% in Brussels in 2003 (**Table 2**). In the Walloon and Brussels regions, a high number of vacancies is reported in the service and health care sectors and to a lesser degree in "high-skilled" professions. The unemployment rate among young adults in these regions, however, continues to be over 30%. In the Flemish region, on the other hand, there are shortages of engineers, qualified technicians, information technology specialists and commercial and managerial professionals. Overall, the inflow of technical education graduates into the labour market remains insufficient. The coexistence of unemployment and high vacancy rates indicates limited labour market mobility within and across regions as well as a lack of co-ordination between the educational system and labour markets.

Table 2. Unemployment rate by region, age, and sex

Age	15 to 24			25 to 49			50 to 64			15 to 64		
Region/Sex	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Brussels Capital Region	45.2	25.2	35.9	16.1	18.4	17.2	6.0	7.5	6.7	16.8	17.0	16.9
Flemish Region	14.0	14.0	14.0	4.5	5.6	4.9	3.5	3.9	3.7	5.2	6.3	5.7
Walloon Region	31.0	32.0	31.6	8.7	10.9	9.7	4.2	3.6	3.9	9.7	11.6	10.6
Belgium	21.6	19.9	20.8	6.9	8.43	7.6	3.9	4.3	4.1	7.7	8.9	8.3

Source: Belgium (2004), Labour Force Survey, National Statistics Office.

Demographic trends will compound these labour markets difficulties in coming decades (Burniaux *et. al.*, 2003; McKinsey, 2004). By 2030, the proportion of the population aged 20 to 59 is expected to drop from 55% to around 49%, and the dependency ratio, *i.e.* the ratio of economically non-active to active, will exceed 100%. In addition to its financial cost, currently estimated at 3.1% of GDP by 2030 (High Finance Council, 2004), ageing will place further constraints on the supply of skilled labour in Belgium. And while the higher education system is well-developed in all communities, there seems to be a wedge – particularly across regions -- between higher education institutions and labour markets. Incentives to pursue technical and professional secondary education and the transition process to the labour market both need to be strengthened.

POLICIES FOR DEVELOPING HIGHLY SKILLED WORKERS

Overview

Belgium has taken a number of initiatives to develop its highly skilled labour force. The tertiary education system was restructured and universities were given more autonomy in programme organisation and curricula content to make them more responsive to industry needs. The *National Conference on Employment* in 2003 increased support for employer and employee-based training schemes. To ease long-term pressures from an ageing population, specific measures in the area of training and support of older job-seekers were introduced at regional level. Regional authorities also have plans to increase worker mobility both between and within regions.

In spite of recent developments, significant differences remain in regional productivity and employment performance. Better co-ordinating labour market monitoring and analysis and providing mobility assistance, as well as job search guidance, could reduce the mismatch between labour supply and demand. Fuller integration of education and training programmes and labour market policies at the community and regional level is needed. The complex institutional structure in Belgium, in particular the overlap of responsibilities across regions, communities and the federal level, makes such policy co-ordination difficult. However problematic to achieve, an integrated skills and mobility strategy with the participation of different stakeholders could enhance information flow and the diffusion of best practices.

Monitoring supply and demand for highly skilled workers

The Belgian labour market monitoring system is highly decentralised. Regional public employment services (PES) use data on job vacancies to analyse potential shortages in their respective labour markets. A report on labour market bottlenecks is published on an annual basis, and this information is used to tailor the individual counselling and training needs of job seekers. The surveys are also used to direct government-funded training courses towards skills in high demand. For example, about 18 000 Flemish jobseekers receive PES training every year in areas where labour market shortages are expected. This constitutes about 35% of all PES-supplied training.

Job vacancy data at regional level has been increasingly supplemented by sector studies. For example, a sector-specific initiative has recently been taken to analyse the supply and demand of teachers in the Flemish region. The *Flemish Service for Employment and Vocational Training* (VDAB) has two databases, bringing together potential employers and job seekers. An “early warning system” for labour shortages is also under development in the Flemish Region. Initiatives planned in the Walloon Region include the construction of a *Système Intégré d'Anticipation du Marché du Travail* and a quarterly survey, *Identification des Embauches en Entreprises* (IDEE), to identify and better fill impending skills shortages. However, the coverage of sector studies and occupational forecasts needs to be broadened, and regional Skill Centres (*Centres de Compétence*) should be better used to monitor changing skill needs and professional qualifications.

The *Higher Institute of Labour Studies* (HIVA) conducts research to identify nation-wide labour market trends. But while quantitative indicators -- unemployment rates, real earnings, employment trends and immigration statistics - are collected at regional and federal level, qualitative information on labour markets is sparse. Employee-based surveys that analyse complementary developments in the workplace, such as the adoption of new technologies, organisational change and training, could facilitate more informed decision-making about education and career planning. Industry/government partnerships could be enhanced to bring together representatives from business, government, labour, education and other professional groups in monitoring labour force trends.

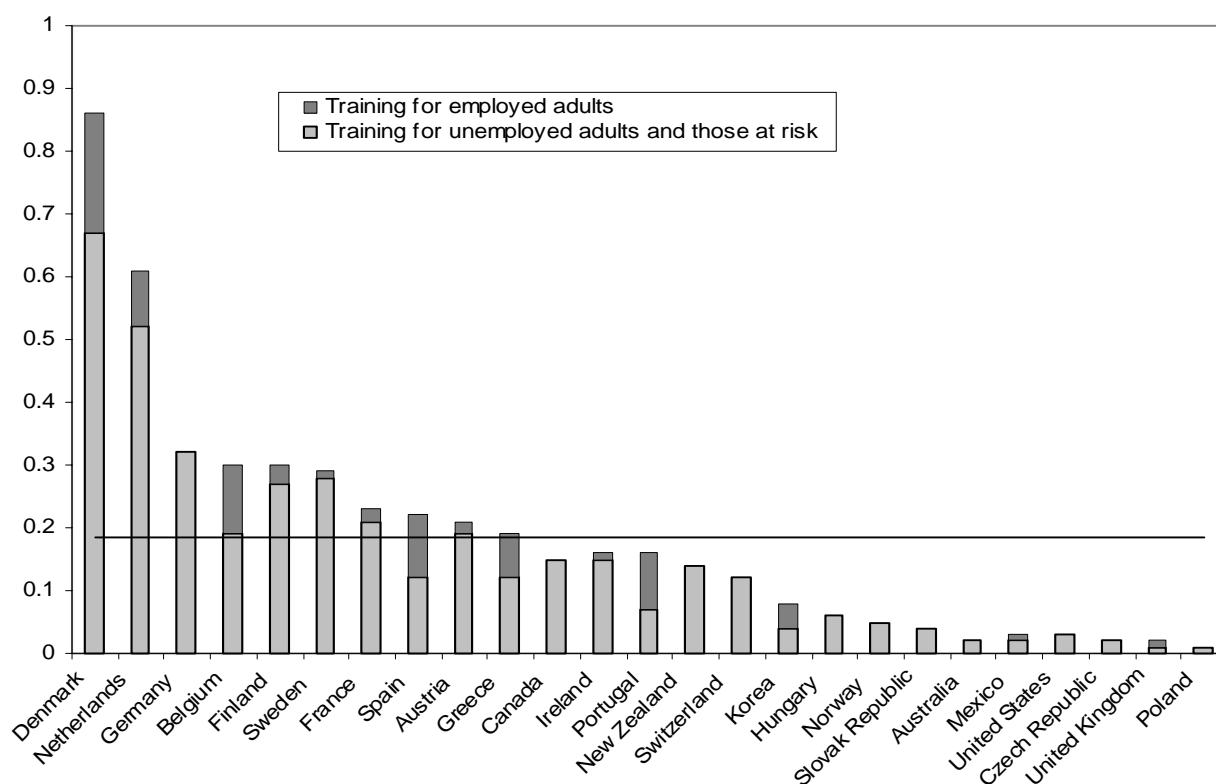
Overall, Belgium needs a more co-ordinated approach at regional and national levels to assess labour market trends and disseminate information on a timely basis. Creating regional networks to co-ordinate long-term human resource planning and skill development strategies is particularly important given increasing regional disparity in labour market outcomes. This requires the development and use of more uniform surveys by the public employment services (PES). Currently, the regions differ in their selection of qualitative and quantitative criteria and survey and forecasting methodologies. Information exchange across the PES is also limited and could be improved. Enhancing co-ordination of labour market forecasting and analysis across regions could provide the basis for upgrading worker skills and mobility.

Increasing enterprise and individual training

Although it has significantly improved in recent years, the participation rate in employer-sponsored education and training in Belgium is among the lowest in the OECD. Most training for both the employed and unemployed is financed by the government rather than the private sector, making Belgium one of the leaders in terms of public expenditures on labour market training (**Figure 4**). Around 11% of Belgian enterprises offered some form of job-related training in 2002, with continuous vocational training amounting to around 1.4% of total labour costs incurred by Belgian enterprises. An agreement has been reached among Belgian employers and trade unions to further increase this share to 1.9% in 2004.

As in other OECD countries, training expenditures and participation rates in job-related training show wide variation by firm size. In 2002, training expenditures as a percentage of total labour costs ranged from 0.25% in small firms and 0.8% in medium-sized firms to almost 2% in large firms. Educational attainment also plays an important role in training outcomes. While only 3% of people with poor educational background participate in some form of lifelong learning, this percentage more than triples for the highly educated in the Brussels region. The difference is even more pronounced in the Flemish and Walloon regions (**Table 3**). This is especially disconcerting for Wallonia given the region's persistent unemployment problem.

Figure 4. Public expenditures on labour market training as % of GDP, 2002 or latest year



Source: OECD (2004), *Employment Outlook*.

Table 3. Participation in life long learning by region, educational attainment and sex, 2002

(% of 25-64 age class)

Region/ Educational attainment	Low			Medium			High			Total		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Brussels Capital Region	2.5	3.2	2.9	7.6	7.4	7.5	9.0	11.8	10.5	6.2	7.6	6.9
Flemish Region	2.6	2.1	2.4	6.0	6.6	6.3	12.6	13.7	13.2	6.6	6.9	6.7
Walloon Region	2.0	1.6	1.8	4.6	4.4	4.5	9.0	7.1	8.0	5.2	4.4	4.8
Belgium	2.4	2.0	2.2	5.7	6.0	5.8	11.1	11.5	11.3	6.0	6.3	6.1

Note: Low: ISCED 0/1/2; Medium: ISCED 3/4; and High: ISCED 5/6.

Source: Belgium (2004), National Statistics Office.

A range of training schemes has been launched at regional level in recent years, including training vouchers for employers and employees, the creation of Skills Centres (*Centres de Compétence*), and the

provision of training by public employment agencies (**Box 1**). These programmes have largely met their targets in terms of workers receiving training. In 2003, the budget for the training vouchers programme for employers in the Flemish region reached about €35 million or 0.025% of regional GDP. Given the overall popularity of the programme, more funds have been allocated. A recent study has also confirmed the effectiveness of Skills Centres in the Walloon region, where the 14 centres in place are to be supplemented by 9 more in 2005 (CESRW, 2003). However, the few training initiatives at federal level, including career breaks (*Interruption de Carrière* et *Crédit-temps*) and paid education leave, intended to improve the adaptability of the workforce through retraining, have not been considered particularly effective.

Box 1. Regional training programmes in Belgium

Training vouchers for employers are available in the Walloon and Flemish regions, offering financial support to cover the costs of employees undertaking training offered by recognised training providers. There are regional differences in terms of eligibility criteria, organisation, and overall budget. The target group of the system of vouchers in the Walloon Region, for instance, is restricted to self-employed workers and small enterprises with less than 50 employees. In the Flemish system, each company, irrespective of its size, is entitled to a maximum of 200 vouchers (worth €30) per year, a restriction which makes the system especially interesting for SMEs.

Training vouchers for employees are available in the Flemish region to stimulate lifelong learning. Through the voucher system, individual employees receive a 50% subsidy when undertaking training or career counselling offered by a recognised provider. The maximum yearly subsidy amounts to €150. In 2004, the budget for training vouchers for employees is about €11 million or 0.008% of Flemish GDP. The demand for training vouchers was higher than anticipated and, in 2004, the budget was increased from €10 billion to €12 billion. In addition, the government will partly reimburse unemployed persons for engaging in bottleneck professions. A small majority of applicants are female (56%), while the most popular courses are information technology and languages. The highly skilled are slightly overrepresented in the group of applicants.

Skills Centres (*Centres de Compétence*) are an initiative of the social partners in Wallonia and the public employment service with strong support from the Walloon Ministry of Employment and Training. They provide technology-based training in close co-operation with industry partners as well as awareness, information and demonstration activities, a technology observatory and support for start-up companies. Each centre is run independently, including responsibility for management and finances.

Special schemes -- In the Walloon region, the *Aides à la Création, l'Extension et la Reconversion d'Entreprises* provides financial support to enterprises for training offered to workers as a result of investment in new technologies or the introduction of a quality system. The *Centres de Formation en Entreprises* supports the creation of specific training centres, mostly organised for employees but also for job-seekers. In the Flemish region, VDAB provides training programmes adapted to the specific needs of sectors. In the Brussels region, the initiative '*Bruxelles Formation*' has been launched in co-operation with ORBEM and with the financial support of the French Community to provide training for job-seekers and employees at the request of and/or in close co-operation with employers. In Wallonia and Brussels, the *Forem* and the *Continuing Training Institute for Independent Business and SMEs* provide training on the Internet for job seekers, small firms and self-employed workers.

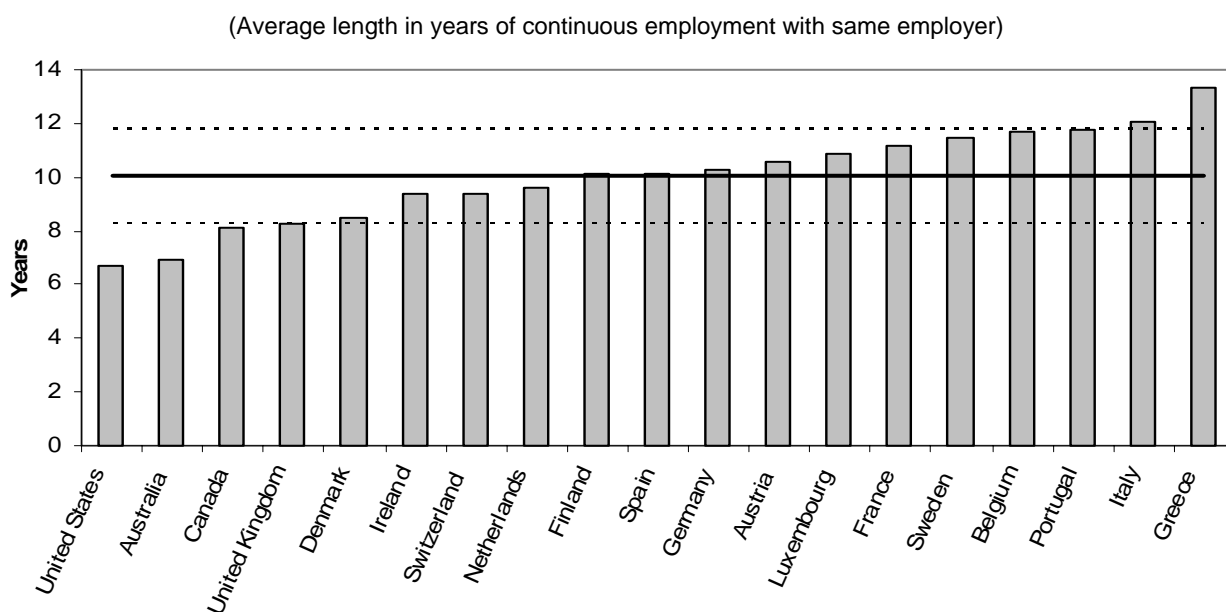
Attempts are being made by the regions to establish accreditation systems for acquired skills. The Flemish government is aiming to increase the transparency of the training market through creating *Competence Management Centres* or one-stop-shops for lifelong learning. It has also set up a system for the recognition of competencies acquired outside the official education system (*Ervaringsdiplomas*). The *Council on Education and Training* in the French community is discussing the development of a public validation system for competencies acquired through experience or vocational training.

Overall, Belgium needs a more co-ordinated skills strategy given structural problems in the labour market. For example, a nation-wide certification (and European-wide) system to recognise worker skills would help match supply and demand for skilled workers and augment cross-regional mobility. Inefficiencies in training could also be addressed by raising enterprise and individual contributions. Public funds should be used to a greater extent to leverage private contributions to financing training, so as to increase incentives to upskilling and its cost-effectiveness in Belgium.

Enhancing national worker mobility

Labour market mobility in Belgium remains limited, while high unemployment rates and labour shortages co-exist at regional level. Overall, Belgium has a higher than average rate of employee tenure, measured as years of continuous employment with the same employer (**Figure 5**). According to a recent study, 3.9% of the people employed in the Walloon region changed their jobs in the previous year compared to 6.0% at national level. Job mobility is relatively higher in the Brussels and Flemish regions, particularly for the highly-educated. In 2002, the rate of job change at the national level ranged between 6.2% among highly skilled workers to 4.9% among the low-skilled (**Table 4**).

Figure 5. Average worker tenure, 1999



Notes: Full line indicates the OECD average; dashed line indicates the average +/- of the standard deviation.

Source: OECD (2001), *Employment Outlook*.

Table 4. Rate of job change by region and education level (% total employment)

Educational attainment	Low	Medium	High	Total
Region				
Brussels Capital Region	4.6	5.9	7.0	6.1
Flemish Region	5.7	7.8	6.8	6.9
Walloon Region	3.4	4.0	4.2	3.9
Belgium	4.9	6.6	6.2	6.0

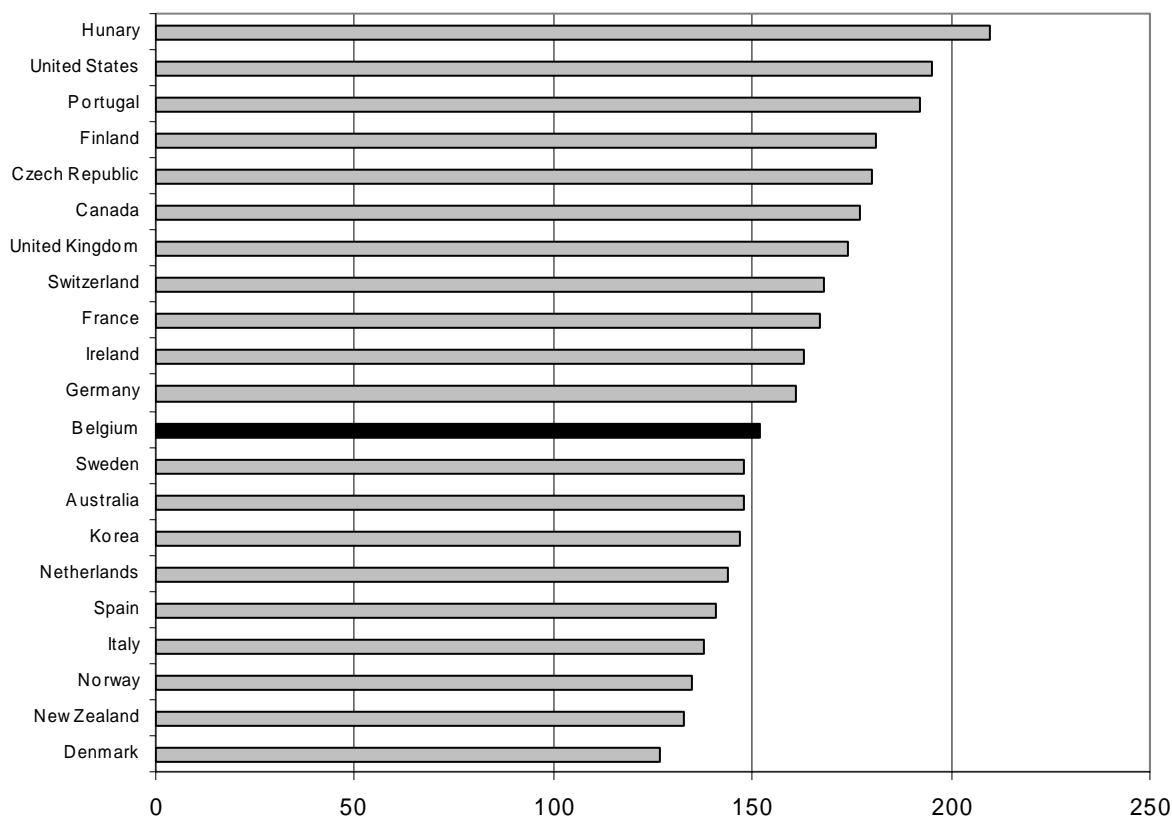
Note: The rate of job change is defined as the percentage of total employees (people aged 15-64 years) that changed from one job to another over a two-year period. It does not include inflows into the labour market from a situation of unemployment or inactivity.

Source: Belgium (2004), National Statistics Office.

The substantial differences in regional productivity levels and unemployment rates are not completely reflected in relative wage rates. Highly skilled workers face a relatively compressed wage structure in Belgium (**Figure 6**). The lack of wage flexibility not only puts downward pressure on private returns to higher education but also limits sectoral and regional mobility. The institutional and bargaining arrangements that underlie the wage determination process in Belgium are highly complex. An upper ceiling for wage cost increases is set by national and multi-industry negotiations through linking wage costs in neighbouring member states -- France, Germany and the Netherlands. There are also industry and enterprise level negotiations based on occupational classifications, wage scales and indexation (BFPFS, 2003a). On average, 72% of enterprises fall under a national sectoral collective agreement on pay with the occupational classification system determining the category to which a worker belongs. This system is updated in *ad hoc* fashion and usually slow to capture new skill requirements and occupations.

Figure 6. Relative earnings of the population with university-level education, 2002 or latest year

Upper secondary and post-secondary non tertiary education = 100



Notes: Relative earnings of graduates of tertiary type-A and advanced research programmes; figures for Belgium are net wages after taxes rather than gross wages.

Source: OECD (2004), *Education at a Glance*.

Mobility problems also persist with regard to public-to-private sector transitions. While mobility from industry to the public sector has been high, only 7% of workers that moved to a new a job in the private sector were previously employed by the public sector. As in other OECD countries, there are problems of a large and inflexible public sector at regional and federal levels (OECD, 2003c). For example, different pension rules that favour civil servants pose disincentives to leaving the public sector. Some regional attempts are being made to promote greater interaction between government and industry. In Flanders, for example, a programme has been introduced aimed at providing opportunities for up to 10 000 civil servants to take sabbatical leave, partly for training purposes in the private sector. As of 2005, private firms can also apply for a reduction in wage taxes for research staff conditional on co-operation with a public sector research institution.

Overall, initiatives to enhance labour mobility remain ineffective and limited in scope in Belgium. Social and cultural differences could be more important limiting factors than administrative or legal barriers in depressing worker mobility across regions. Lack of language competencies, in particular, contributes to persistent imbalances across regional labour markets. Over half of the hard-to-fill vacancies in the Brussels Capital region, for instance, are attributed to the lack of bilingual job-seekers. A language voucher scheme has recently been launched by the Brussels Regional Employment Office to provide assistance in four languages: French, Dutch, German and English.

Better co-ordination across regional employment policies and with the federal level are needed along with a system of incentives (*e.g.* language and skills training) and sanctions (*e.g.* enforcement of job-search requirements nation-wide) encouraging the unemployed to accept job offers in regions with different languages. Wider diffusion of information on job opportunities, skills trends, and training would have a positive effect on the mobility of workers, in particular among the highly skilled. Widening the scope for wage determination at company level would help to align collective wage agreements with labour market conditions and thus enhance pay-based incentives to sectoral mobility. Special schemes are needed to address the relative immobility of public sector workers at regional and federal levels.

Adjusting to international worker mobility

Immigration into Belgium is limited largely due to rather restrictive policies on work permits. These can only be issued to a non-European Union (EU) citizen if the applicant possesses special expertise or skills which are not available in the Belgian labour market. However, special provisions exist for family reunions and certain categories of managerial, research and information technology professions. Belgium now has one of the highest shares (6%) of foreign-born information technology specialists in Europe.

The skill profile of immigrants has considerably improved in recent years, although the share of medium and highly skilled nationals is far higher (**Table 5**). In 2000, people from the United States, Japan and India constituted the largest number of highly skilled immigrant workers. But skilled workers from non-European countries represent less than 1% of the total highly skilled in Belgium (BFPFS, 2003a). Overall, the proportion of foreigners in the Belgium population has remained stable at around 9%, two-thirds of which are from other EU countries, mainly Italy, France and the Netherlands.

Table 5. Skill Structure of the Belgian population aged 25-64 (average 1996-2002)

	% of the population				% of group		
	Low	Medium	High	Total	Low	Medium	High
National	87.7	92.7	93.5	90.8	40.6	32.3	27.1
EU	7.6	5.7	5.0	6.3	50.5	28.5	21.0
<i>of which recent immigration</i>	0.8	1.0	1.8	1.1	29.6	28.3	42.1
Other countries	4.7	1.6	1.4	2.9	68.7	18.1	13.2
<i>of which recent immigration</i>	1.1	0.6	0.8	0.9	54.1	22.9	23.0
TOTAL	100	100	100	100			

Note: Recent immigration = less than 11 years of residence

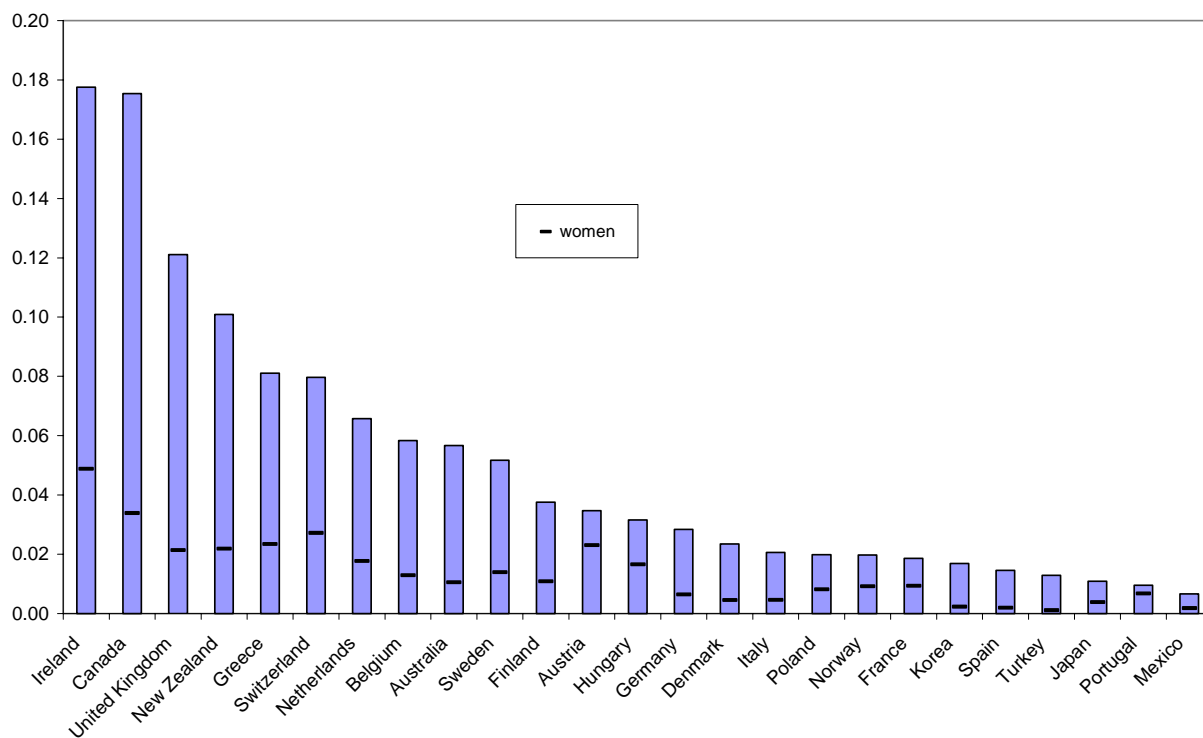
Source: Debuisson M. *et.al.* (2004).

High variation in regional unemployment rates present challenges for new entrants. Foreigners represent about 10% of the total population in the Walloon region, compared to about 5% in Flanders and 29% in Brussels. In 2001, the unemployment rate among immigrants was around 15%, more than double the rate for the Belgium-born population. Foreigners are also over-represented in long-term unemployment, and the income gap with Belgium nationals persists (EEO, 2003). Immigration-related issues are under the responsibility of the Communities, while the regions are increasingly promoting policies for the faster integration of foreigners. In the Walloon region, for example, six regional Francophone centres have been opened. However, programmes supporting the integration of immigrants into Belgium's labour market, including language training and better job research assistance, need to be broadened.

The labour market for highly skilled people is increasingly international. Belgium attracts an important number of skilled people in part due to the presence of EU institutions. At the same time, like other

European countries, it faces an outflow of skilled natives. The share of the highly skilled in the group of Belgian nationals in the United States was estimated to be around 27% in 2000. This group includes a significant number of people with science and engineering doctorates (**Figure 7**). Highly skilled professionals are mainly attracted to the job and research prospects in the United States. The narrow earnings gap in Belgium at different levels of educational attainment coupled with relatively high tax rates also contributes to the outflow of top researchers and other highly skilled workers (Cincera, 2000).

Figure 7. High-skilled foreign workers in the United States, 1999



Notes: Non-US OECD citizens with science and engineering doctorates in the United States as % of source country's population.

Source: OECD (2003, *Science, Technology and Industry Scoreboard*).

International students enrolled in Belgium's post-secondary institutions constitute another potential source of highly skilled workers. During the academic year 2001-2002 in the French-speaking universities, over 20% of students were non-EU nationals. Foreign students receive a residence permit during the period of their studies, but in principle are expected to leave the country once they have completed their degrees. In 2003, however, new rules were adopted to reconcile the right to work and the right to stay in Belgium. Work permit procedures were simplified to ease labour market access for people, including foreign graduates, who were granted a residence permit.

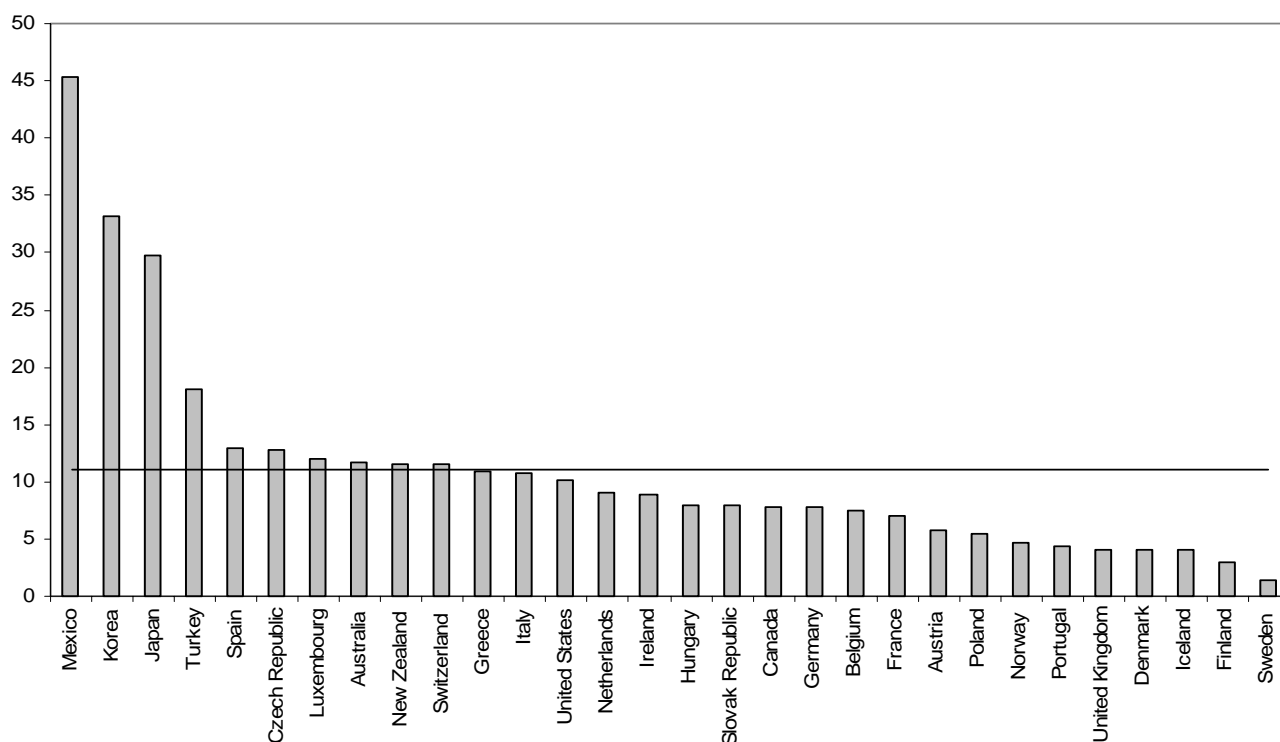
While immigration policies are increasingly co-ordinated with other EU Member States, barriers to cross-border mobility remain, including lack of recognition of formal and informal educational qualifications, legal and administrative barriers across member states, and varying tax and social security systems (EC, 2002). Recognising that mobile skilled workers are essential to knowledge flows and spillovers in Europe, the mutual accreditation of diplomas is underway and job vacancy information is exchanged through the *Eures-Network*. However, programmes in Belgium as in Europe need to take into account newly-emerging patterns of geographic mobility, e.g. temporary immigration and cross-border commuting, to facilitate effective use of the highly skilled. In addition, repatriation programmes aimed at encouraging Belgian

workers to remain in contact with their home country should supplement efforts to expand innovation and entrepreneurship to encourage their return.

Increasing workforce participation by highly skilled women

The significant increase in the educational attainment of women in Belgium is now being evidenced in labour market performance. The gender employment gap for highly-educated women decreased to 7% in 2002, below the OECD average (Figure 8). However, overall labour force participation of women in Belgium is low, 55% compared to the OECD average of 65%, and varies widely by educational attainment and region (Table 6). The gender employment gap for highly-educated women is smallest in the Flemish region and largest in the Walloon region.

Figure 8. Gender employment gap for highly-educated women, 2002



Notes: Percentage point difference between the employment rates for men and women with tertiary education.
Source: OECD (2004), *Employment Outlook*.

Table 6 . Employment rate by sex and highest level of education attained (%), 2002

	Women			Men		
	Low	Medium	High	Low	Medium	High
Brussels Capital Region	26.0	47.0	75.5 (76.0)	43.6	61.6	83.7 (85.2)
Flemish Region	32.9	60.0	81.4 (83.5)	56.9	77.1	87.2 (87.0)
Walloon Region	26.0	48.4	76.8 (76.6)	49.4	71.0	84.4 (86.6)
Belgium	29.8	55.3	79.3 (80.0)	53.0	74.0	86.0 (86.6)

Notes: (i) Employment rate: persons in employment as % of the population of working age (aged 15-64 years); (ii) annual averages; (iii) between brackets: employment rate of people with a university degree.

Source: Belgium (2004), National Statistics Office.

The lack of adequate childcare facilities as well as fiscal disincentives are two factors depressing labour force participation of women, including the more highly skilled. Parental benefits were recently broadened through the provision of service vouchers for flexible childcare provisions as well as time credits and parental leave schemes. But the tax system continues to penalise second wage earners through reducing tax deductions for the principal wage earner based on a spouse's salary. The marginal effective tax rate on spouses is 45% if they do not work and up to 67% if they do (OECD, 2003c).

Belgian women confront a significant gender pay gap, particularly in the private sector, which reflects structural differences regarding age, education and occupation. Female employees are concentrated in certain type of jobs and industries with relatively low pay. Belgium also has a large differential in hourly pay between full-time and part-time jobs, where women are overly represented (42% of employed women work part-time compared to 6% of employed men). However, industrial or occupational segregation, educational background, labour market experience or seniority can not fully explain the observed differences (OECD, 2002).

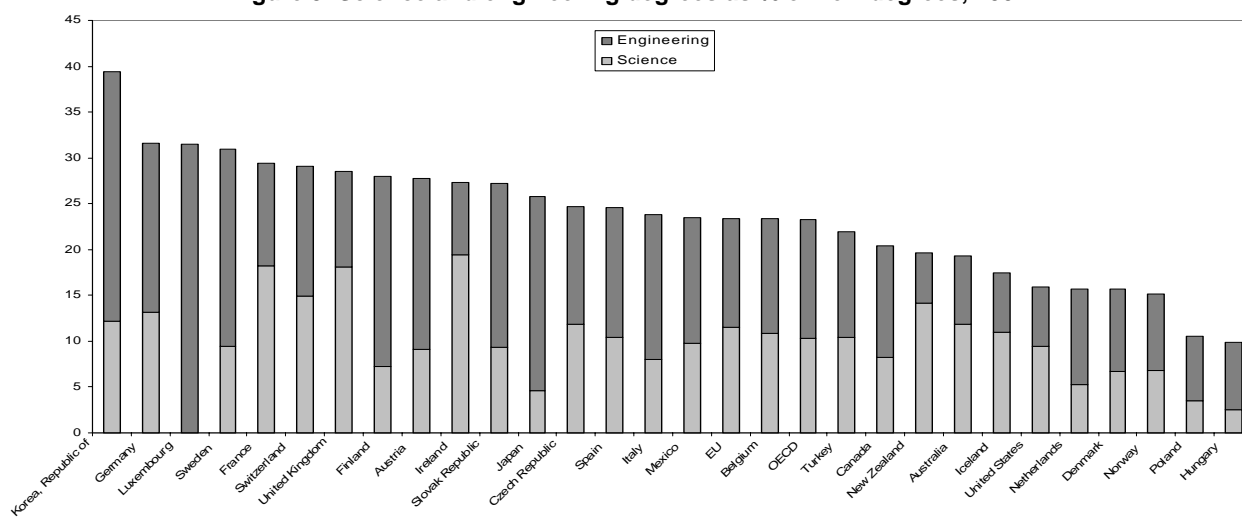
The Belgian government recognises the persistence of a gender-based pay gap despite anti-discrimination and other legislation. In this context, an *Employment, Labour and Social Dialogue* launched a number of equal pay initiatives in 2000 (BFPFS, 2001). Occupational classification systems developed in joint committees or at enterprise level have received criticism in recent years for amplifying gender-based pay differentials partly because they are not based on clear criteria relating to knowledge, skills and responsibilities (BFPFS, 2003b). As a result, the government launched the *Analytical Evaluation* (EVA) project to create gender neutral job evaluation systems in a range of sectors. Key activities include the adoption of sectoral job-ranking systems as well as awareness-raising among the social partners of the potential problems of discrimination.

Belgium participates in the *EQUAL* programme, funded by the European Social Fund, for the equal treatment of women and men in areas of access to employment, training, vocational and career advancement and working conditions. The *Institut pour l'Égalité des Femmes et des Hommes* has recently been created, and initiatives to increase childcare provisions have been launched. However, more targeted measures are needed to strengthen work incentives and increase female labour force participation. Trade unions and employer organisations should take a more proactive approach to reduce the gender wage gap and particularly to address wage discrimination with regard to part-timers. Fiscal measures should also be reformed to reduce tax disincentives to female labour force participation.

Developing human resources in science and technology

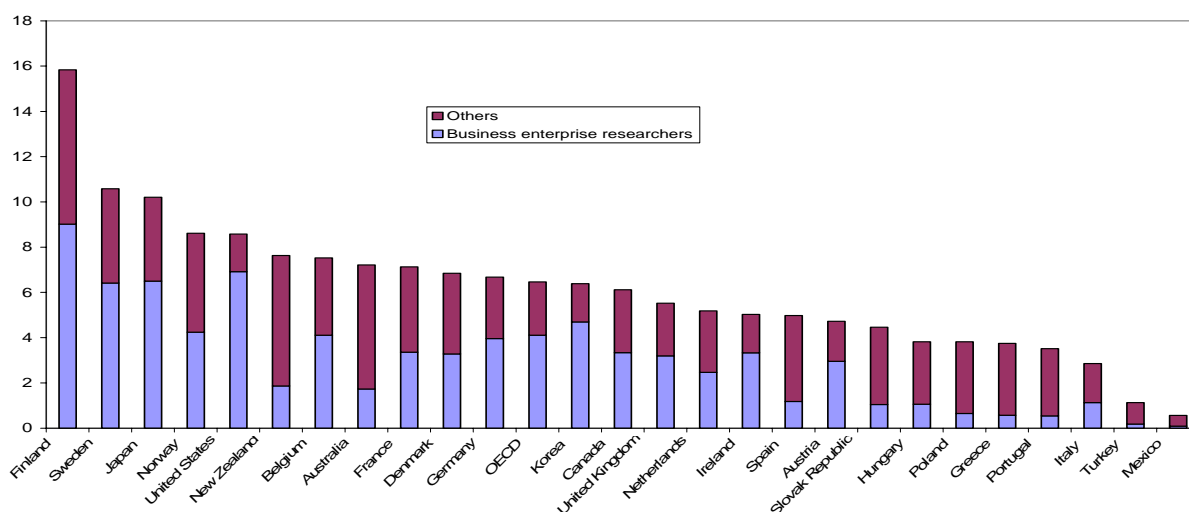
In Belgium, science and engineering degrees, including life sciences, physical sciences, mathematics and computing, constituted 25% of new degrees in 2001, around the OECD average (Figure 9). The share of business enterprise funding of R&D is 1.4% of GDP, higher than the European average and that of Belgium's main competitors. The government share is relatively small, partly due to the low level of military research expenditures in Belgium. Public resources devoted to R&D have been increasing by an annual average of 5% in nominal terms since the mid-1990s. By 2010, the federal and regional governments aim to increase R&D investments to 3% of GDP, which will feed demand for scientific and technical personnel. In the Flemish region, authorities have concluded an *Innovation Pact* with researchers and firms to meet this objective already by 2007 and are committed to increasing public expenditures on science by 10% per year.

Figure 9. Science and engineering degrees as % of new degrees, 2001



Source: OECD (2003), *Science, Technology and Industry Scoreboard*.

Figure 10. Employment of researchers, 2001



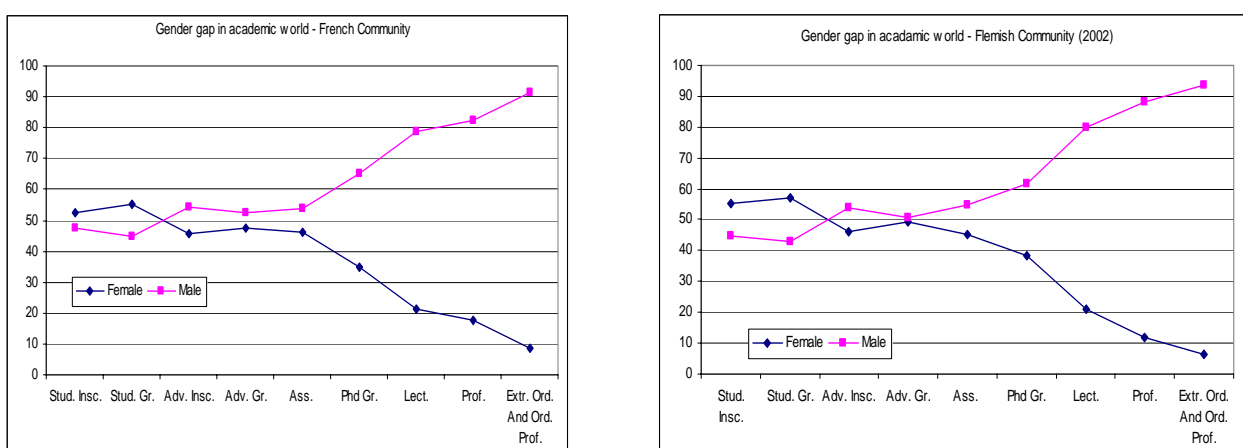
Note: Employment of researchers per thousand of total employment.
Source: OECD (2003), *Science, Technology and Industry Scoreboard*.

The growing internationalisation of R&D activities has enhanced the role of multinational enterprises (MNEs) in Belgium and also affected demand for local researchers. This is reflected in the high share of researchers in the private sector (**Figure 10**). International firms represented some 14% of R&D expenditures and about 80% of patents in Belgium in the late 1990s (OECD, 2003d).

Labour market opportunities for technical personnel vary by region. High-technology sectors are densely concentrated in the Flemish region, whose development strategy has been based on increasing its highly skilled labour force to counter rising labour costs and attract high-technology firms. In 1996, Flanders spent 43% of its budget on education. The Walloon region is in the process of transforming its heavy industrial base, with both the federal and regional governments investing heavily in the aerospace and aeronautics industries. The Walloon government recently announced plans to target its public activities budget towards a joint venture to promote four specific sectors: environment, telecommunications, biotechnology and construction. All regions have a range of policies to encourage knowledge-based society and greater entrepreneurship, *e.g.*, incentives for R&D, simplifying procedures for small firms, and improving the general business environment for enterprise creation and growth.

Compared to other European countries, the proportion of female researchers in all sectors (28%) and in business enterprises (20%) is particularly low in Belgium. Males remain more likely than females to obtain advanced research qualifications. Female participation rates in science and technology occupations, particularly information technology, are limited. The gender gap in academic and research professions is significant. It takes much longer for female university graduates to take up academic positions, and male researchers dominate the top positions in the academic world (**Figure 11**). The promotion of gender equality in scientific and research professions is high on the EU political agenda. The *European Platform of Women Scientists* facilitates support and information exchange. In addition, the *BeWiSe* association has been established to diversify the workforce in scientific fields and improve communication among women in the Belgian and European scientific community,

Figure 11. Gender gap in the academic world, 2000



Source: Belgium, *Tweede Gelijke kansen rapport – Statistical Compendium*.

Reforms of the tertiary education system are underway to improve its quality and relevance to industry and increase interest in science and technology studies. In the French Community, short/long duration non-university tertiary education institutions were regrouped under thirty *Hautes Écoles*. The Flemish Community introduced new regulations in the non-university sector, consolidating institutions and providing a high quality alternative to university studies. Links between non-university tertiary institutions

and universities were strengthened by *i*) easier recognition of diplomas and, more generally, of competencies acquired outside university; and *ii*) enhanced co-operation in education and research between universities and *hogescholen*. The regions are also encouraging partnerships between industry and universities through the creation of industrial and technological research centres. The Walloon region, for instance, provides financing for research projects and doctorate studies in certain high-technology sectors.

Federal and regional plans to vastly increase R&D spending will heighten demand for human resources in science and technology (HRST), particularly researchers. Further internationalisation of the Belgian economy will increase demand for researchers and scientific personnel by multinational firms. Ongoing efforts by the regions to strengthen their knowledge-based economies and transform their industrial sectors are expected to further feed demand for science and technology personnel. Belgium should accelerate efforts to reform the tertiary education system and strengthen science/industry links to assure the supply of relevant skills. Maintaining and further improving conditions for the location of R&D activities, most of which are carried out by large companies, will be increasingly challenging in the future. Efforts to link universities and research centres with international firms should therefore be intensified. More targeted steps may be needed to reduce the gender gap in academic and research professions.

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