

Training & Employment

Current trends in employment and qualifications in the metalworking industries

The number of jobs provided by the metalworking industries are bound to decrease during the next few years in France. This sector will nevertheless be faced with workforce replacement problems because large numbers of employees are due to retire shortly. To prepare for these changes, it has become necessary to assess the number of jobs which will have to be filled and the qualifications to which they correspond. In this context, the fact that employees' qualification levels have been increasing during the last few years raises questions about the relevance of modes of human resource management which tend to increase the gap between training and employment.

There were 1 614 000 employees in the French metalworking branch in 2003. By 2015, this figure may have dropped to only 1 378 000, or even to 1 165 000 if the worst comes to the worst. At the same time, increasing numbers of employees will be reaching retirement age. Like many other industrial branches, the metalworking industries are having to cope with the ageing of their employees: in 2003, one quarter of the employees were over 50 years of age and only one fifth of them were under 30 years of age. Despite the overall decrease in the numbers employed, the retirement figures will be greater than the number of job destructions, and firms in the metalworking industries will therefore predictably have some positions to fill, although they may not be very numerous.

Only a few jobs will become available between now and 2015

Since the growth of production has been slowing down in all French metalworking industries, job destruction practices are likely to continue and even to accelerate between now and 2015. The metalworking branch will probably lose anything from 236 000 to 449 000 salaried jobs during this period, which amounts to an annual average of 20 000 to 37 000 jobs (see the table on page 2). At the same time, 457 000 to 544 000 employees are due to retire between now and 2015, which amounts to an annual average of 38 000 to 46 000 employees. The pay-off between retirements and job destructions should therefore be positive. However, the number of jobs expected to become available vary from one macro-economic scenario to another and the age at which people are expected to retire from work (see the inset on page 4). At best – in the case of the most optimistic macro-economic scenario – 307 000 jobs in all may become available between now and 2015, which amounts to 26 000 jobs per year; whereas the more pessimistic macro-economic scenario, in which it is assumed that employees will retire at a later age, predict that only about 8 000 jobs will become available, corresponding to approximately 1 000 jobs per year.

Metalworking is far from being a homogeneous branch of activity, however. It is composed of six industries, in each of which the job availability problems arising are quite different (see the table on page 2). Despite this diversity, it is nevertheless possible to distinguish the following three main situations:

- The electrical and electronic machinery industry and to a lesser extent, the electrical and electronic components industry are the metalworking industries where the situation is the most critical, since the numbers of departures due to retirement, which are going to be fairly low, will barely compensate, if at all, for the sharp drop in the number of jobs. Very few job opportunities will therefore become available in this industry, and some jobs may even be abolished in the electrical and electronic sectors;
- Employment is also going to decrease in the automotive and naval, aeronautical and railway construction industries, but on the other hand, the large numbers of retirements due to occur may give rise to new workforce demands if the economic context is favourable;
- The last case is that of the metal processing industry and the metalworking machinery industry, where the outlook is brighter, since the number of openings becoming available

■ Number of jobs expected to become available in the metalworking industries by 2015

	The "low" hypothesis			The "high" hypothesis		
	Departures due to retirement	Decrease in the number of salaried jobs	Number of job openings	Departures due to retirement	Decrease in the number of salaried jobs	Number of job openings
	On average, per year from 2003 to 2015			On average, per year from 2003 to 2015		
All metalworking industries combined*	38 000	- 37 000	1 000	46 000	- 20 000	26 000
Metal processing industries (not including recycling)	11 600	- 8 700	2 900	13 700	- 3 600	10 100
Metalworking machinery industry	9 700	- 7 800	1 900	11 600	- 4 100	7 500
Electrical and electronic machinery industry	4 200	- 7 300	- 3 100	5 200	- 4 500	700
Electrical and electronic components industry	3 600	- 3 900	- 300	4 300	- 2 100	2 200
Automotive industry	6 000	- 6 400	- 400	7 100	- 3 600	3 500
Naval, aeronautical and railway construction	2 900	- 3 300	- 400	3 500	- 1 900	1 600

* These figures for the metalworking industries as a whole have been rounded off to the nearest thousand.

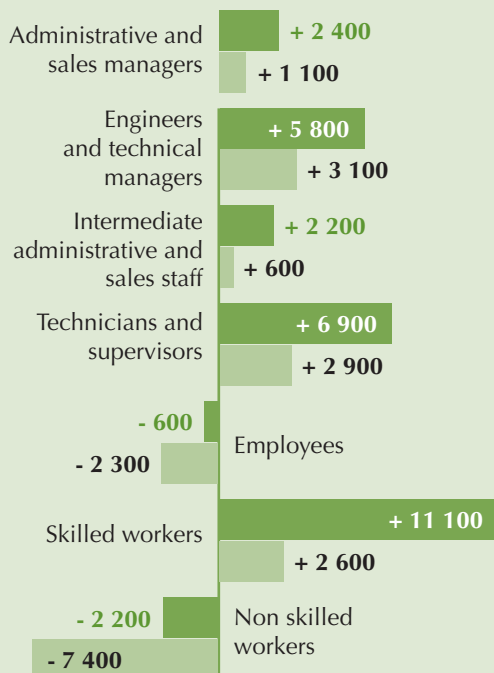
Sources: "Comptes de la Nation base 2000" and companies' annual declarations for 2003 (DADS), INSEE Projections: BIPE and Céreq, 2007.

may be much higher because many of the employees in this sector are about to retire.

■ Number of job openings expected to become available for each occupational category

Annual means from 2003 to 2015

■ The "high" hypothesis
■ The "low" hypothesis



Since these figures have been rounded off to the nearest hundred, they do not correspond to the exact sum of all the figures corresponding to the various metalworking industries.

Sources: "Comptes de la Nation base 2000" and companies' annual declarations for 2003 (DADS), INSEE Projections: BIPE and Céreq, 2007.

In terms of the socio-occupational categories involved, a large number of positions are likely to become available for skilled workers, followed by technicians, supervisory staff, engineers and technical managers, since the departures due to retirement in this branch will probably outnumber the jobs abolished in all these categories (see the graph opposite). There will be fewer retirements among the non skilled workers, however, since these workers are younger on the whole than the other metallurgical employees, and those at this qualification level will no doubt escape large-scale job destruction measures; the number of jobs for non skilled workers will therefore probably continue to decrease gradually from 250 000 in 2003 to 155 000 by 2015.

After assessing the numbers of jobs likely to become available, assessing the

job replacement requirements means taking the question of mobility into account. In this respect, the needs depend partly on inter-branch mobility, i.e., on the metallurgical branch's entries and exits. Retrospective data on the period from 1994 to 2002 (see the inset on page 4) have shown that the inter-branch mobility balance has been fairly even so far, or slightly on the positive side. Every year, 4.5% of the employees, not counting temporary workers, enter the metalworking branch from another branch of activity, while 4.2% leave to join another branch. A similar pattern can be observed in all the metalworking industries: the entries more than compensate for the departures. Inter-branch mobility therefore seems unlikely to greatly affect the labour replacement requirements in this branch. However, these requirements depend more strongly on promotion mobility, i.e., on the changes in patterns of employment resulting from employees' changes of socio-occupational category. Here again, the impact is likely to be fairly slight: very few skilled workers (1.3%) do in fact become technicians or supervisors, and very few employees in the latter categories (1.4%) acquire manager status. The only exception is the mobility occurring among workers: every year, 8% of the non skilled workers in the metalworking industries become skilled workers.

Increasingly skilled jobs, increasingly qualified employees

The decrease in salaried employment expected to occur in the metalworking branch by 2015 will not involve all socio-occupational categories to the same extent. It will no doubt lead to inflating

the qualifications at the top of the hierarchical ladder. The numbers of employees in the higher categories – those corresponding to engineers, managers, intermediate administrative and commercial occupations, technicians and supervisors – are likely to increase. The numbers of skilled workers may also increase slightly, whereas the numbers of non skilled workers will probably decrease conspicuously.

The transformation of the metalworking branch which started in the 80s, when jobs became fewer but more highly skilled, is therefore likely to continue quite strongly. This perspective raises questions about the modes of management of the links between training and employment which have gradually been introduced in this branch: these are characterized by increasingly large gaps between the qualification levels of individuals and the skills corresponding to the jobs they occupy. During the last ten years, the qualifications required in all categories of employment have been rising steadily (see the graph below). This trend can be observed even more clearly if we compare the generation aged under 30 with those aged 50 years or more. Not only do the younger ones have much higher qualifications than their elders in all employment categories, but the qualification standards have become more stringent:

- the great majority of non skilled workers aged 50 years or more have level VI qualifications, whereas those under 30 years of age mostly hold level V or level IV qualifications.

- the qualifications of newly recruited skilled workers, who were traditionally hired at level V, are now shifting towards levels IV and III.

- the qualifications giving access to technicians' or supervisors' jobs are increasing from level V to level III.

- level I or II has become a "must" to obtain employment as an engineer or a manager.

This increasing trend in qualifications in the metalworking industries probably reflects a two-fold process. The increasing qualification levels associated with jobs may be due to work-related factors such as the ongoing technological, organisational and socio-productive changes. However, this is only part of the picture. Employees' increasing qualification levels are also due to labour market factors resulting from the general increase in qualification levels and the high youth unemployment rates. In view of the employment situation expected to occur in the metalworking branch between now and 2015, the question arises as to whether this general increase in qualification levels is likely to continue.

Transforming the metalworking branch or escalating qualifications?

The number of skilled workers' jobs is likely to decrease from now on, although they will not of course disappear entirely. Now the vast majority of these jobs are held at present by youths with level V qualifications or those with no

- **Job openings** = the number of departures due to retirement minus the number of job destructions (or plus the number of new jobs created).

- **Workforce replacement requirements** = the number of positions to be filled plus the inter-branch mobility balance (i.e., the difference between the number of exits from metalworking to another branch and the number of entries to metalworking from another branch).

Qualification levels in France:

- VI** • No qualifications (apart from the primary school certificate, the junior school leaving diploma or the BEPC certificate)

- V** • CAP or BEP vocational diplomas

- IV** • Baccalauréat

- III** • 2 years' study after the Baccalauréat

- II and I** • second and third university cycle or elite technical college

■ Certification levels and occupational categories of employees in the metalworking industries

Certification levels obtained II III IV V VI

Between 1994 and 1996

Between 2003 and 2005

Employees under 30 years of age

Occupational category	II	III	IV	V	VI
Engineers and technical managers	78%			20%	
Intermediate administrative and sales staff	8%	41%	20%	23%	8
Technicians and supervisors	4	50%	21%	21%	4
White collar workers	3	25%	28%	33%	11
Skilled workers		12%	64%	21%	
Non skilled workers		10%	43%	46%	
Total	7	15%	14%	43%	21%

Occupational category	II	III	IV	V	VI
Engineers and technical managers	80%			9	7 3
Intermediate administrative and sales staff	15%	33%	26%	16%	10
Technicians and supervisors	9%	54%	25%	8	4
White collar workers	8%	42%	24%	16%	10
Skilled workers	5	35%	43%	16	
Non skilled workers	3	21%	43%	33%	
Total	13%	18%	26%	28%	15%

Employees over 50 years of age

Occupational category	II	III	IV	V	VI
Engineers and technical managers	43%	12%	19%	10	16%
Intermediate administrative and sales staff	3 5	23%	48%	21%	
Technicians and supervisors	5	16%	50%	27%	
White collar workers	4	12%	40%	44%	
Skilled workers	3	37%	60%		
Non skilled workers		11%	88%		
Total	7	3 10%	34%	46%	

Occupational category	II	III	IV	V	VI
Engineers and technical managers	34%	16%	19%	19%	12%
Intermediate administrative and sales staff	6	12%	22%	32%	28%
Technicians and supervisors	6	13%	58%	22%	
White collar workers	11	12%	42%	44%	
Skilled workers	4	40%	56%		
Non skilled workers	3	18%	79%		
Total	7	5 10	38%	40%	

Scope: salaried and non salaried staff working in the metallurgical industries, not including persons employed by the State and local authorities.

Administrative and sales managers have not been included in these tables because the data were not significant.

Sources: the INSEE Employment survey; Cereq's "Statistical branch by branch portraits", 2007.

qualifications at all (level VI), a few of whom are engaged in apprenticeship schemes. The future of those with no qualifications (unemployment, reconversion, or vocational training) will depend partly on the policies implemented by firms and branch organizations. The outlook for those with only level V qualifications is not much brighter, since unskilled employment is decreasing and level IV is becoming the minimum qualification requirement for becoming a skilled worker in this branch.

The increasing proportions of those with level IV qualifications among young skilled workers reflect the changing recruitment practices of firms, which have become all the more selective as the workforce supply is plentiful and skilled. Representations about workers' qualifications have also changed. At the large firms and branch organizations in the metalworking industries, people are talking about level IV being necessary because young people must acquire a basic educational background and minimum relational and behavioural skills, although level V may suffice to master the techniques involved in a given occupation. This attitude amounts to positioning skilled workers' jobs at both levels V and IV. Does this mean that the content and the positioning of qualifications are no longer appropriate, or might they be escalating dangerously? Whatever the case may be, increasing the requirements in terms of qualifications when recruiting workers might trigger a whole chain of effects on human resource management at the firms in this branch and on the way the labour market functions.

It is certainly true to say that if level IV is tending to become the standard qualification level for workers, the whole structure of qualifications will gradually be affected working upwards, and the risk arises that many employees' careers being blocked. If, for example, access to a technician's job requires level III qualifications, the level IV staff recruited as skilled workers will lose all hope of promotion. This tendency is further accentuated by the fact that job opportunities are increasingly often filled by recruiting recently qualified – or overqualified – youths rather than using internal mobility pathways. Apart from horizontal mobility and changes occurring within a given category of employment (when a non skilled worker becomes a skilled worker, for instance), the chances of moving from one occupational category to a higher rung on the occupational ladder are liable to become very small indeed in the metalworking branch.

In selecting and stabilizing its staff, the metalworking industries rely greatly on the practice of recruiting beginners. Among the

The prospects for the metalworking industries

The article published in this issue of *Bref* was based on the results of a survey carried out by Céreq in 2006 at the request of the "Observatoire prospectif et analytique des métiers et qualifications de la métallurgie" (The prospective and analytical Observatory on occupations and qualifications in the metalworking branch), a joint labour/management organization created in the framework of the national labour/management Commission (CPNE) for employment in the metalworking branch. The aim of this survey was to update the findings of the previous prospective survey carried out in 1994. The aim was also to give an idea of future patterns of employment and qualifications, so as to enable firms in this branch to plan ahead to meet the workforce replacement needs arising between now and 2015. The following partners were involved in this survey:

- le Bureau d'information et de prévisions économiques (BIPE – the economic information and prospecting Bureau), an organization providing economic and strategic counselling services, drew up the macro-economic scenarios and made the employment predictions at each level of qualification in each of the metalworking industries.
- Céreq carried out a quantitative analysis of the age pyramids and the predictable retirement figures (retirement, early retirement, and unemployment without any obligation to look for work) based on two hypotheses: early retirement and later retirement. Céreq also analysed the jobs and qualifications in this branch, and provided retrospective data on inter-branch mobility and promotion-related mobility obtained via the data base "Portraits statistiques de branche" (Statistical branch by branch portraits), which can be consulted on the Céreq website, www.cereq.fr.
- The consultants' firm Ambroise-Bouteille carried out qualitative surveys and drew up scenarios to determine the future workforce requirements.

■ The results of this study will shortly become available on the Céreq website www.cereq.fr, in the series Net.Doc, under the heading *Les emplois et les qualifications de la métallurgie : matériaux pour la prospective à l'horizon 2015 (Jobs and qualifications in the metalworking industries: tools for prospection up to 2015)*.

whole cohort of youths who left the French educational system in 1998, for example, 14% obtained at least one job, including temporary work, with a metalworking firm during the first three years in their working lives. After this period, 9% worked in one of the metalworking industries, mostly with short-term contracts, although this branch is not particularly attractive. In addition, it is going to be faced in the years to come with greater labour market competition with various branches of activity which are also having to renew their workforce because of the ageing of the working population. If one adds to these conditions the risk of employees' careers being blocked, this branch may find that it cannot continue forever imposing increasingly high qualification requirements when recruiting its workers.

On the other hand, the permanent escalation of the qualifications associated with jobs and required in employees, which was mainly triggered by metalworkers' branch organisations and the large firms in the automotive and aeronautical industries, is hardly compatible with the constraints of SMEs, of which there are many in this branch, mainly because of their frequent sub-contracting practices.

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FURTHER READING

- *L'évolution de l'emploi et des qualifications dans la construction aéronautique et spatiale*, (Changes in employment and qualifications in the aerospace industry) B. Cart *et al.*, RELIEF, no. 13, Céreq, February 2006.
- *Les métiers en 2015* (Occupations in 2015), O. Chardon and M.-A. Estrade, Centre d'analyse stratégique, La Documentation française, "Rapports et documents", no. 6, 2007.

ISSN - 1156 2366

Céreq

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Dépôt légal 4e trimestre 2007.

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