This second annual issue of Courrier des Statistiques in English offers an overview of statistical work in employment, education, and demography—three of the most pressing concerns in France and the rest of Europe today.

The statistical system for observing employment and joblessness, described by Vincent Destival, is powerful but complex. It is powerful, because it provides a comprehensive analysis of the labor market, a tracking of workforce management by businesses, and a summary description of situations in individual regions or even départements. The system is complex, however, because of the variety of instruments and the ever-difficult choices that have to be made between speed and statistical reliability.

Four articles examine education statistics from different angles. The first, by Michel Euriat, looks at the observation system, its goals, tools, and audience.

The second, by Jean-Paul Caille, describes the aims of student panel studies and the background to their emergence. The panels are used to assess the efficiency of the school system, to evaluate the impact of education policies, and to obtain fuller information on students. The studies have become important in a period marked by the need to raise scholastic attainment levels and by the steadily wider access to secondary education.

In the third article, Bernard Ernst gives an account of the legitimacy acquired by the two main systems for measuring pupil attainment, at a time when conventional exams have virtually ceased to provide a certification of scholastic standards. From knowledge to skills, the new assessments explore a broad range of areas. Assessment is also a participative exercise to help teachers gain a more objective perception of the result and implications of their work.

Unlike the first three articles, the fourth, by François Héran, focuses not on the education system itself but on the observation of family behavior toward the system. For this purpose, the analysis involves parents, children, and schools. Actual practices and general attitudes are carefully identified, but it is not always possible to draw a clear distinction between fact and opinion.
The last topic of this issue, demography, is discussed from three viewpoints: the respective roles of INED and INSEE, the quality of population censuses, and the coordinated use of demographic information sources, illustrated by the Limousin region.

As Guy Desplanques reminds us, the French National Institute for Demographic Studies (INED) was bound by its charter to «study all aspects of population issues» and to «examine all the physical and moral resources» capable of solving population problems. By contrast, the main role of INSEE, the National Institute of Statistics and Economic Studies, is to supply basic demographic data from censuses and vital records.

In his article, Michel Jacod points out that the quality of a census is judged not only by the exhaustiveness of the enumeration but also by its ability to produce a reliable, accurate description of the population.

Lastly, in a region like the Limousin, which is concerned about its demographic trends, the key to a brighter future—argues Alain Malmartel—lies in careful planning based on an analysis of all the available local information sources.

The observation systems reported here, which cover three vital areas, face a common difficulty. All attempt to measure phenomena whose outlines are becoming harder to discern: the ever-fuzzier dividing line between employment and non-employment, students' ever more diversified schooling histories, and the complexity of families with increasingly varied characteristics.

Joël Allain
Head of the Statistical Coordination Department, INSEE
The statistical system for observing the French labor market

The statistical observation of the labor market primarily consists in measuring the two components of the labor force: persons in employment, and persons out of work who are seeking employment. These indicators have a far-reaching impact on households, businesses, and government alike—indeed, on the French economy and society at large. They must therefore be as accurate, detailed, and documented as possible.

Vincent Destival describes the main sources of labor-market statistics in France, discussing the specific value of each and the central role of the Population Census. He shows that, while the underlying concepts may differ, the ILO criteria provide a coherent overall framework. The short-term applications of data on jobs and unemployment oblige statisticians to make tough compromises between quality and speed. Some sources, however, allow detailed analysis often at a regional level, with extensions to the local level in the foreseeable future.

The labor market can be observed from two standpoints: that of individuals and that of employers. Both approaches are needed to answer the many questions concerning employment trends. At the individual level, a household’s labor supply is determined by several factors. The most important are income, social status, and the choices made between paid work and domestic work. On the employers’ side, the focus is on the link between jobs and output—namely, to what extent and in what ways does employment adjust to fluctuations in the business cycle and to changes in the structure of relative prices?

Jobs and payrolls also generate a series of record-keeping obligations connected with labor laws, taxation, and welfare. The administration of these mandatory procedures generates useful data for the statistician.

Because of these different imperatives, the statistical sources on the labor market are numerous and sometimes hard to compare. The data must therefore be combined into a coherent synthesis in order to produce the reference indicators that are essential to the national community.

A diversity of sources

Statistical sources on households are costly and therefore few in number. The two main sources, the Population Census and the annual Labor-Force Survey, serve different purposes. The Labor-Force Survey is conducted by interviewers. It yields a vast, complex body of information on the characteristics of individuals and their status in the labor market. By contrast, the Census data are gathered through form-filling without the presence of an interviewer, and cover a narrower range of topics. The Survey on Training and Vocational Qualification (FQP1) complements the first two sources by providing specific analytical data on (1) the transformation and reproduction of social structures and (2) the relationship between the various types of training and the labor market. Monthly statistics are also compiled from the State Employment Agency (ANPE) register of job-seekers and the Unemployment Insurance Fund (UNEDIC) rolls of unemployment-compensation recipients.

The compulsory reports by employers to government agencies provide material for many statistical tabulations. The specifications of the Annual Reports on Payroll Data (DADS) are defined on an inter-agency basis, and the National Institute of Statistics and Economic Studies (INSEE) is one of their several users. The Reports on Changes in Workforce (DMMO) and the Job-Classification Survey (ESE) are defined by French labor law. The data on employment and earnings produced by UNEDIC, the Family-Benefits Fund (URSSAF),

1. A complete glossary of abbreviations, with their full names in French and additional explanations in English, is provided at the end of this article.
The aggregates measured vary from one statistical source to another. The measurement of employment and unemployment is, however, defined by a set of ILO standards. These guidelines divide the population into three categories: not in the labor force, employed, and unemployed.

The definition of employment is broad enough to include all persons who contribute, however modestly, to "production" in the national-accounting sense. Accordingly, any person who has performed at least one hour of paid work in a reference period is classified as "employed." The employed category also includes persons who have not worked during the reference week but who have maintained a formal link to their job position in the form of a wage or salary. Despite its apparent looseness, this definition is actually robust, as the existence or absence of work is fairly easy to establish. As regards persons not in work, the ILO uses two criteria to distinguish between individuals "not in the labor force" and the unemployed: an unemployed person must be (1) effectively seeking work and (2) available for work.

From the employers' standpoint, "employment" has yet another meaning. The focus here is not on classifying individuals by activity status, but on counting the number of job positions. An employed person, for example, may hold several positions, for example by combining two part-time jobs or by engaging in the same occupation as a wage or salary-earner and in a self-employed capacity. Under the ILO's broad definition of "employment," however, positions can be held only by employed members of the labor force.

Combining employment-data sources

There are many sources for employment data, but only the Population Census gives a measure of total employment. By comparison, the surveys of employer units and administrative sources related to the collection of contributions for the social-protection system cover only a portion of businesses; the Labor-Force Survey, meanwhile,
excludes individuals living in communities and other "non-ordinary" households. All these sources therefore need to be combined using synthesis methods.

The Population Census forms the basis of this statistical synthesis. The total-employment figure is updated annually by using the source judged to be the most reliable for each industry. The main update source is UNEDIC data, which covers the non-farm market sector. Other sources used include URSSAF, government-employee payroll data bases, the annual survey of local government, and data from the agricultural mutual insurance organization (MSA). Labor-Ministry statistics on job-incentive programs are also exploited. In sum, employment levels are determined from Census data, whereas statistics gathered from employers are used solely to estimate the changes in those levels. The aggregate estimated in this process therefore consists of the number of employed persons in the labor force.

The preliminary estimate of total unemployment for a year n—nationwide and region by region—is published in December of year n+1. Final estimates are published in October of year n+2. After the following Census, the series undergo a definitive adjustment to make them consistent with earlier series.

Quarterly series are compiled from the Labor Ministry’s ACEMO survey, UNEDIC records, and the large public-sector enterprises (GENs). These data are partial for several reasons: they are confined to the non-farm market sector; they do not track units with fewer than ten employees; and they are gathered from a fixed sample of units, so they do not reflect changes in the unit population. Despite these shortcomings, however, they enable the annual estimates to be updated. A bias correction is performed to allow for the historically observed gap between the changes in employment in units employing more than ten people and in all units. The initial ("provisional") estimate of this short-term employment indicator is released six weeks after the observation quarter; the second ("revised") estimate three weeks later. This quarterly indicator is adjusted eight months after year-end, when the exhaustive statistics including units with fewer than ten employees become available.

These employment figures are used in the national accounts, with two minor adjustments. The first concerns the level. To ensure consistency between employment and output data, the national accounts measure "domestic" employment (i.e. among firms located on French territory), whereas the estimates cover "national" employment (i.e. among French residents). In other words, the employment estimates include French frontier-zone residents holding jobs in Germany, whereas the national accounts exclude them but include German frontier-zone residents working in France. The second adjustment concerns the breakdown by industry. To ensure consistency with data on output and value added, the national accounts track activity by industry, whereas the employment estimates are calculated by principal activity of the establishment. The two concepts are equivalent for small units engaged in a single activity. Large units, on the other hand, may engage in a diverse range of activities. For the estimates, the unit’s workforce will be tabulated under the principal activity of the establishment, while the national accounts will apportion the relevant share of employment to each activity performed.

### Measuring unemployment

Unlike employment, joblessness in the ILO sense can be measured only among households. One of the chief purposes of the Labor-Force Survey is to supply that information. Until recently, however, the Labor-Force Survey was conducted only once a year and produced aggregate national figures. To meet the needs of short-term and local economic analysis, an additional source was required: the month-end number of job-seekers (DEFM) computed by ANPE from its management records. ILO unemployment at the end of March of a given year is calculated when the results of the Labor-Force Survey are available in June of that year. The figure is obtained by adding the number of jobless...
measured in the Labor-Force Survey to an estimate of the number of jobless in "community" households, which are tabulated exclusively in the Population Census. The figure is updated monthly by extrapolating the changes observed in the DEFM series to each gender and age group.

By adding the ILO employment and unemployment numbers, we obtain the labor force as defined in the national accounts. Dividing the number of ILO jobless by the labor force, we obtain the ILO unemployment rate. The unemployment rate for a given month is released at the end of the following month. ILO unemployment rates for French regions and départements are calculated quarterly: the number of ILO jobless is pro-rated by the region or département's share of DEFMs.

These short-term indicators are provisional, because the DEFM figures and ILO unemployment as measured in the Labor-Force Survey do not change at the same pace. Consequently, the release of the new Labor-Force Survey results in June entails a revision of the figures for the previous 12 months.

**Quality versus speed: an arduous compromise**

The labor-market statistics are among the most eagerly awaited economic indicators. The initial figures are therefore released very quickly: the unemployment rate is published one month after the end of the observation month, and the employment figure for the non-farm market sector is published 40 days after the quarter's end. The information on which these indicators are based is either partial (units with more than 10 employees, for employment figures) or indirect (job-seekers registered with ANPE, for ILO unemployment). The true value must therefore be estimated. The initial estimates are subsequently revised, and a final figure is computed annually.

The estimation methods used are robust when job-market trends are smooth. Since the mid-1980s, however, the short-term swings have become wider, entailing more substantial revisions of the indicators. For 1992, for example, the annual change in non-farm market-sector employment had initially been estimated at –0.9%. The final revision showed a decrease of 1.6%. Likewise, the ILO unemployment rate at year-end 1993, initially estimated at 12.2%, was finally put at 12.4%.

In view of the discrepancy between the month-end job-seekers figure (DEFM) and the ILO unemployment numbers calculated from the Labor-Force Survey, the government asked INSEE in 1991 to improve the precision of the sub-yearly estimates of ILO unemployment. Several scenarios were examined, and in 1992 the Institute decided to test a quarterly Labor-Force Survey.

The quarterly changes in employment indicated by the ACEMO survey and UNEDIC statistics may also diverge. This occurred in early 1989. A task force, headed by Jean-Marie Callies of INSEE's General Inspectorate, was subsequently set up to conduct a technical audit on payroll-employment statistics. The group's findings led to a change in the INSEE estimation method, which had hitherto relied exclusively on the ACEMO survey. Since 1991, the two sources have been combined. The harmonization was, however, short-lived. In 1993, UNEDIC began compiling its statistics using the new French Classification of Activities (Nomenclature d'Activités).
Françaises: NAF), whereas INSEE continued to apply the old classification (Nomenclature d’Activités et de Produits: NAP) for the breakdown of its employment estimates until year-end 1994. During this transition period, therefore, only the ACEMO survey was used.

Analyzing the labor market

The indicators we have described give only a summary view of how the labor market works. Additional indicators are therefore needed.

One complementary indicator has been standardized by the ILO: under-employment. This measures the number of employed persons in the labor force who would like to work more. The Labor-Force Survey has been tracking this aggregate more closely since 1990, and the figure is now released with the initial survey results.

Apart from under-employment, the forms of employment are becoming more diverse with the rise of part-time work, fixed-term contracts, and "temping." Meanwhile, government make-work programs have multiplied to include training courses for job-seekers, subsidized jobs, skills-acquisition programs, retraining programs, and so on (see CES and SIVP in glossary). These various categories of employment are also tracked by the Labor-Force Survey.

Statistics help us to understand the workings of the labor market by providing insights into such questions as: How do people move from training to the workplace? What are the characteristics of unemployment spells? What is the role of fixed-term jobs in offering access to stable employment? Answers to these questions are obtained by using the Labor-Force Survey in panel mode, in which a sample of dwellings is visited for three consecutive years. The

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**Glossary of French abbreviations and terms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tr>
<td>ACEMO</td>
<td>Enquêtes sur l’Activité et les Conditions d’Emploi de la Main d’Oeuvre: surveys on labor activity and employment status</td>
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<td>ANPE</td>
<td>Agence Nationale pour l’Emploi: State employment agency (keeps registers of job-seekers)</td>
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<td>CDD</td>
<td>Contrat à Durée Déterminée: fixed-term employment contract</td>
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<td>CES</td>
<td>Contrat Emploi-Solidarité: “Solidarity employment contract,” a government-subsidized make-work program</td>
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<tr>
<td>DADS</td>
<td>Déclarations Annuelles de Données Sociales: annual statements of payroll data filed by private-sector employers</td>
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<tr>
<td>DEFM</td>
<td>Demandes d’Emploi en Fin de Mois: month-end number of job seekers (for job requests)</td>
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<tr>
<td>DMMO</td>
<td>Déclaration de Mouvement de Main d’Oeuvre: reports on changes in workforce (inflows/outflows) filed by private-sector employers</td>
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<tr>
<td>EMMO</td>
<td>Enquête &quot;Mouvements de Main d’Oeuvre&quot;: survey on changes in workforce among units employing 10-50 people</td>
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<tr>
<td>ESE</td>
<td>Enquête sur la Structure des Emplois: survey on employment levels by industry</td>
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<tr>
<td>FQP</td>
<td>Enquête &quot;Formation – Qualification Professionnelle&quot;: survey of training and vocational qualification</td>
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<tr>
<td>GEN</td>
<td>Grandes Entreprises Nationales: national-accounting category comprising large public-sector enterprises</td>
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<td>ILO</td>
<td>International Labor Office</td>
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<tr>
<td>MSA</td>
<td>Mutualité Sociale Agricole: agricultural mutual-insurance organization</td>
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<tr>
<td>NAF</td>
<td>Nomenclature d’Activités Française: new French classification of economic activities (1992), replaces NAP</td>
</tr>
<tr>
<td>NAP</td>
<td>Nomenclature d’Activités et de Produits: old French classification of economic activities and products (1973), replaced by NAF</td>
</tr>
<tr>
<td>PCS</td>
<td>Nomenclature des Professions et des Catégories Socio-Professionnelles: classification of professional and socio-occupational categories</td>
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<tr>
<td>SIVP</td>
<td>Stages d’Insertion dans la Vie Professionnelle: government program to facilitate school-to-work transition</td>
</tr>
<tr>
<td>UNEDIC</td>
<td>Union Nationale pour l’Emploi dans l’Industrie et le Commerce: agency in charge of collecting unemployment-insurance contributions from private-sector employers and disbursing benefits</td>
</tr>
<tr>
<td>URSSAF</td>
<td>Union pour le Recouvrement des Cotisations de Sécurité Sociale et d’Allocations Familiales: agency in charge of collecting contributions to family-benefits funds from private-sector employers</td>
</tr>
</tbody>
</table>

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**Selected references**

**INSEE Résultats**
- no. 235-236, April 1993: *L’emploi régional et sectoriel de 194 à 1991*
- no. 297-298, February 1994: *Enquête sur l’emploi de 1993 - résultats détaillés*

**Edmond Malinvaud**
Sur les statistiques de l’emploi et du chômage, Paris: La Documentation Française, July 1986
"Training and Employment Assessments" (bilans formation-emploi) offer the most methodical analysis of these issues.

**How businesses manage employment**

To understand the workings of the labor market operates, we also need information on firms' behavior through answers to such questions as: How do they manage employee qualifications? What use do they make of the various types of employment contracts?

A very useful source for exploring these issues is the series of administrative statistics compiled by the Labor Ministry and processed with INSEE's assistance. The Job-Classification Survey (ESE) provides the breakdown of personnel in units of more than 20 employees according to the official classification of professional and socio-occupational categories (PCS). The monthly Reports on Changes in Workforce (DMMO) record hirings and separations of personnel in units with more than 50 employees. The Annual Reports on Payroll Data (DADS) supply a description of personnel employed in firms by gender, age, qualifications, pay, date of hiring, and date of employment termination.

Transmission of these data on magnetic media is becoming increasingly widespread, and the modernization of their processing methods will soon be completed. By 1995, these changes were dramatically improving the quality and speed of this source.

**Regional information**

The system of employment and unemployment statistics offers wide scope for regional and local applications. The main reason is that it relies on many exhaustive sources, notably from government departments, which can be used to generate series for specific geographic areas.

Local estimates of employment and unemployment are derived from the national estimates, and provide an overview of the local labor-market situation. Other sources allow a more detailed analysis.

The Population Census gives a full picture of the labor market at regular intervals. It is the only source for analyzing employment from the standpoint of households at a detailed geographic level. This makes it possible to chart the links between training and employment. Other information is gathered from employers. The ESE survey is used to update the employment classification prepared from Census data. Movements of labor into and out of employer units are tracked from the DMMO records (units employing more than 50 people) and EMMO records (units with 10-50 employees).

The use of DADS reports on a local basis, planned for the near future, should improve the information on local employment. The source offers highly detailed statistics on employees and local units, jobs and pay, employment by industry, and hiring/separation flows.

Meanwhile, UNEDIC statistics and URSSAF records give a quarterly gauge of changes in regional payroll employment.

**Vincent Destival**

Head of Employment Division, INSEE

In January 1996, the author was appointed advisor to the Minister of Employment and Welfare.
Statistics at the French Education Ministry

Among the statistical offices of French government departments, that of the Education Ministry is not among the most frequently cited in statistical journals. The implication is that the education system, as a field of study, ought to be kept out of the broader debate over economic and social issues—in the same manner as the school itself, a protected haven, or the university, with its independence and traditional freedoms.

Michel Euriat describes the recent history of the French Education Ministry’s Subdirectorate for Statistical Surveys and Analysis (Sous-Direction des Enquêtes Statistiques et des Études: SDESE). The unit provides valuable assistance in policy-making to the two government departments for which it works: the Education Ministry and the Ministry of Higher Education and Research. The SDESE is continually enlarging and upgrading its services. At the same time, it gathers exhaustive, consistent information on the French education system. Far from conflicting with each other, these two activities are mutually beneficial, with developments in one strengthening the other.

The French Education Ministry has a well-established tradition of in-house statistical work. There has long been a need to measure the stocks and flows of pupils and students in order to determine proper resource allocation at the start of each school year. This need has intensified in recent decades with the steady rise in secondary-school enrollment. Indeed, gathering statistics for the resource-allocation purposes is an activity common to all developed countries. A statistical approach at the central administrative level was all the more necessary in a country such as France, with its heavily centralized education system—although this is far less the case today.

The growth of a central statistical office at the Education Ministry is thus a relatively old phenomenon. It is supported at local level in each regional education authority (rectorat) by a network of statistical units initially established for data-gathering purposes. This statistical activity began well before INSEE officials started contributing their expertise in the 1970. Over time, the ministry came to endorse the INSEE statisticians’ goal, which was that the office should transcend its strictly internal function and become an active player in the national statistical system.

Analysis and instruments for administering the education system

The quality of the in-house support provided by a statistical office is often the main justification for its existence and the costs it generates (this is true of most statistical units in government departments). In the Education Ministry, the service yields a major, tangible benefit, and has even been substantially enlarged in two ways during recent years as a result of two developments:

- At the resource level, the Education Ministry has introduced what it calls the New Information Systems in all public schools (collèges [junior high schools, grades 6-9], lycées [high schools, grades 10-12], and vocational high schools) and rectorats. The systems include the data bases described in Ravel’s article, in particular “Schooling” and “Jobs-Positions-Personnel.”

- At the institutional operating level, decentralization has given heads of education regions (recteurs d’académie) and school principals ever-wider powers in resource management. This trend has fostered the emergence of the concept of statistical “guidance” (pilotage) at all levels.

The progressive implementation of the New Information Systems was supposed to allow the phase-out of cumbersome form-filling of two sorts: purely statistical operations such as the start-of-school-year survey in high schools; and combined administrative and statistical operations such as the “school life” forms describing teachers’ activities. Ravet outlined the expected benefits of the change for statisticians as regards costs, production times, and the value of the information that could be gathered. The article also stressed the changes entailed in the tasks of statisticians, and the methodological investment they would have to make in order to take advantage of the new systems.
The outlined change did indeed take place. An automated system for managing student school records and teacher career records was up and running by the start of the 1993-94 school year. This ambitious undertaking encompassed even the remotest outposts of the French education system in the overseas territories. Statistics-gathering, at least for student data, is now supported by the new system. The changes and methodological investment required from statisticians have been carried out.

However, exploiting the full potential of the new tools will depend on a closer control over their evolution. This is because the investments have weighed heavier than expected, not on account of a mistaken scenario, but because the technological change has coincided with a steady stream of pedagogic changes. These have entailed major transformations every year, including: (1) a revamping of high-school (lycée) education, completed by the start of the 1994-95 school year, with a new "general" and "technological" baccalauréat (final-year exam) in 1995; (2) the consequences of the five-year Act on Employment, the Workplace, and Vocational Training passed in December 1993: this requires the statistical system to take account of flows into new types of training programs (article 54 of the Act entitles all school leavers to vocational training) and new statuses for students (article 57 allows high schools to set up apprenticeship programs); (3) the new classification of training specialties, admittedly a change advocated and managed by statisticians themselves.2

As regards teachers' career records, the statistical applications have not evolved at the same pace as management applications, owing to the priority given to paycheck automation. The transition between the old and new career record-keeping will last two more years. This will have no impact on information quality, but will keep information production a long, costly process.

As mentioned earlier, the introduction of the New Information Systems is mainly aimed at managing regional education services and public institutions of higher education. For the guidance function—especially at the central-administration level, not directly concerned by the New Information Systems—the main tool described in Ravet's article is the Central Guidance Data Base (Base Centrale de Pilotage: BCP), which brings together in a coherent manner the main data from the various NISs and makes them easier to access and process.

In fact, the construction of the BCP coincided with that of the NISs. Planners did not wait until the NISs could be fully exploited in statistical terms, since the data base could be set up from results of pre-NIS surveys. This was actually a necessity, since a resource like the BCP must contain time series—and thus requires a linkage between the two data-gathering systems. Moreover, the BCP was also designed to cover the higher-education system. The context of this coverage differed from that of the NISs, but there were similarities in statistical methods. The most important was the definition of classifications and standards for the future systems to manage students' degrees and academic records—systems that will gradually be introduced in the universities.

The BCP has been operational since 1993. It is a powerful, innovative tool for its designated users, i.e. the directorates for educational curricula, personnel, budget and resources of both ministries, and the "general inspectorates" supervising the education system. The BCP provides sufficiently detailed data to meet the needs of these decision-makers for guidance information. This is done by software tools that can be mastered by non-specialists, with an interface.

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similar to products available on PCs. The boxes on the following pages describe BCP content and technical specifications.

It is fair to say that the product fully meets the original technical aims. On the other hand, its use is spreading more slowly than the statistical office would have liked. While BCP presentations and demonstrations have aroused keen interest, its routine use would require changes in organization procedures and equipment resources in central administrative units. So far, these changes have been slow to spread, whereas it is always possible—and easy—to apply to the statistical office for specific data. At least the new data base provides the office with a convenient tool for answering such requests without having to tap more specialized resources.

While the BCP was mainly designed for central administrative units, it has been warmly received by regional education authorities. One reason for this interest is that the development of resources offering such detailed data has not yet begun in all regions. Another reason is that the BCP allows comparisons between a region and the overall national picture, neighboring regions, and regions with similar features (for example, with a comparable proportion of rural areas or private schools). This comparability is a valuable tool for regional policy-making. By early 1995, all regions were supposed to have access to the BCP.

Such, then are the general resources implemented by the SDESE for disseminating statistical information in the most usable form among the central and regional units of educational administration. To complete this overview of SDESE "in-house" activities, some more specific operations are worth mentioning.

The SDESE prepares two-year national forecasts of school and university enrollment levels. These scenarios are used by the Education Ministry and the Ministry of Higher Education and Research in the annual budget debate in Parliament. Under SDESE supervision, regional education authorities compile forecasts for primary-school enrollments in each département and for secondary-school enrollments at regional level. Additional information is provided by start-of-school-year surveys and the New Information System data bases such as "Schooling." All this material is forwarded to the directorates for primary and secondary schools for use in allocating jobs and funds within the education system.

In the secondary school system, the process has been perfected in recent years. To prepare the new school year, SDESE has developed a series of education indicators with the directorate for junior high and high schools (collèges and lycées). Other indicators now in use are compiled from social data (population census, labor-force survey) and school data (attainment levels measured from samplings of mass testing results). The author has discussed these developments elsewhere, along with a proposal for an "internal" application of statistical information that has, thus far, not been put into practice.3 The

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The proposal consists of a method for determining "ceiling rates" for each region, as a basis for a possible nationwide redistricting of "priority education zones" (Zones d’Éducation Prioritaire: ZEPs).4

Enhancing the debate over social issues with reliable statistical information

Like the statistical offices of other government departments, that of the Education Ministry (SDESE) has a public-service mission—namely, to produce and disseminate reliable statistical information on education and training. This concern has long been reflected in the publications of the Assessment and Forecasting Directorate (Direction de l’Évaluation et de la Prospective: DEP) and its predecessors: the yearbook Repères et Références Statistiques (modeled on INSEE’s Tableaux de l’Économie Française), the Notes d'Information, the journal Éducation et Formations, and the occasional series Dossiers Éducation et Formations. The Tableaux Statistiques, mentioned earlier, are aimed at a more specialized audience. They are available for sale and can be consulted at the DEP reference center and education-region offices.

But the growth in the number and circulation of these titles is unquestionably one of the major features of the SDESE’s recent history. Two new annual publications have been added—L'État de l'École and Géographie de l'École—while the number of Dossiers Éducation et Formations has been expanded. The latter are widely cited in specialist journals and the mass media. This publication development program is conducted on a cooperative basis by the SDESE and the Ministry’s Subdirectorates for Education-System Assessment. The two entities function on similar principles and using comparable technical methods. The Subdirectorates is a branch of the

Abbreviations: breakdown by D (département), E (establishment), U (university), I (individual)

### Fields covered by the BCP at year-end 1994

<table>
<thead>
<tr>
<th>Classification of secondary-school students (and post-baccalauréat classes in high schools)</th>
<th>1993-94</th>
<th>1985-86 to 1993-94</th>
<th>Other</th>
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<tr>
<td>- training by specific category (ex. 2nd year of BEP), by gender</td>
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<td>E</td>
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<tr>
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<td>- subject, curriculum level, gender, etc.</td>
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### BCP technical specifications

The user environment is the one being gradually implemented at the ministry’s central administration facilities by the Management Information Systems Directorate (DPAOS). The environment consists of workstations (PC 486-compatibles) and EBENe, the Education Ministry’s internal network. EBENe links together local Netware networks using the TCP/IP protocol. Regional education authorities access the environment on identical hardware via the Transpac packet-switching network. Access over the switched telephone network is also available for stand-alone workstations.

Access to standardized data is provided by a customized application called TS, while unrestricted querying is supported by off-the-shelf Business Objects software. Both packages are fully integrated into the workstation’s Windows environment under a "client-host" model.

Information extracted from the BCP can be exported to the Excel spreadsheet application and then to Word, the word-processing application, both available on the EBENe network. The results can thus be enhanced by attractive visual displays and can also undergo additional processing such as consolidation and simulation.

BCP data bases are managed by Oracle software on a host running under IBM-MVS. They are currently being transferred to a dedicated Unix computer using the same software.
DEP, an innovative unit of the Ministry. 5

Indeed, the growth of assessment-oriented publications is fueled by the expansion of the statistical information system and the improvement in its coverage and quality. The origins of the trend are twofold. The first is a demand from society at large. The second is the fairly recent awareness among education authorities of the importance of meeting that demand by operating in a more open manner and by feeding public discussion with objective, verifiable data.

This situation prevails in most developed countries, which are devoting substantial and even greater resources (most often in absolute terms and, invariably, as a proportion of their national wealth) to education. This has created a citizen demand for accountability on the use of those funds. In France, education has been the biggest central-government budget item for several years now. Conversely, the rise in education spending can only be explained by the belief of citizens and governments that education is a useful investment. Moreover, the efficient management of such an investment requires a continuous monitoring of its impact.

At the international level, some countries have begun, roughly at the same time as France, to publish overall indicators for their education systems. In September 1992, the OECD published the first edition of Education at a Glance. A second followed in December 1993 and a third in March 1995. This publication is the outcome of a major cooperative effort among OECD member countries in the INES (Indicators of Education System) project.

The INES project has, in fact, led to an extensive revision of international statistics at the French Education Ministry. 6

The Central Guidance Data Base

The BCP provides direct access to data for users in the Education Ministry and Ministry of Higher Education and Research. User groups include management units in charge of curriculum supervision, personnel, budget, and resources. The data are compiled in a coherent framework defined by official classifications. These have undergone an extensive review with the implementation of the "New Information Systems." The data available from the BCP are designed to be:

- sufficiently detailed to meet user needs for decision-making information
- yet capable of being processed by non-specialists using appropriate software.

These goals, in fact, are usually contradictory.

Before the BCP, such data were obtainable only from general publications and from:

- data bases requiring customized treatment by the SDESE or a handful of specialists in ministry directorates;
- detailed statistical tables on paper: these require relatively cumbersome archiving and search systems; in most cases, the information extracted needs to be re-captured for any analysis or even simply for tabulation in a new form.

The BCP therefore needs to include:

- data from the statistical tables, directly recovered in a computer spreadsheet application, with an integrated search facility;
- detailed data that allows "inter-field" searches on specific criteria, for example, a comparison of seniority and age distributions of teachers in rural and urban schools, and in "priority education zone" schools.

The bulk of the BCP development effort has concentrated on the second type of data, insofar as the objective was to meet a new need. The recapture of the "Statistical tables" is rather an improvement—although a major one—in an already available service: the only field where the process has so far been extensively implemented is higher education.

The detailed data may come from several different sources. For the secondary school system, the public-education data are extracted from the "Schooling" application data base. This source was first used on a partial basis in the 1990-91 school year, and has been used on an exclusive basis since the start of the 1993-94 year. After deleting students' names, the regional education authority forwards the data to the central statistical office on a one-record-per-student basis. The data are then supplemented by inputs from the private sector, still very largely gathered through questionnaire surveys. A dozen broad "topics" are thus obtained, which are then introduced into the BCP for unrestricted querying by users.

By February 1995, BCP coverage was scheduled to extend to primary-school pupils. By the end of 1995, apprentices should also be included. Two imminent enhancements are a data base on the school population encompassing students at all levels, and a data base compiled from a set of trend indicators for secondary schools (IPES).

Since 1995, BCP statistical tables will start to be made available in Excel format.

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education statistics, discussed by
the author elsewhere. The aim is to
improve comparability among
national education statistics in the
light of experience acquired on the
INES project, and to fill the gaps in
data-gathering instruments identified
by the project. Common
questionnaire forms have been
developed for OECD, Unesco, and
Eurostat. The new collection
procedures came into effect in the
first half of 1995. The revision of the
International Standard Classification
of Education (ISCED) will take
somewhat longer. In this connection,
Eurostat is devoting greater
attention to education as a result of
the European Commission’s
expanding role in education and
training: articles 126 (education) and
127 (vocational training) of the
Maastricht Treaty seek to promote
"quality education by encouraging
cooperation between Member
States" and to develop "the
European dimension" in education
and vocational training.

For a specific example of SDESE
projects aimed more particularly at
the general public, see Jean-Paul
Caille's article on student panels in
the present issue.

7. See the article by P. Esquieu in Économie
et Statistique no. 274, 1994-4.

Meanwhile, thanks to their published
output, Education Ministry
statisticians have won recognition
for their professionalism and ethical
standards from employers and labor
organizations. As a result, Ministry
statistics have been accepted as a
basis for calculating selected
subsidies. One such item is a flat
sum per day-pupil (forfait d’externat)
paid by the State to private schools
"under contract" (an arrangement
whereby the school’s teachers
salaries are actually paid by the
State). The forfait is adjusted every
three years on the basis of a sample
survey of hours worked by
non-teaching staff.

In sum, the mix of in-house and
public-oriented services provided by
statistical offices in government
ministries is one of the strengths and
distinctive features of the French
public statistical system, particularly
in the social field. That mix is surely
worth preserving, although it will
naturally have to be adapted over the
years.

Michel Euriat
Head of SDESE,
French Education Ministry

The Subdirectory of Statistical Surveys and
Studies (Sous-Directoire des Enquêtes
Statistiques et des Etudes: SDESE) is a
branch of the Assessment and Forecasting
Directorate (Direction de l’Évaluation et de la
Prospective: DEP).
Student panels in French Education Ministry studies

France has a long and varied experience in panel (i.e. cohort) studies on pupils. Panel surveys were introduced in 1962 by the National Institute for Population Studies (Institut National d’Études Démographiques: INED). They have been regularly used since 1973 by the Education Ministry’s Subdirectorate for Statistical Surveys and Studies (SDESE).1

Jean-Paul Caille describes the main procedures in panel studies, spelling out their objectives, working principles, and sampling plan.2 Selected references are provided for readers who wish to know more about the most recent panel, which dates from 1989.

The information system on French education offers a wealth of detailed data on student populations for each course of study, training level, educational institution, and divisions within institutions, as well as on the transition between training modules (in other words, on students’ prior schooling). Why, then, were student panels needed?

Meeting new information needs

In a country where most schools are public, the prime concern of the Education Ministry is to "produce" an educational service. Statistical operations—notably those concerning students—have thus been heavily determined by their purpose, which is to assist in management, resource allocation, and budget forecasting.

Until recently, therefore, the comprehensive censuses of students at the beginning of every school year contained no panel data but only aggregate data for each school. This level is, in fact, often used for such purposes as tabulating scores of scholastic-achievement tests, or measuring the number of immediate school-to-work transitions.

Unlike these statistical operations, student panels are not determined by management priorities. Their sole purpose is to shed light on how the education system works and to help evaluate education policies.

The context in which panel surveys were introduced was characterized by two phenomena:

- The multiplication of education policies since the late 1960s: these reflected the authorities’ drive to enhance the level of qualification at the end of basic schooling and to make that schooling more efficient. Measures included raising the minimum school-leaving age to 16, lowering the age of school entrance by expanding access to preschool in all social strata; unifying the junior high school system and the 9th-grade curriculum; the goal, set in the mid-1980s, of sending 80% of each age group through high school; the setting of basic qualification targets for all members of each secondary-school generation;3 introduction of education “cycles” in primary school; and the overhaul of secondary-school curricula.

- Universal access to secondary education—a consequence of these measures. In 1962, when Girard and Bastide set up the first panel of secondary-school pupils, the choice was made to track primary-school leavers. At the time, only slightly more than half of fifth-graders went on to 6th grade—and from there into programs of varying length. The remainder went into a grade known as “final primary class” or into vocational schools. By the early 1970s, the proportion of 6th-grade entrants had risen to 95%. The 1977 reform creating a single junior high school system (collège unique) and

1. The Subdirectorate of Statistical Surveys and Studies (Sous-Direction des Enquêtes Statistiques et des Études: SDESE) is a branch of the Assessment and Forecasting Directorate (Direction de l’Évaluation et de la Prospective: DEP).

2. The first part of this article is a revised version of a paper given by the author and Michel Euriat at the international seminar on panel data and student-panel tracking, held by the DEP on September 28-29, 1992.

3. “The Nation aims to ensure that within the next ten years all members of each secondary-school generation shall, at the very least, reach the level of a certificat d’aptitude professionnelle or brevet d’études professionnelles, and that 80% of them shall attain baccalauréat level” (Article 3 of the Education Planning Act of July 10, 1989).
the qualification targets defined in the late 1980s amplified the trend by opening the "second cycle" (grades 10-12) of the secondary system to most students.

These developments in education policy generated new information needs, which may be summed up as follows:

- **The need for more data on students**—their socio-demographic characteristics and their scholastic performance. This need was felt all the more urgently as the INED survey, back in the mid-1960s, had drawn attention to the diversity of school careers and to the social selection mechanisms in secondary school—of which that diversity was a reflection.

- **The need to develop** assessment instruments for measuring the impact of education policies on careers and on the range of scholastic performance. The creation of student panels by the Education Ministry has often been prompted by the need to evaluate a new policy: growth of early enrollment in pre-school education (1978 panel), introduction of the unified junior high school (1980 panel), definition of the 80% and 100% qualification targets described earlier (1989 panel).

These needs could not be met simply by monitoring the overall operation of the education system in terms of student stocks and flows. **Personal information on individual students was needed.** Such data were not available on a consistent, nationwide basis (some regional education authorities, however, had developed systems to gather highly detailed information on local students). As a result, "generational" studies in France have consisted in monitoring real cohorts by setting up student panels.

### Five main goals

The initial goals outlined above are still relevant in the present-day statistical information system on the student population.

At the start of the 1993-94 school year, a management data-base application called "Scolarité" (Schooling) was implemented in all public secondary schools. This profoundly transformed the procedures for collecting and processing information on students. The censuses at the start of the school year are now carried out by gathering panel data. They will ultimately form an exhaustive register of the school population.

In its current shape, however, the information system exhibits several gaps that restrict its value as an instrument for a time analysis of school careers. First, it does not provide complete coverage of all institutions, as it excludes primary schools and private secondary schools. Second, the National Commission on Information Technology and Civil Liberties (CNIL) stopped the SDESE from transmitting the student identifiers in the "Schooling" data base to third parties, thus barring the creation of a national historical record. Third, the analysis of school careers requires information that goes well beyond the data contained in the management systems. Two indispensable complements for such an analysis are direct interviews of students and their parents, and the gathering of information from school principals.

The three reasons above explain why student panels are needed to meet the five main goals outlined below:

- **measuring the returns to education**, notably in terms of access to its various levels or of the years of study required to reach them;

- **measuring the fairness of the education system** by assessing returns for individual sub-populations identified by the socio-demographic characteristics of the student's family (educational attainment, parents' occupation and socio-occupational category, family size, etc.) or the students' schooling details (public or private school, school size, single or multiple curriculum, etc.).

- **assessing the lagged effects of successive education policies** on school careers: the 1978 and 1980 panels, for example, showed the beneficial effects of preschool attendance on primary-school achievement; the 1980 panel also showed that the unification of the junior high school curriculum neither

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**A long track record**

1962: INED monitors 17,460 children leaving 5th grade (final year of primary school).

1973: 11-year monitoring of cohort of 37,500 entrants into 6th grade (first year of secondary school), selected in three waves of 12,500 at the start of the school years 1972-73, 1973-74, and 1974-75.

1978: 8-year monitoring of cohort of 22,000 pupils in 1st grade (first year of primary school).

1980: 6-year monitoring of cohort of 23,000 pupils in mainstream 6th grade or in first year of remedial curriculum called Section d'Éducation Spécialisée (SES).

1989: Selection of cohort of 27,000 6th-graders and SES pupils, who will be monitored until they leave school and into their early years in the workplace.

1995: A new panel to complement the preceding ones at the start of the 1995-96 school year: a sample of 15,000-20,000 junior-high-school students who, like the members of the 1989 panel, will be monitored throughout their secondary-school and higher-education studies as well as during their first years in the workplace.
homogenized school careers nor narrowed social differences as much as had been hoped.

- more generally, offering instruments that make it possible to measure changes in school-career patterns by comparing data from cohorts selected at different points in time.

- lastly, providing information to explain school careers that complements data obtained from cross-sectional studies or indicators.

To describe and explain school careers, one needs to assemble a mass of individual information on students, their environment, and their progress through the education system. Owing to the large number of secondary-education programs, student paths can be highly disparate. School careers are the outcome of a complex process, determined by the student’s socio-demographic profile, student and family attitudes toward education, and the characteristics of the schools attended.

### Interviewing school principals and families

Student panels were long based on data gathered exclusively from school principals. At the start of the survey, principals were asked to fill in a questionnaire in order to reconstruct the student’s previous school record and obtain summary information on family background.

In the follow-up phase, the survey procedure was reduced to an annual request for information on the student’s situation in school. Parents were not contacted unless the school was unable to provide the information.

These arrangements made it possible to collect a wealth of data on school careers. On the downside, the explanatory variables were inherently confined to the main socio-demographic characteristics. This is understandable, since school principals cannot furnish specific, detailed information on family backgrounds. Moreover, pupils’ full school records are not always forwarded when they change schools. As a result, junior-high-school principals sometimes have trouble accurately reconstructing their students’ prior education record—including, for example, kindergarten attendance or repeated grades.

### The 1989 panel

The creation of a panel of junior-high-school students in September 1989 led to a profound change in procedures used to collect data for survey follow-up samples. Information collection involves three distinct operations, yielding very full data on students (table 1):

- As in previous panels, the core operation is the questionnaire for school principals. The latter supply information on students’ earlier schooling as well as the following socio-demographic details: gender, nationality, sibling rank, parents’ occupations, and family size. At the start of each school year, student profiles are updated by sending out a questionnaire on grade attended,
selected curriculum options, accommodation (boarder, day pupil), and class size. A collation with the national directory of schools yields data on the junior high school attended.

- All parents of children in the 1989 panel received a questionnaire in the 1991-92 school year. The form was distributed to students by the school principal, and families were asked to mail it back to the SDESE.

The questionnaire was deliberately kept simple and short to ensure it would be filled in by most parents. Clearly, it was well received, since more than 80% of families responded.

The replies gave much fuller information on family backgrounds than was supplied by school principals. Answers covered: family size and structure; occupation and socio-occupational category of father and mother using the same questions as the Population Census; parents’ educational attainments and degrees; dwelling characteristics; length of stay in France; and languages spoken at home. Details were provided on student’s previous schooling and the reasons for choosing the junior high school attended. The survey also contained questions on the involvement of parents in their children’s studies and their expectations of educational attainment. The latter have been shown to possess a strong predictive value as regards students’ school careers.

- The scores obtained by panel members in the national assessment tests on 6th- and 10th-graders were collected from schools. Standardized assessments of school performance are vital for analyzing school careers, since the two phenomena are not entirely congruent. Two students with identical achievement levels particularly when they score average results—can have substantially different school careers, since these are not automatically determined by performance alone. They are also shaped by family strategies, notably in secondary schools, where family demands are largely taken into consideration for tracking and school-choice decisions. Student careers also depend on the tracking policies adopted by the schools themselves, whose selectivity may vary.

Face-to-face interviews of sub-samples

To complement the above data-gathering operations, which cover the total panel, more detailed investigations were carried out on sub-samples of 1,500-2,000 students, using face-to-face interviews (table 1).

- The first such interview series was carried out in the 1990-91 school year and concerned student schedules. The 2,000 students in the sub-sample were asked to fill in a daily logbook similar to the one used by INSEE in its surveys on adult schedules. They also had to answer a questionnaire giving details on their non-daily activities and the way in which they and their family organized their schooling.

- The second survey was devoted to children with learning disabilities. The sub-sample was divided into two very distinct populations. The first comprised 1,500 students with at least two of the three following characteristics: (1) entry into 6th grade one or two years behind normal; (2) results on national assessment tests in 6th grade showing problems in French and math; (3) failure to reach 8th grade after two years of junior high school. The second population—serving as a control group—consisted of 500 students with identical socio-demographic profiles, but with no visible learning disabilities. Students were interviewed, along with their families, in order to record their perceptions of their schooling, their

opinions on the functioning of educational institutions, their expectations in terms of attainment, family-group habits, and their life outside school.

- The third survey was designed for a close monitoring of the actual tracking procedure at the end of 9th grade. The sample comprised 1,500 students who had reached 9th grade without repeating any earlier ones. Students and their families were interviewed personally, while school principals were surveyed by mail.

Alongside these three surveys, the Social Sciences Department of the École Normale Supérieure in Paris, headed by Christian Baudelot, is conducting a time survey on changes in reading habits. The project is being carried out under a cooperation agreement with the Education Ministry’s Assessment and Forecasting Directorate (DEP). A 1,200-student sample from the 1989 panel is being surveyed by mail once a year for five years. The aim of the inquiry is to chart the typical patterns of reading development among teenagers. Their approach to the printed word is analyzed in relation to their family environment, their school careers, and their life outside the classroom.

Methodological principles

The selection of student-panel samples has been guided by three common criteria:

- Individuals are always chosen at the entrance of an educational “cycle” (1st, 6th, or 10th grade), not the exit, so as to avoid losses due to school transfers.

- The samples are tabulated like population censuses. An optimization of the sampling plan, which would over-represent the most interesting sub-populations, is always hard to achieve in a time survey, since it can only be done by picking a characteristic that is certain to remain constant throughout the survey.

- The samples are permanent in the literal sense: the same students are monitored throughout the survey until they leave its scope of coverage. The sample is neither replenished nor enlarged during the survey.

Two sampling methods have been used to select the samples. The 1973 and 1989 panels of junior-high-school students were picked by single-stage random sampling. The 1973 panel took 6th-graders or pupils in special remedial classes (Section d’Éducation Spécialisée: SES) born the first day of an even-numbered month; the 1989 panel took those born on the 5th of a month. The samples for the 1978 and 1980 panels were picked by two-stage sampling. In the first stage, a stratified sample of schools was selected. In the second stage, panel members were picked at random from these primary units.

The use of this sampling method in the late 1970s was primarily dictated by data-gathering requirements. First, there were no nationwide assessments of attainment for entrants into 3rd, 6th, and 10th grade, as exist today. Second, the grouping of students into a small number of schools made it easier to conduct the assessment tests.

The fact remains that the two-stage sampling method is arguably ill-suited to time surveys. Attendance in a particular school is not always an invariable characteristic. Three years after being selected, 26.5% of students in the 1989 panel had changed schools. The representativeness of the strata established at the start of the survey is therefore vulnerable to severe distortions as the observations proceed. Moreover, two-stage sampling has the drawback of unevenly distributing the burden of the survey by concentrating it on a small number of schools. The 23,363 members of the 1980 panel were attending a combined total of 1,340 junior high schools when they were chosen.

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By contrast, the 26,820 members of the 1989 panel, picked by one-stage random sampling, were enrolled in 6,740 schools. For the latter group of institutions, answering the survey was a much less burdensome task, since it involved an average of four students per school as against seventeen in the earlier panel.

### Reduced attrition

One of the methodological problems posed by time surveys is the so-called attrition (or erosion) phenomenon. In other words, as the observation proceeds, the initial sample erodes because of non-response and exits from the scope of coverage.

Attrition is inevitably milder in student panels than in household panels. Children are monitored via schools that they are obliged to attend, at least until the minimum school-leaving age. For the older cohorts, attrition has rarely exceeded 10%.

At the end of each follow-up year, there remains a handful of students whose schooling status is impossible to update. The institutions they last attended do not know their new schools; in many cases, parents have moved. The 1,500 "lost" members of the 1989 panel account for fully 89.5% of students no longer monitored.

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**Publications on the 1989 panel**

**Jean-Paul Caille**, in *Note d’Information (NI)*:

**Jean-Paul Caille**, in *Éducation et Formations (EF)*:

**Alice Davaillon**, in *Éducation et Formations* 36, Oct. 1993:
"L’élève en difficulté et le collège: sur fond de fortes attentes, une vision plus critique"
"Les collégiens en difficulté: portraits de famille.”

**Marc Duthoit**, in *Éducation et Formations* 27-28, Aug. 1991:
"Niveau d’acquisition à l’école: appréciations des principaux de collège."  

**Agnès Fournier**, *Note d’Information* 1992-11, March 1992:
"Que deviennent les élèves de sixième?"

**François de Singly**, *Note d’Information* 1993-20, May 1993:
“Savoir lire et aimer lire : une relation assez souple”.

**Louis-André Vallet and Jean-Paul Caille**, in *Éducation et Formation* 40, Feb. 1995:
“Les carrières scolaires au collège des élèves étrangers ou issus de l’immigration”.

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The Sub-Directorate of Statistical Surveys and Studies (Sous-Directoire des Enquêtes Statistiques et des Études: SDESE) is a branch of the Assessment and Forecasting Division (Direction de l’Évaluation et de la Prospective: DEP).
Assessing scholastic attainment

For nearly 15 years now, the assessment of pupils’ attainments and, to a lesser extent, of their working methods has become more accurate, more frequent, and more revealing. One of the purposes of education is to transmit knowledge, culture, practical skills, and also a sense of self to the young. It is important, therefore, to measure how far the system has succeeded in this task. Indeed, such assessments are increasingly recognized as a vital need.

Children’s scholastic attainments are evaluated by means of assessment tools and protocols whose conception rests on the principles of the sociology of measurement. After describing the factors behind the recent growth in scholastic-attainment testing, Bernard Ernst focuses on the methods used to develop protocols for assessing learning and skills acquisition in the French school system. The author also discusses the continuing changes made in the protocols.

The democratization of French education and the raising of the minimum school-leaving age to 16 have swelled the intake of students into secondary schools. The Haby reform of 1977-78 unified the junior high school (collège unique), now attended by nearly all primary-school leavers. At the same time, the old intermediate hurdles—the primary-school certificate and 6th-grade entrance exam—were scrapped. This strengthened the pivotal role of the baccalauréat (the high-school leaving diploma), but also eliminated opportunities for assessing pupils’ attainments along the road to that final test.

A legitimate approach

The growth of the school population naturally aroused concern over quality. The debate over education quickly shifted from the issue of broader access to that of standards. One of the top priorities in the 1980s thus became to design a procedure for gauging the system’s efficiency—notably by measuring what children have learned. Another motivation was, and remains, the high volume of public spending on education, which has made it vital to measure scholastic attainment. Taxpayers are entitled to full information on the performance of the education system. So are employers, who hire school-leavers; and parents, who need specific information on their children’s attainments and deficiencies as well as on national
trends. Admittedly, assessment was perceived at the outset as just another test given by the teacher. Today, its legitimacy is recognized because it yields information of use to teachers, principals, education-system inspectors, regional education authorities, and parents.

**Table 1 - Assessments conducted by the "Permanent Observatory for Scholastic Attainment"

<table>
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<th>Assessment level</th>
<th>Date</th>
<th>Subjects tested</th>
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<td><strong>Primary school</strong></td>
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<td></td>
</tr>
<tr>
<td>1st grade</td>
<td>1979</td>
<td>Reading - Mathematics</td>
</tr>
<tr>
<td>2nd and 3rd grade</td>
<td>1981</td>
<td>French - Mathematics</td>
</tr>
<tr>
<td>4th grade</td>
<td>1983</td>
<td>French - Mathematics - &quot;Stimulus&quot; subjects (ex. elementary science)</td>
</tr>
<tr>
<td>5th grade</td>
<td>1989</td>
<td>Reading - Writing</td>
</tr>
<tr>
<td><strong>Junior high school</strong> (collège)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th grade</td>
<td>1980</td>
<td>French - Mathematics</td>
</tr>
<tr>
<td>7th grade</td>
<td>1982</td>
<td>French - Mathematics - English - German - Physics &amp; Chemistry - Biology &amp; Geology - School Life</td>
</tr>
<tr>
<td>9th grade</td>
<td>1988 and 1991</td>
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<td></td>
<td>1984</td>
<td>French - Mathematics - German - Experimental Science - History - Geography - School Life</td>
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<tr>
<td></td>
<td>1988</td>
<td>9th-graders' notions of economics</td>
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<tr>
<td></td>
<td>1990</td>
<td>French - Mathematics - English - German - (Science and Industrial Technology; Non-Industrial Specialties; Applied Biological and Social-Science Subjects)</td>
</tr>
<tr>
<td><strong>High school</strong> (lycée)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11th grade</td>
<td>1987</td>
<td>French</td>
</tr>
<tr>
<td>12th grade</td>
<td>1987</td>
<td>History - Geography (from baccalauréat exam papers)</td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>English (from baccalauréat exam papers)</td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>Students' notions of economics (mainstream, technological, and vocational curricula)</td>
</tr>
<tr>
<td></td>
<td>1990 and 1991</td>
<td>English (oral and written comprehension and expression)</td>
</tr>
</tbody>
</table>

Assessment procedures have expanded over the past fifteen years and now comprise two major testing systems. The oldest, known as the "Permanent Observatory for Scholastic Attainment" (table 1), was set up in the late 1970s to assess the efficiency of the education system through periodic classroom tests. These are always conducted at the end of the school year and on samples of about 4,000 pupils. They are timed to take place at the key transition-points in the curriculum, usually at the end of a "cycle" (i.e. between 3rd and 4th grades, between 5th and 6th grades, and between 9th and 10th grades). A new series is given every 4-5 years. The second, more recent system is called "mass testing" (table 2). These tests are given to all pupils (about 800,000 per grade) at three different grades: 3rd and 6th grades since 1989, and 10th grade since 1992. They are given at the start of the school year, since their main purpose is to help teachers spot the strengths and weaknesses of their students.

Both testing systems are organized along the same principles and apply a strict methodology. They rely heavily on the participation of education officials and teachers.

**A participatory approach**

Ever since the first assessments were carried out in 1979, all the players in the education system have been very closely involved. For each testing program, the first step consists in setting up a national steering committee and task forces for each curriculum subject. This process is supervised by the Education Ministry's Assessment and Forecasting Directorate (DEP). Appointees include representatives from the ministry's "pedagogic directorates" for each grade assessed, the national education inspectorate, regional and département inspection units, teachers, researchers, and DEP specialists. The broad outlines and content of each test series are determined by consensus within the steering committee and task forces. The diversity of their membership is a rather effective guarantee of neutrality that prevents any particular educational theory from dominating the process.

This participatory approach also applies to the protocol-development phase, which covers the test exercises, test instructions, and scoring procedures. In 1990—the second year of mass assessments in 3rd and 6th grades—all regional education authorities were asked to develop reading, writing, and mathematics exercises, and to test them on sample classes. The same principle was applied to the assessment at the start of 10th grade in September 1993, for which the regional teams designed between one-half and two-thirds of the exercises in each subject.
Collective involvement also features in the information program launched for every new assessment test. Working sessions with representatives of teachers' unions and parents' associations provide a forum for clearing up any ambiguities about the purpose of each operation. The meetings also give these education-system partners a chance to air their views about the assessments.

From knowledge to skills

Defining goals and testing protocols are the two basic principles of a rigorous methodology that guarantees reliable assessment results.

The first job of the "subject" task forces is to define the goals of the assessment. In most cases, this requires a close and detailed scrutiny of official curricula and instructions in order to identify the explicit and implicit attainment goals that need to be assessed. For the assessments carried out by the "Permanent Observatory," the goals defined are linked to specific types of knowledge (for example, proficiency in multiplication techniques) and practical skills (for example, applying the right operation in a simple math problem) expected of children in the assessed grade.

The goals are also linked, however, to attainments in earlier grades. The "mass assessments" focus on two types of goals. For the tests given at the start of 3rd and 6th grades, the goals are largely framed in terms of knowledge and know-how, with a smaller proportion in terms of skills (ability to find one's bearings in time and space, ability to observe). By contrast, the tests given at the start of 10th grade are entirely geared to assessing abilities and skills. As an example, table 3 lists the history and geography skills assessed in the "mainstream" 10th grade tests in 1992. The "abilities" are defined in very broad terms, each subdivided into distinct "skills," which translate into directly measurable "goals." Each goal is tested through a pair of exercises. A cursory examination of table 3 effectively shows that the assessment at the start of 10th grade displays the following characteristics:

(a) It does not seek to evaluate knowledge of history and geography.

(b) It focuses on the 10th grade ahead rather than on the junior high school just completed; this choice is reflected in the abilities and skills assessed by the test; the evaluation is a training-oriented procedure designed to spot deficiencies and strengths at the start of a "tracking cycle" (cycle de détermination). It would therefore be rather inappropriate as a "macroscopic" gauge of students' factual knowledge.

The tables of goals (and skills) never aim to be exhaustive. There are two reasons for this. The first is lack of time: pupils spend about 100 minutes on each test subject. Clearly, not all the goals or skills can be examined. The second reason is a technical constraint. As the tests are almost entirely of the "pencil and paper" type, their scope of coverage is necessarily narrow. Oral expression in the native language or experimental methods in physics and chemistry, for example, are not currently assessed.

Taking the goals and skills table as their starting point, the task forces develop drafts of test exercises on their own or by finalizing proposals from regional education units. The exercises are tested on "control" classes. One can thus verify the reliability of the assessment protocol, in particular by ensuring students understand the instructions correctly, by determining the time needed to take the test, and by checking the relevance of the exercises. The trials also serve to harmonize the texts of the instructions read out by teachers and to standardize scoring procedures. At the end of this phase, the protocols (exercise books for students, instruction books for teachers) are put into final shape.

A handicap: curriculum changes

Despite these precautions, some adjustments are required from one test program to the next, chiefly because of changes in the teaching curricula. One of the purposes of the sampling tests by the "Permanent Observatory" is to measure changes over time. To be reliable, these measurements must be based on exact repetitions of exercises given several years before. The tests, however, have to be adapted to
<table>
<thead>
<tr>
<th>ABILITIES</th>
<th>SKILLS</th>
<th>GOALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding one's position and bearings in a space</td>
<td>Orienteering</td>
<td>Understanding and using compass cards, geographical bearings and coordinates</td>
</tr>
<tr>
<td></td>
<td>Using map scales</td>
<td>Calculating a distance with a graphic scale, locating the same area on maps of different scales</td>
</tr>
<tr>
<td></td>
<td>Locating geographic units</td>
<td>Locating countries and seas</td>
</tr>
<tr>
<td></td>
<td>Dating events</td>
<td>Knowledge of key historical dates</td>
</tr>
<tr>
<td></td>
<td>Putting events in context</td>
<td>Situating simultaneous events</td>
</tr>
<tr>
<td></td>
<td>Perceiving different time scales</td>
<td>Calculating a time interval: years, decades</td>
</tr>
<tr>
<td></td>
<td>Identifying the stages of a historical process</td>
<td>Identifying key dates</td>
</tr>
<tr>
<td></td>
<td>Reading visual displays</td>
<td>Reading a curve or bar chart</td>
</tr>
<tr>
<td></td>
<td>Making visual displays</td>
<td>Filling in a time line: calculating a scale, placing dates on an axis</td>
</tr>
<tr>
<td></td>
<td>Reading maps</td>
<td>Reading and understanding a legend; identifying units</td>
</tr>
<tr>
<td></td>
<td>Making maps</td>
<td>Filling in a legend; locating geographical data</td>
</tr>
<tr>
<td>Mastering different modes of visual display and mapping</td>
<td>Isolating information</td>
<td>Identifying symbols</td>
</tr>
<tr>
<td></td>
<td>Classifying information</td>
<td>Classifying by subject</td>
</tr>
<tr>
<td></td>
<td>Identifying main points</td>
<td>Listing main points of a document</td>
</tr>
<tr>
<td></td>
<td>Establishing relationships</td>
<td>Establishing causality relationships</td>
</tr>
<tr>
<td>Selecting and handling data in documents</td>
<td>Generalizing</td>
<td>Fitting an individual case into a general pattern</td>
</tr>
<tr>
<td></td>
<td>Summarizing</td>
<td>Summarizing the main point of a document</td>
</tr>
<tr>
<td></td>
<td>Using statistical data</td>
<td>Using and calculating percentages</td>
</tr>
<tr>
<td>Processing data</td>
<td>Meeting the conditions required for an assignment</td>
<td>Following instructions</td>
</tr>
</tbody>
</table>
current classroom practices. A good example of the problem is the assessment carried out at the end of the “mainstream” 9th grade in 1984 and again in 1990 (when new 9th-grade programs were introduced). The 1990 tests in mathematics (results in table 4), English, and German repeated a large proportion of the exercises given in 1984. This yielded a reliable measurement of changes in student performance [1; 2]. In French, by contrast, the 1990 test had been thoroughly redesigned to address the newer concern with reading and writing skills. In 1984, on the other hand, the test had focused on linguistics, grammar, vocabulary, spelling, and style, as well as familiarity with specific works and authors. For example, students had been asked to place the following authors correctly in a chronological table: Molière, Victor Hugo, Voltaire, Honoré de Balzac, Pierre Corneille, Paul Verlaine, François-René de Chateaubriand, Jean Racine, and Jean-Jacques Rousseau [3]. All nine authors were included in the 1984 curriculum. This ruled out any comparison between the 1984 and 1990 test results in French.

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Table 4 - Disparities in attainment by grade and social background, measured by % of right answers to assessment-test questions

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>French</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Average of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top 10% (A)</td>
<td>86.7</td>
<td>88.6</td>
<td>89.7</td>
<td>79.1</td>
<td>81.1</td>
<td>71.9</td>
</tr>
<tr>
<td>Bottom 10% (B)</td>
<td>34.7</td>
<td>37.1</td>
<td>36.7</td>
<td>31.8</td>
<td>42.9</td>
<td>25.9</td>
</tr>
<tr>
<td>A - B difference</td>
<td>52.0</td>
<td>51.5</td>
<td>53.0</td>
<td>47.3</td>
<td>38.2</td>
<td>46.0</td>
</tr>
<tr>
<td>A/B ratio</td>
<td>2.5</td>
<td>2.4</td>
<td>2.4</td>
<td>2.5</td>
<td>1.9</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Social background:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher and intermediate white-collar (X)</td>
<td>73.1</td>
<td>76.1</td>
<td>73.1</td>
<td>66.9</td>
<td>67.4</td>
<td>50.8</td>
</tr>
<tr>
<td>Farmers, small entrepreneurs, shopkeepers (Y)</td>
<td>66.9</td>
<td>70.7</td>
<td>66.4</td>
<td>63.5</td>
<td>64.7</td>
<td>48.4</td>
</tr>
<tr>
<td>Manual and clerical workers (Z)</td>
<td>62.9</td>
<td>64.8</td>
<td>63.4</td>
<td>61.5</td>
<td>62.9</td>
<td>50.2</td>
</tr>
<tr>
<td>X - Z difference</td>
<td>10.2</td>
<td>11.3</td>
<td>9.7</td>
<td>5.4</td>
<td>4.5</td>
<td>0.6</td>
</tr>
<tr>
<td>X/Z ratio</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top 10% (A)</td>
<td>90.1</td>
<td>91.2</td>
<td>95.2</td>
<td>*</td>
<td>86.8</td>
<td>72.5</td>
</tr>
<tr>
<td>Bottom 10% (B)</td>
<td>30.4</td>
<td>39.6</td>
<td>44.4</td>
<td>*</td>
<td>16.0</td>
<td>8.5</td>
</tr>
<tr>
<td>A - B difference</td>
<td>59.7</td>
<td>51.6</td>
<td>50.8</td>
<td>*</td>
<td>70.8</td>
<td>64.0</td>
</tr>
<tr>
<td>A/B ratio</td>
<td>3.0</td>
<td>2.3</td>
<td>2.1</td>
<td>*</td>
<td>5.4</td>
<td>8.5</td>
</tr>
<tr>
<td>Social background:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher and intermediate white-collar (X)</td>
<td>72.5</td>
<td>79.1</td>
<td>80.6</td>
<td>*</td>
<td>57.7</td>
<td>35.0</td>
</tr>
<tr>
<td>Farmers, small entrepreneurs, shopkeepers (Y)</td>
<td>66.3</td>
<td>74.6</td>
<td>75.9</td>
<td>*</td>
<td>49.7</td>
<td>36.6</td>
</tr>
<tr>
<td>Manual and clerical workers (Z)</td>
<td>61.6</td>
<td>67.9</td>
<td>72.0</td>
<td>*</td>
<td>45.8</td>
<td>34.0</td>
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<tr>
<td>X - Z difference</td>
<td>10.9</td>
<td>11.2</td>
<td>8.6</td>
<td>*</td>
<td>11.9</td>
<td>1.0</td>
</tr>
<tr>
<td>X/Z ratio</td>
<td>1.2</td>
<td>1.2</td>
<td>1.1</td>
<td>*</td>
<td>1.3</td>
<td>1.0</td>
</tr>
</tbody>
</table>

* Differences in mathematics tests made it impossible to calculate an aggregate percentage for the 10th grade (“mainstream” + “technological”)

Source: DEP (Education Ministry) assessments

1. References in brackets are to items in the bibliography at the end of the article.
Goals practically stable

As for the "mass assessments," they are conducted annually. Should they be entirely overhauled or should some parts of the previous test be carried forward? At the DEP, we have taken a compromise position. The reference framework—that is, the goals table for the start of 3rd and 6th grades, and the skills table for the start of 10th grade—is kept virtually unchanged. The goals tables defined in 1989 for the first assessment in 3rd and 6th grades have stayed practically the same. Eighty percent of the 3rd-grade mathematics goals in 1989 were adopted for the 1992 tests; the remaining 20% were replaced.

One of the abandoned goals was "telling time" [4]. The task force reckoned that this goal was attained by a vast majority of pupils, with 80% of correct answers. An example of a goal abandoned for the opposite reason is "finding symmetry axes": it turned out that only 25-30% of pupils provided the right answer. This weak performance was simply due to the fact that few 3rd-graders were familiar with the term "symmetry axes." By contrast, 82% of them were able to "complete a figure symmetrically" by following the instruction "complete the figure, as if you were folding the sheet on the heavy line" [4].

These goals were replaced by new ones such as "estimating an order of magnitude," "finding one's bearings in time," and "finding one's bearings in space," which call upon "cross-sectional" abilities rather than on knowledge of a particular subject.

A high proportion of new exercises

While the reference framework has been kept broadly stable, a high proportion of exercises—between 70% and 100%—is replaced every year. Total replacement avoids the perverse effect of "cramming." The repetition of exercises used in earlier tests offers an opportunity for comparison, i.e., for measuring changes over time. This makes it possible to reply to the charges of falling standards, widely circulated in the media. For example, the September 1993 assessment at the start of 6th grade reproduces some twenty items from the equivalent 1980 tests in French (including a dictation of 18 words or word groups) and mathematics (including one calculation of a rectangle perimeter and area) [5]. The repetition of items also raises the issue of their long-term relevance. A detailed study by the task force in charge of developing the test protocol for the 6th-grade French test found that scores on certain items yielded no reliable information on scholastic performance [6]. Eighteen percent of items in 1990 and 14% of items in 1991 fell into this category. For some items, the wording induced unexpected effects due to polysemia (multiple meanings). For example, the word "event" (événement) —used as a prompt for a fairly obvious narrative flashback—was understood by pupils in its "mass-media" sense of "catastrophe" or "momentous achievement" and thus led to the wrong answer.

Protocol adjustments also extend to the circumstances in which the tests are given. For all assessments of school population samples carried out by the "Permanent Observatory" and for the "mass assessments" in 3rd and 6th grades, all pupils take the same battery of tests. This makes it much easier to calculate national reference scores. The teachers concerned, therefore, have no say in the choice of questions. By contrast, for the mass assessments at the start of 10th grade, teachers can choose between two exercises or two sets of exercises for each skill tested. Teachers' choices are guided by their pedagogic methods and the specific make-up of the student population in their class that year.

Determining student and class profiles quickly

Lastly, adjustments are made to the technological environment of the tests. The "mass assessments" are mainly intended to help teachers identify their students' strengths and weaknesses at the start of the school year. The tests rely on "pencil and paper" materials, from which data can now be extracted more easily thanks to software provided by the DEP along with the exam books. The software is improved every year through user feedback and suggestions. With the "BASILE" and "CASIMIR" applications, 3rd-grade schoolmasters and 6th-grade French and mathematics teachers can obtain overall indicators—i.e., scores—for each pupil or the entire class after inputting the circled multiple-choice answers in their pupils' exam books. The score values and software-generated chart displays allow the teacher to rapidly visualize individual and class profiles. In edited form, the results are also easier to give to pupils and their families. Teachers may also want to compare their class results with national averages. For this, they can use a standard "Minitel" videotex terminal to access the Ministry's data base, where nationwide scores are available within two months of testing.

More advanced functions are offered by EVA2, a software application that enables schools to process data from assessment tests at the start of 10th grade. This particular assessment is closely linked to the recent reforms in French high schools. One of the central innovations is "modular" teaching, i.e. to groups of students with comparable achievement levels. Accordingly, EVA2 is designed not only to calculate aggregate performance indicators, but also to help form sub-groups of students with similar attainments in one or more classes.

All the data extraction software applications described above serve
a single purpose: using test scores to answer teachers’ pedagogic questions.

**Fostering an assessment culture**

Both sets of assessments have an impact on teaching practices. “Mass assessments” have been the more influential, since by definition they concern, directly or indirectly, all primary- and secondary-school teachers. This effect is demonstrated by the results of the “assessments of the assessments” carried out after the 3rd- and 6th-grade tests of 1989 and 1990 [7]. Roughly two-thirds of teachers polled would like the tests to continue for three reasons: (1) They report that the tests give them fuller information on their pupils at the start of the school year and thus enable them to manage their class better throughout the year. (2) Assessment offers them new pedagogic ideas, mainly thanks to the exercises and, to a lesser extent, the goals defined. On this point, most teachers responded very favorably to the “Pedagogic Brochure” distributed in 1989, later replaced by the pedagogic comments in the assessment instruction materials for teachers. (3) Continuous testing year after year stimulates the exchange of ideas among teachers in the same grade or across grades, as well as between teachers and their school principal.

Taking the various opinions of 3rd- and 6th-grade teachers on the 1990 assessment tests and classifying them into broad categories, it is safe to say that 40% are convinced or supportive, 28% are hesitant, and one-third are skeptical or conservative.

Another example of assessment-induced changes is offered not by teacher reactions but by classroom performance. The 1989 assessment at the start of 3rd grade revealed a fairly modest standard in geometry. The mere publication of this result—with no accompanying decision or circular from the central education authorities—made teachers aware of their pupils’ weakness in geometry. By the very next year, in the same assessment and on comparable test items, the geometry score had improved.

The preceding example effectively illustrates what we believe is needed in our education system: an “assessment culture.” By this we mean a situation where teachers, in their everyday classroom practice, use assessment to measure progress, to adjust their approaches, to define subgroups of pupils, to cope with the diversity of children’s attainments—in a word, to adapt their methods and make them more effective.

Today, societies expect much more from their education systems than they used to. Beyond measuring scholastic attainments, their variations, and their differences, assessment tests should therefore serve a deeper purpose: to improve the quality of the school systems themselves.

**References**


**Suggestions for further reading**


**Bernard Ernst**

Head of Department of Primary and Secondary School Students Assessment, Assessment and Forecasting Directorate (Direction de l’Évaluation et de la Prospective: DEP), French Education Ministry

In September 1994, the author was appointed head of the “Reports and Trends” Section, Employment Division, INSEE Head Office.
Our knowledge of the French school system is steadily improving thanks to the work of the Education Ministry’s Assessment and Forecasting Directorate (Direction de l’évaluation et de la Prospective: DEP). By contrast, much remains to be discovered about family attitudes and practices in the education sphere. To fill this gap, INSEE launched a household survey in 1992 in cooperation with the French National Institute for Demographic Studies (Institut National d’Études Démographiques: INED).

For the first time ever, parents and children were canvassed separately. The goal was to obtain the fullest possible information on family involvement in education during a school year. Topics covered naturally included expenditures, but also the time spent helping children, contacts with teachers, choosing a school, language practices, and extracurricular cultural activities. In his article, François Héran shows that for all these areas the survey aims to describe not only the "substance" of facts and practices but also the "spirit"—in other words, the core of perceptions and values that determine family involvement in education.

The education system is a play with a large cast—pupils, teachers, parents, school principals, local authorities, and the Education Ministry. All these groups offer potential avenues of exploration for statisticians.

Family attitudes were, logically enough, the main focus of interest at the INSEE’s Population and Social Statistics Directorate. Some Directorate surveys had already touched on the subject. The first to do so was the Family Budget Survey (1984-85, 1989, 1994-95), which periodically estimates household education expenditures.

Meanwhile, the Contacts Survey had measured family involvement in parents’ associations in 1982-83. In particular, the survey found that the highest membership rate was among... teachers.

But these data were too aggregated or incomplete to satisfy the ever-greater demand for information fueled by the continuing changes in the education system.

Hence the idea of a survey on “Family Involvement in Education,” or “Education Survey” for short.

Survey partners and context

Responsibility for the survey was assigned jointly to a senior INSEE staffer of administrateur rank, Claude Gissot, and a senior INED researcher, François Héran.

A steering committee supervised the drafting of the questionnaire and analyzed the results of the three trial tests. The committee was staffed by representatives of the Education Ministry’s Assessment and Forecasting Directorate (Direction de l’Évaluation et de la Prospective: DEP), the Institute for Research in Education Economics (IREDU), the National Institute for Pedagogic Research (INRP), and the Observatory for Social Change (OCS) of the National Center for Scientific Research (CNRS). The broad objective of the survey organizers, approved by the steering committee, was to construct a questionnaire that would lend itself to economic, sociological, and demographic analysis.

The Education Survey originated in a context of intense change marked by the following milestones:

• An increase in the number of young people remaining in school after age 16, coupled with heightened demands from families. The French expect their public education system to be not only egalitarian but also efficient. The official target of ensuring that 80% of each high-school generation should attain the level of the baccalauréat (final high-school diploma, which also allows the holder to enroll in university) has been interpreted as a sort of "entitlement to the baccalauréat."

• The ever-greater autonomy of children with respect to their parents in tracking and school choice.

• The regular publication, since 1982, of performance tables for individual high schools (lycées).
This ranking undermines the conventional image of a homogeneous public education service and promotes that of competing providers. Significantly, the monthly Le Monde de l'Éducation quadruples its print run when it publishes the baccalauréat pass rates of all French lycées.

- The gradual easing of the carte scolaire, or place-of-residence restrictions imposed on enrollments in the public school system.

The latter development is crucial. The carte scolaire had long been circumvented by many dispensations. After mass demonstrations in defense of the private education system (to which the carte scolaire does not apply), the Ministry officially agreed in the mid-1980s to trial “de-districting” operations in selected communities. As this deregulation proved popular with families, it was gradually extended through agreements negotiated locally between regional education authorities and school principals. By the start of the 1993-94 school year, the carte scolaire had been eased in nearly half the country. The timing was ideal to investigate changes in parents’ school-choice strategies.

Several years earlier, British sociologists had conducted such a study in Scotland and England, which had just implemented a similar de-districting policy. These household surveys found that only 10% of parents actually exercised their newly-won freedom of choice when enrolling their children in school. The sociologists’ method, however, was undermined by too individual a definition of the statistical unit. When the reference child attended a school already chosen for an elder sibling, the survey went no further, because it failed to probe the family’s initial choice for that sibling—which was the only truly significant choice.

In France, the research by Robert Ballion on parental choice strategies had broken new ground but had
confined itself to the Paris area, begging the question of whether Ballion’s “school consumers” extended beyond a Paris élite.

To obtain fuller information, the Education Survey organizers delved into the reference materials at the National Institute for Pedagogic Research (INRP), an unparalleled resource for anyone in need of quick updates on international research. The main foreign surveys on the topic were identified by a search of specialized journals, which are particularly abundant in the English-speaking world. This background work maximized the efficiency of a fact-finding mission to the U.S. in 1991. Surveys commissioned in France by parent associations also yielded suggestions for approaches, but on a limited basis. The two organizers greatly benefited from their many conversations with Jean-Louis Derouet, Professor at INRP. Our exchanges covered the history of the French education system, the history of research on that topic, and the issues at stake in the continuing debates over the school system, which call into question the respective roles of State and family.

Main guidelines

From all this background work, it clearly emerged that the analysis of new parental behavior patterns in the educational domain had become a major focus of research both in France and abroad. This finding corroborated the initial intuition of INSEE statisticians—namely, that one should begin by surveying parents.

Subsequently, the decision was taken to pursue four path-breaking objectives:

1. Broaden the scope of coverage to all grades

The INSEE Living Standards and Retail Prices Department wanted the survey to encompass all young people in the education system, from kindergarten to university. In particular, this comprehensive approach would make it possible—for the first time ever—to plot a complete curve of spending by age. It would also yield more reliable assumptions for time models.

2. Compare the educational investment of immigrant families with those of other families

The integration of immigrants’ children through schooling has become a key issue in the public debate. We therefore decided to make some relevant changes in the survey sample and the question form, but without going back on our initial decision to avoid a separate “Foreigners” section in the questionnaire. All respondents would be asked the same questions, apart from some basic particulars about nationality and age of arrival in France. Questions on native-language use and oral and written proficiency in French were put to all parents. Incidentally, this made it possible to compile a preliminary linguistic table of France covering regional languages as well as immigrant languages.

3. Combine three viewpoints: pupils, parents, schools

U.S. researchers excel in enhancing a survey by studying a phenomenon from several angles. Their sources encompass children, parents, teachers,
principals, and administrative records. More modestly, we confined ourselves to a threefold examination of each household: a children’s questionnaire was introduced alongside the parents’ questionnaire, while we took all the necessary precautions to allow the retrieval of DEP data on schools attended by the children for inclusion in the survey file.

4. Go beyond behavior patterns

Very early on, we realized the scope of coverage would have to be enlarged to the non-monetary sphere, starting with time expenditures. But the example of foreign surveys was an incentive to go beyond. We also had to assess phenomena harder to objectivate, such as decision-making processes, mental representations, categories of perception, and even value judgments, which heavily determine practical choices. Nevertheless, the questionnaire had to remain neutral. In particular, we decided to maintain an even balance between public and private education.

Interviewers canvassed parents face-to-face, without instructions as to the choice of respondent. In most cases (61%), the mother alone responded. As it became hard to gather detailed information on each household child attending school, a maximum of two children were selected at random, irrespective of gender or age. Interviewers simply picked the first two by alphabetical order of first names; by convention, they were referred to as child A and child B. This procedure yielded a representative sample of children in school to complement the parent sample. Expenditures and extracurricular activities were detailed separately for each child. In other areas, the questions concentrated on child A. A third set of questions merely recapitulated the status of all siblings.

At the end of the parents’ interview, the canvasser left behind (or mailed) a special questionnaire for child A. The child was asked to fill in the form without parental help and to return it by mail. The document was relatively simple, running to no more than eight pages. Some questions overlapped those of the parents’ interview, but most were different.

Children’s Questionnaire: a low-cost representative sample

The Children’s Questionnaire was tested in several classes at a school in a northern Paris suburb. The form, written in user-friendly language, alternated open-ended questions and multiple-choice questions, with slightly different wordings for junior-high-schoolers, high-schoolers, and university students. No Children’s Questionnaires were given to families whose children were still in primary school.

The success of the Children’s Questionnaire exceeded our hopes: fully 92% of recipients returned the forms, thereby ensuring an adequate representativeness for the sample. A reminder mailed three weeks after the form delivery was enough to obtain this high response rate. As interviewers were not required to give instructions or to retrieve the completed forms, the marginal cost of collection did not exceed the postage stamps.

According to the interviewers’ accounts, young people appreciated the opportunity of expressing their viewpoint without parental interference in a document sent directly to INSEE. This was the first time the Institute had quizzed children so young (11 years) in a household survey. The prior record had been set by the 1987-88 Leisure Survey, where teenagers aged 14 and up had been canvassed.

Analyzing the answers: linking practices and opinions

By definition, a household survey is based on trust: respondents’ statements are taken at face value. The most objective replies thus contain a dose of subjectivity, although the more blatant inconsistencies can be eliminated in an initial “clean-up.” Conversely, respondents’ behavior is guided by a set of mental representations and value judgments that form an integral part of social reality. If statistical analysis reveals a consistency among these subjective variables, we have to recognize their objectivity. We must therefore soften the often arbitrary boundary between the objective and the subjective, between fact and opinion. To reject one for the other would be a fallacy. The main priority is to build one’s indicators in full awareness of this interaction. In so doing, we go against a narrowly objectivist vision of surveys that has long prevailed among sociologists. We argue, instead, that participants are able to express invaluable judgments on their own actions. At the same time as we place our faith in their rationality, we respect their value systems and “humanize” the questionnaire.

Hence the decision to add judgmental or assessment questions to the inquiry into practices. Does private coaching work? Do parents find it useful to meet teachers? Do these meetings produce results? Are extracurricular activities too time-consuming? What are the advantages and disadvantages of choosing a school outside one’s “mandatory” district? Is there a risk that the parents’ financial efforts to put their children through university will fail? What qualities do parents expect of boys and girls, and which of those qualities should be fostered by the school system?

In the Children’s Questionnaire as well, respondents were asked to describe practices and express opinions. For example, they were offered a quantitative scale to assess the relative importance they assigned in scholastic achievement to factors such as hard work, innate
ability, chance, parental support, and teacher support. They also replied to open questions on the qualities and shortcomings of schools. The answers were subjected to literal-analysis techniques. Children’s judgments turned out to be remarkably specific and articulate, even among the youngest junior-high-school students. It was interesting to discover that they generally like their teachers, but readily criticize school facilities, the activities available to students, and organizational arrangements. Many young people are also acutely aware of the competition between schools for top performance ratings. On balance, secondary-school students demonstrate a realistic perception of their institution’s local ranking.

Taken individually, these questions may appear too subjective for a survey whose chief aim is objectivity. Viewed in context, however, they form a coherent pattern that consistently ties in with objective practices. As an example, we can take the recently published study on parental assistance in homework. The study allowed a comparison between an objective variable (the number of hours spent helping a child) and a self-judgment (“the feeling of being unable to cope, of lacking the necessary knowledge”), carefully graded on a numerical scale (figure 2). By correlating the two variables, we were able to show that mothers and fathers do not have the same attitudes to the intellectual challenges of homework. Mothers feel the challenges with the same intensity as fathers, but are twice as likely to persist in helping their children—even if it means, for example, making them recite a geometry lesson without understanding it themselves. From this gap between objective cost and mental cost, we derive a “perseverance indicator” that sheds a singular light on the division of labor between fathers and mothers.

Neither facts nor opinions

These questions—and many others—were tested by INSEE local offices in three regions before the final wording was drafted. Questions intended to elicit personal sentiments and value judgments are hardly a novelty in INSEE survey forms, but they are effectively more numerous in the Education Survey than in the Institute’s consumer surveys. It would be wrong, however, to equate them with “opinion-poll” questions. Life in society does not consist merely of factual processes and events. It also encompasses people’s judgments on these objective elements, as well as the decision-making processes that crystallize into events. Behind facts as “objective” as a home address, enrollment in a particular school, and tracking options, we find socially constituted preferences. Indeed, some of these turn out to have such a long history that they may seem carved in stone or embedded in the natural order. The classic opposition between “subjective” and “objective,” between “opinion” and “fact,” is too superficial to adequately describe the continuum that runs from choices to behavior, from value judgments to set values.

The main imperative is to ask concrete questions. Education specialists have long pointed out the considerable gap between general opinions on the school system—so often reported in opinion polls—and...
parents' specific assessments of their child's school. The latter are based on experience, while the former are biased by the media, instinctively prone to emphasizing the system's deficiencies. In fact, a large majority of junior-high-school students in our survey have a positive image of their teachers. The adjective most commonly used to qualify teachers in the open-ended questions is—yes—"nice" (sympathique).

Similarly, most parents are very content with the standards of safety in their children's schools. Nine parents out of ten feel their child is safe at school: there is very little difference in the ratings for public schools and private schools on this issue.

François Héran
Head of Population Surveys and Studies Division, INSEE

While senior researcher (directeur de recherches) at INED, F. Héran oversaw the Education Survey in cooperation with INSEE's Household Living Standards Division.
Satellite accounts: a French example

The research satellite account

The research satellite account is annual. Its purpose is to describe the funding and expenditure flows of research and development (R&D) activity using an approach consistent with national-accounting methods and concepts. The account provides the uses-and-resources balance of the market research product. The table is reproduced in the central framework. The satellite account also analyzes flows not recorded in the central framework. The purpose of that analysis is to show the full range of research-related expenditures and funding, in particular the valuation of research for own account.

Michel Braibant and Jean-François Minder summarize the stages of preparation of the research satellite account, with figures for 1990.

The research satellite account is compiled in several stages.

The first stage is to analyze research resources in the national-accounting classifications of activities and institutional sectors (tables 1a and 1b). Data on inter-unit research transactions are disregarded.

The measurement variables used are domestic expenditures and human resources. These yield two sets of tables: Gross domestic expenditure on R&D (GERD) by institutional sector performing the expenditure (table 1a) and GERD by research industry (total R&D expenditure in table 1b) and activity industry (total activity expenditure in table 1b).1

The account applies two classifications to research-unit work. The first is based on the type of product to which the research is devoted; the second, on the use of the product and hence on the industrial activities that benefit from the research.

The satellite account classifies research expenditures by means of two economic criteria: by research industry, using a description of beneficiary activities; and by the activity industry of the units of homogeneous production where the research is performed. The second approach is consistent with the national-accounting analysis by industry. The two classifications coincide for the units that engage in research for their own account.

Each unit of homogeneous research surveyed thus receives two code numbers: one specifies its research industry in a format compatible with the French classification of activities and products (Nomenclature d'Activités et de Produits: NAP), while the other indicates the industry of the unit of homogeneous production to which the unit belongs.

The research-industry classification selects the industry that directly benefits from the research. Accordingly, the research work benefiting activity A but performed by a firm in industry B will be placed under activity A in the research-industry classification and under activity B in the activity-industry classification.

Gross domestic expenditure on R&D (GERD)

GERD is defined as "all intramural R&D expenditure by units on national territory, regardless of the sources of funds, and thus

1a. GERD by institutional sector (1990, FF million)

<table>
<thead>
<tr>
<th>Institutional sector</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>total</td>
</tr>
<tr>
<td>Education</td>
<td>22,941</td>
</tr>
<tr>
<td>Government</td>
<td>35,811</td>
</tr>
<tr>
<td>Private institutions</td>
<td>724</td>
</tr>
<tr>
<td>Corporate and quasi-corporate enterprises (CQGs)</td>
<td>97,670</td>
</tr>
<tr>
<td>Total</td>
<td>157,146</td>
</tr>
</tbody>
</table>

1b. GERD by industry (1990, FF million)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>total R&amp;D</td>
</tr>
<tr>
<td>Market (excl s83)</td>
<td>97,670</td>
</tr>
<tr>
<td>Market research (s83)</td>
<td>0</td>
</tr>
<tr>
<td>Non-market research (T38)</td>
<td>59,476</td>
</tr>
<tr>
<td>Total</td>
<td>157,146</td>
</tr>
</tbody>
</table>

Source: Ministry of Higher Education and Research

1. The terminology used in this article is broadly based on the OECD Frascati Manual, 1990 revision.
provides a measurement, without double counting, of all expenditures on R&D carried out in France during a given year. * Intramural expenditures incurred by producers comprise current expenditures and capital expenditures (capital expenditures in tables 1a and 1b) such as acquisitions of fixed assets.

Such research units occasionally sell their research activity or, more generally, receive external funding for it. In the central framework of the national accounts, their sold output is kept aggregated with the actual output of the unit of homogeneous production to which they belong, but it is reallocated to market research services in order to calculate distributed output.

Funding and performance

The third stage merges the results of the first two stages through two breakdowns of expenditure funding and performance, one by institutional sector, the other by activity industry. Both tabulations provide a bridge between GERD and gross national expenditure on R&D (GNERD), that is, between R&D performance and R&D funding.

This analysis yields two summary tables shown below:

- R&D performance and R&D funding by institutional sector (table 5);
- R&D funding and performance by activity industry (table 6).

The "funding/performance" table—an extension of the uses-and-resources balances—is a crucial element in this step. The funding sectors are tabulated in columns and the performing sectors in rows. The amount shown in a cell represents the funding of the row by the column. The sum of each row constitutes the research performed by the institutional sector, that is, its intramural expenditures. Total intramural expenditures equal GNERD. Total funding represents GNERD.

To obtain the funding-performance table from the uses-and-resources balance of market research, two corrections are required.

The first is the addition of funding items other than intermediate consumption, such as subsidies, refundable advances, and funding granted to international organizations (table 4).

The second correction involves incorporating own-account expenditures. These expenditures are calculated, for each institutional sector, as the balance of total GERD (see table 1a) minus funding of research performed on behalf of third parties (see table 4).

Next, the account calculates national expenditure (GNERD). This aggregate consists of total R&D funding by national economic agents during the year. It is calculated not directly from the amounts reported by the funding units but indirectly from GERD, minus non-resident funding of intramural domestic expenditure, plus funding to non-residents for research work performed on national territory.

This yields the basic equality in the research satellite account:

GNERD = GERD
+ R&D funding to the rest of the world
- R&D funding from the rest of the world.

2. Research performed on behalf of third parties

<table>
<thead>
<tr>
<th>Resources</th>
<th>Uses</th>
<th>Education</th>
<th>Govt.</th>
<th>Priv.inst.</th>
<th>CQC</th>
<th>Total intramural</th>
<th>Rest of world</th>
<th>Total resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>112</td>
<td>961</td>
<td>36</td>
<td>1,157</td>
<td>2,266</td>
<td>136</td>
<td>2,402</td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>57</td>
<td>1,974</td>
<td>39</td>
<td>1,030</td>
<td>3,100</td>
<td>1,067</td>
<td>4,167</td>
<td></td>
</tr>
<tr>
<td>Private institutions</td>
<td>9</td>
<td>29</td>
<td>14</td>
<td>43</td>
<td>95</td>
<td>11</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>Corporate and quasi-corporate enterprises (research)</td>
<td>2</td>
<td>537</td>
<td>21</td>
<td>12,090</td>
<td>12,650</td>
<td>726</td>
<td>13,376</td>
<td></td>
</tr>
<tr>
<td>Corporate and quasi-corporate enterprises (other)</td>
<td>7</td>
<td>14,507</td>
<td>14</td>
<td>7,721</td>
<td>22,249</td>
<td>9,905</td>
<td>32,154</td>
<td></td>
</tr>
<tr>
<td>Rest of world</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>6,017</td>
<td>6,050</td>
<td>0</td>
<td>6,050</td>
<td></td>
</tr>
<tr>
<td>Total uses</td>
<td>210</td>
<td>18,018</td>
<td>124</td>
<td>28,058</td>
<td>46,410</td>
<td>11,845</td>
<td>58,255</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Higher Education and Research

3. Market research uses-and-resources balance

<table>
<thead>
<tr>
<th>Resources</th>
<th>Uses</th>
<th>58,255</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual output</td>
<td>13,376</td>
<td></td>
</tr>
<tr>
<td>Research transfers</td>
<td>32,154</td>
<td></td>
</tr>
<tr>
<td>Incidental sales</td>
<td>6,675</td>
<td></td>
</tr>
<tr>
<td>Imports</td>
<td>6,050</td>
<td></td>
</tr>
</tbody>
</table>

ICMG = Intermediate consumption of market goods
ICNMG = Intermediate consumption of non-market goods

Source: Ministry of Higher Education and Research
4. Research performed on behalf of third parties and other funding not linked to production (1990, FF million)

<table>
<thead>
<tr>
<th>Performance</th>
<th>Funding</th>
<th>Education</th>
<th>Financial correction for educ.</th>
<th>Government</th>
<th>Financial correction for govt.</th>
<th>Private institutions</th>
<th>COCs</th>
<th>Total intramural</th>
<th>Total performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>112</td>
<td>0</td>
<td>961</td>
<td>860</td>
<td>36</td>
<td>1,157</td>
<td>3,126</td>
<td>136</td>
<td>3,262</td>
</tr>
<tr>
<td>Government</td>
<td>57</td>
<td>0</td>
<td>1,974</td>
<td>0</td>
<td>39</td>
<td>1,030</td>
<td>3,100</td>
<td>1,067</td>
<td>4,167</td>
</tr>
<tr>
<td>Private institutions</td>
<td>9</td>
<td>0</td>
<td>29</td>
<td>249</td>
<td>14</td>
<td>43</td>
<td>344</td>
<td>11</td>
<td>355</td>
</tr>
<tr>
<td>Corporate and quasi-corporate enterprises</td>
<td>9</td>
<td>0</td>
<td>15,044</td>
<td>4,057</td>
<td>35</td>
<td>19,811</td>
<td>38,956</td>
<td>10,631</td>
<td>49,587</td>
</tr>
<tr>
<td>Rest of world</td>
<td>23</td>
<td>199</td>
<td>10</td>
<td>5,234</td>
<td>0</td>
<td>6,017</td>
<td>11,483</td>
<td>0</td>
<td>11,483</td>
</tr>
<tr>
<td>Total funding</td>
<td>210</td>
<td>199</td>
<td>18,018</td>
<td>10,400</td>
<td>124</td>
<td>28,058</td>
<td>57,009</td>
<td>11,845</td>
<td>68,854</td>
</tr>
</tbody>
</table>

Source: Ministry of Higher Education and Research

5. R&D funding and performance by institutional sector (1990, FF million)

<table>
<thead>
<tr>
<th>Performance</th>
<th>Funding</th>
<th>Education</th>
<th>Government</th>
<th>Private institutions</th>
<th>COCs</th>
<th>Total intramural</th>
<th>Total performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>*19,791</td>
<td>1,821</td>
<td>36</td>
<td>1,157</td>
<td>22,805</td>
<td>136</td>
<td>22,941</td>
</tr>
<tr>
<td>Government</td>
<td>57</td>
<td>33,618</td>
<td>39</td>
<td>1,030</td>
<td>34,744</td>
<td>1,067</td>
<td>35,811</td>
</tr>
<tr>
<td>Private institutions</td>
<td>9</td>
<td>278</td>
<td>*383</td>
<td>43</td>
<td>713</td>
<td>11</td>
<td>724</td>
</tr>
<tr>
<td>Corporate and quasi-corporate enterprises</td>
<td>9</td>
<td>19,101</td>
<td>35</td>
<td>*67,894</td>
<td>87,039</td>
<td>10,631</td>
<td>97,670</td>
</tr>
<tr>
<td>Total intramural</td>
<td>19,866</td>
<td>54,818</td>
<td>493</td>
<td>70,124</td>
<td>145,301</td>
<td>11,845</td>
<td>157,146</td>
</tr>
<tr>
<td>Rest of world</td>
<td>222</td>
<td>5,244</td>
<td>0</td>
<td>6,017</td>
<td>11,483</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total funding</td>
<td>20,088</td>
<td>60,062</td>
<td>493</td>
<td>76,141</td>
<td>156,784</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: figures preceded by * are calculated as balancing items

Source: Ministry of Higher Education and Research

6. R&D funding and performance by activity industry (1990 FF million)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Intramural expenditure (GERD)</th>
<th>+ Intermediate consumption</th>
<th>= Research budget</th>
<th>- Sales and transfers</th>
<th>- Subsidies and advances</th>
<th>+ Funding to rest of world</th>
<th>= National expenditure (GNERD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market research (not including s83)</td>
<td>85,008</td>
<td>26,476</td>
<td>111,484</td>
<td>32,154</td>
<td>3,419</td>
<td>0</td>
<td>75,911</td>
</tr>
<tr>
<td>Market research (s83)</td>
<td>12,662</td>
<td>1,562</td>
<td>14,244</td>
<td>13,376</td>
<td>638</td>
<td>0</td>
<td>230</td>
</tr>
<tr>
<td>Non-market research (T38)</td>
<td>59,476</td>
<td>18,352</td>
<td>77,828</td>
<td>6,675</td>
<td>-4,057</td>
<td>5,433</td>
<td>80,643</td>
</tr>
<tr>
<td>Total</td>
<td>157,146</td>
<td>46,410</td>
<td>203,556</td>
<td>52,205</td>
<td>0</td>
<td>5,433</td>
<td>156,784</td>
</tr>
</tbody>
</table>

Source: Ministry of Higher Education and Research

The final table (table 6) classifies research funding and performance by activity industry. The net funding of each industry measures the financial contribution of the industry's units to the national research effort, i.e., GNERD. This aggregate is defined as GERO plus external research expenditures or intermediate consumption of the "market research" product. The resulting aggregate is the "research budget"—that is, the sum of intramural and external research expenditures.

By construction, the research budget for a specified set of units double-counts the research cross-flows between the units, first as intramural expenditures and then as external expenditures under intermediate consumption.

To obtain national expenditure, the account subtracts funding received, i.e., sales of research services (actual output, research transfers, and incidental sales), and subsidies and refundable advances (tables 3 and 4). But funding of international organizations is added in (table 4). The accounting-correction item is added as a resource to imports of research services, which become funding to the rest of the world.

Michel Braibant and Jean-François Minder

Michel Braibant works in the Concepts and Classifications Division, INSEE.

Jean-François Minder is on the staff of the APN Department of the French Ministry of Higher Education and Research.
The quality of population censuses

The prime purpose of a census is to enumerate a country’s entire population as exhaustively as possible. In France, census operations and results are satisfactory, especially by comparison with other countries. But there is room for improvement, of course. Michel Jacod focuses on the omissions and double-counts observed in 1990. He discusses their nature, their causes, and the quality-improvement procedures planned for the 1999 census.

A census also describes population patterns. As in an ordinary survey, information quality is determined by multiple factors. Quality controls are continuously implemented to detect inconsistencies and errors. The author concludes with some instructive international comparisons.

The results of the French population census may be regarded as being of good quality, whereas those in a number of other countries underestimate specific population subgroups. Indeed, France has no plans to revise its 1990 census figures. However, there is every reason to assess the operation’s quality for the purpose of introducing significant improvements in the next census, scheduled for 1999.

The "forgotten population" of 1990: nearly one million

A post-enumeration study of the 1990 census yielded estimates of the number of omissions and double-counts [Coeffic].

There are several types of omissions. The most typical is the omission of an entire building: this seems rare, and usually involves small buildings. A more frequent occurrence is the omission of an apartment in a building or of a single-family house. Together, these various instances account for one-quarter of all omissions. A minor problem in rural areas, omissions are a major deficiency in large cities, and one that has been known for a long time. They are due to the complexity of urban neighborhoods, enumerators’ lesser familiarity with their assigned zones, and the difficulties in supervising enumerators adequately. A special effort was therefore made in 1990 to ensure that dwellings were identified as effectively as possible. For most urban units of more than 20,000 inhabitants, the census dwelling lists were painstakingly checked against occupancy-tax rolls. The most glaring discrepancies were corrected. Without such a procedure, the number of omissions could have been one-quarter again as high.

A second form of omission consists in classifying a main home as a second (i.e. vacation or weekend) home, or as a vacant or occasional dwelling. This error is more common for apartment buildings than for single-family homes. More dwellings are misclassified than are omitted altogether, but the final impact on the underestimation of the total population is equivalent, since these main homes are often occupied by small households.

Both types of omission are more common in large conurbations, notably Paris, and in France’s Mediterranean regions. In half the cases, the households consist of single individuals. Omissions of large households are understandably rare.

A third quarter of omissions consist of specific members of a household that has actually been enumerated. Some of these individuals maintain a second residence. As a rule, the most frequent omissions of this kind concern persons farthest removed from the family nucleus, such as friends and subtenants. Presumably, other persons in legally dubious situations deliberately avoided enumeration, but their number could not be estimated.

Another 17% of persons forgotten by the census were moving during the data-gathering month and failed to be enumerated at their old home as well as at their new one.

The remaining 9% of omissions occurred during the enumeration of persons living in institutional households and other communal
establishments, such as students in university dormitories (nearly one in five is thought to have been overlooked), young workers in hostels, and conscripts in barracks.

Overall, and whatever the reason for the omission, most of the non-enumerated persons are males, especially young males (in the 20-24 age group, the omission rate reached 3.8%) and foreigners, particularly from North Africa (rates as high as 4.2%). These categories exhibit a high occurrence of unstable or contingent accommodation statuses, which are obviously hard to record in a census.

Two-thirds of all omissions are due to accommodation status, and only one-third involve persons not enumerated despite a properly identified dwelling. By comparison, the breakdown between these two broad categories of "forgotten people" is reversed in the U.S. population census.

The first group notably comprises people working at a significant distance from their family dwelling and who were enumerated in a dwelling that should have been classified as occasional, while their families were simultaneously completing a form for them. Another subcategory consists of students housed in urban off-campus lodgings. A third subcategory comprises persons living in second homes at that time of year and who were also described as residing in their main homes by an acquaintance or neighbor.3 Double-counts also occur when both parents in a separated couple report children for whom they share custody.

Omissions and double-counts do not cancel out: on balance, the 1990 French census underenumerated the population by about 1%. Insofar as the distribution of these errors is broadly balanced, they do not appear to upset the age pyramid, although there is no meaningful benefit to be derived from that uniformity. Young people, for example, experience higher rates for both omissions and double-counts.

The prevalence of double-counting was even higher among people enumerated in institutions. For example, 20% of lodgers in students' residences and 7% of school boarders were counted twice. Explicit arrangements exist to deal with double-counting in the enumeration of the so-called "legal" (official) population: in that case, the individual census form is supposed to be filled in by the institution and not by the family. After the data-gathering phase, INSEE forwards the questionnaire to the town hall of the person’s stated locality of residence, and destroys any form that may have been filled in by the person’s family. In practice, however, the matching and destruction of redundant forms are not fool-proof.

The two causes of double-counting just described mainly concern young people, in particular those aged 20-24, of whom 2.5% turn out to have been counted twice.

Sixty percent of double-counts involved persons in two ordinary (private) dwellings, 30% were in a dwelling and in institutional accommodation, and 10% moved during the enumeration month and were thus tabulated in two successive census forms.

Omissions and double-counts do not cancel out: on balance, the 1990 French census underenumerated the population by about 1%. Insofar as the distribution of these errors is broadly balanced, they do not appear to upset the age pyramid, although there is no meaningful benefit to be derived from that uniformity. Young people, for example, experience higher rates for both omissions and double-counts. The comparison between the 1962 and 1990 censuses and the respective post-enumeration surveys does not indicate any obvious deterioration in census coverage either, despite urbanization and the emergence of life-styles with more fragmented residential patterns. The growth of the homeless phenomenon poses a new problem that is being examined by a working group of the National Council for Statistical Information (Conseil national de l'information statistique: CNIS). One of the issues being debated is whether a distinct procedure for enumerating the homeless should be set up, or

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3. When the usual occupant of a dwelling cannot be reached, the enumerator is instructed to obtain the person’s particulars from neighbors. The information is often incomplete, but at least the head count is more accurate.

4. The three intermediate censuses, unfortunately, were not followed by quality-control surveys.
whether census organizers should simply pay special attention to the category.5

**Assessing the quality of coverage**

The above estimates of omissions and double-counts in the latest French census provide no more than a rough order of magnitude for possible errors. Indeed, it is harder to measure the degree of coverage of a census than that of a sample survey, because the scope of coverage of the latter is predetermined. In that case, non-responses can be not only assessed but corrected.

The first way to assess the quality of coverage of a census is to compare its aggregate results with the annual population reports compiled by most countries. Such reports, in turn, are based on the results of the prior census and on vital statistics recorded in the intercensal period, together with a tabulation or estimate of net migration. The comparison focuses on the total population and its age distribution. This method is obviously inexpensive but it can only highlight errors that would be regarded as glaring by the quality standards of censuses in developed countries. Particularly in France, the main purpose of the comparison is rather to evaluate the quality of the current estimate of migration flows.

Besides this "demographic" approach, statistical institutes use two other broad types of method—both of them costly and marred by intrinsic flaws.

In most countries including France, the post-enumeration survey consists in carrying out a so-called "perfect" census on a sample of geographic areas. Additional information is gathered for notoriously complicated phenomena such as households who use several dwellings or have moved during the period.

Canada rejects this method, arguing that—by definition—a technique similar to the census cannot transcend the inherent defects of the census itself. From exogenous sources, Statistics Canada compiles lists of individuals representative of specific population categories. When the data have been gathered, the agency endeavors to locate all the individuals in the census. The omission rates revealed by this procedure are relatively high, but hardly comparable with those recorded in countries using the first method.

**From enumeration to description**

On balance, the French census enumeration is fairly accurate and—even more importantly—its quality seems broadly consistent from one category to another. Is that also true of the other information provided by the census?

Unlike ordinary surveys, where partial non-responses are rare, census forms are filled in directly by the respondents. As a rule, the enumerators provide virtually no assistance. The recto of the individual form (which, in essence, covers basic demographic topics, mobility, and educational attainment) is filled in more thoroughly than the verso, which is devoted to job description. This discrepancy is presumably due to fatigue more than to a difficulty in responding or to a feeling of invasion of privacy. Whatever the explanation, the observed phenomenon fully justifies France’s decision to use a narrower range of questions than international guidelines recommend.6

Data capture is easy to monitor, being a mechanized process with built-in quality controls. By contrast, data coding poses some problems. An obvious trouble spot is the open questions used to help establish codes for economic activity and occupation. An initial "on sight" count by data-capture contractors found 22.61 million persons in

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6. The United Nations, for example, regards questions on religion and ethnic affiliation as essential, and recommends the inclusion of questions on income.
employment. The "heavy" extraction procedure, which included all the data gathered from a 1-in-4 sample, eventually yielded a figure 107,000 units smaller. Conversely, the exhaustive count found 52,000 more unemployed people than the 2.73 million initially estimated [Rouault].

The French statistical system relies on a very high-quality "register of business units" (Répertoire d'Établissements: SIRENE), which is used in the census to code the economic activity of each employed member of the labor force. The alternative solution would be to trust the respondent's description of activity, but the latter is highly imprecise and the results would not be comparable with the statistics on employment regularly compiled by government bodies.

Once the activity has been identified, a code is determined for the occupation. The coding is based on a series of responses, the most important of which is the individual's own statement of occupation. This operation is somewhat easier to carry out and can also be checked for quality.

The quality of the result therefore depends mostly on the SIRENE matching rate, the reliability of the matching, and the intrinsic quality of the SIRENE records. In 1990, the match rate came to 73%. A similar procedure is used in the United States, but business statisticians there verify only about 10% of the resulting information.

In the final stage, the captured information is verified for consistency. For example, teenagers under 16 are unlikely to be in employment unless they are apprentices, while young people above a certain age are unlikely to be conscripts. Adjustments are made for such anomalies as well as for non-responses. Since 1968, INSEE has relied mainly on "hot deck" methods for adjustment purposes. These methods have grown in sophistication from one census to the next. However, they turn the last stage of processing—called the coding/adjustment/tabulation stage—into something of a "black box."

A final problem is that some information items are captured and processed only for a one-quarter sample of households, thereby adding a random uncertainty, at least for small populations.

On balance, the greatest factor of uncertainty is the quality of responses. D. Rouault has made a detailed comparison between the data gathered by enumerators for the January 1990 Labor Force Survey and the data supplied by the same households in their census forms. Using the activity-status classification (employed/unemployed/not in labor force), Rouault found that 6% of the 40,000 matched individuals had reported different statuses in the Labor Force Survey and the census two months later.

The highest risk of inconsistent response concerns the choice between "unemployed" and "not in labor force," especially among women in the intermediate age group (25-39) with few or no educational attainments. In general, people will admit more readily to being in search of work on a census form than in a face-to-face interview. Unfortunately, the only area where a detailed comparison has been made is employment [Rouault], no doubt because the discrepancies were deemed significant on a particularly sensitive topic.

**Some lessons for 1999**

The post-enumeration survey ultimately offered some reassurance to census officials. It also underscored the efficiency of certain procedures and identified population groups for which additional efforts were required.

It is very hard to locate all dwellings in urban areas. The procedure for controlling the quality of enumerators' work by cross-checking against occupancy-tax rolls should be extended to all urban units of more than 10,000 inhabitants. The efficiency of the procedure should be enhanced by "block-coding" the data gathered by tax offices.

The student population exhibits the highest risks of omission and double-counting. The solution being considered is to enumerate students twice, once at their parents' homes and once in their student lodgings. The two series of forms would be collated on a decentralized basis during the enumeration period itself, by means of the Minitel interactive videotex system.

High processing homogeneity will be ensured by the use of automatic coding software for all open-ended questions such as occupation, locality of place of work, name of employer unit, nationality, etc. The quality of the resulting code will be easier to verify. These software programs cannot be totally efficient, however. Some cases—fewer in number but often more difficult—will continue to be handled on an individual basis, generally with computer assistance.
References


United States: category and geographic adjustments

Since 1950, the United States has carried out a post-enumeration survey after each census, along the same lines as the French surveys of 1962 and 1990. The U.S. survey conducted after the 1990 census shows a net underestimation rate of 2.1%, resulting from an omission rate of 2.5% minus a double-counting rate of 0.4%. By comparison, the "demographic" method puts the underestimation rate at 1.8%.

In the U.S., the debate focuses on differential underestimation. In other words, the relative differences between the errors for each geographic unit are seen as far more crucial than the national underestimation, which has no impact on transfer payments between the various levels of government, from the federal level to the smallest local community. Excluding Indian reservations, where underenumeration reached 12.2%, the rates in 1990 ranged from 0.7% for "non-Hispanics, whites, and other" to 4.6% for "Blacks" and 5% for "Hispanics." In each of these categories, non-ownership of one’s home considerably increases the risk. For "non-homeowning Hispanics," the percentage is as high as 7.4%. This results in sizable geographic differences due to the strong homogeneity of residential patterns [Hogan].

After each of the past several censuses, the Bureau of the Census has therefore come under strong pressure to publish figures revised on the basis of the post-enumeration surveys. Following protracted litigation, an agreement was reached in 1989 between the Department of Commerce and a coalition of states, cities, and various citizens’ groups headed by New York City. The accord called for a post-enumeration survey in 1990; census figures would be adjusted for the underestimation rate found by the survey. The procedure was left to the discretion of the Commerce Secretary, who, on July 15, 1991, decided not to adjust the census figures. This decision sparked a fresh round of discussions, and a reversal seemed likely until the new Commerce Secretary took office in 1994. The annual population estimates, however, are now revised: a new adjustment was calculated on the basis of a net underenumeration rate revised from 1.8% to 1.6%.

For the next census, in 2000, the Bureau of the Census intends to publish a single figure for each geographic entity within a year of the enumeration. The figure would no longer be the gross enumeration but an estimate combining the enumeration and an adjustment. This strategy, known as the "One-Number Census," is still under examination.

Insights from Canada, Britain, ... and China

As mentioned earlier, Canada uses a distinctive method known as "file cross-checking." A 56,000-person sample is selected from individuals enumerated in the prior census, children born since, recent immigrants, and—for the North-West Territories—persons registered in the health-system records. The individuals in the sample are then tracked down in the census by every possible means.

The cross-check has been performed on every census since 1961. In principle, it yields better results than an area-based method, which suffers from the same drawbacks as an ordinary census.

Between 1966 and 1981, the underenumeration rate was estimated at 2%; in 1986, it stood at 3.2%, and by 1991 it had risen to 3.7%. The peak was recorded in Ontario, with an overall rate of 4.6% and nearly double that for young people aged 20-29. Ontario (capital: Toronto) is the largest province in Canada, with 40% of the country’s total population.

In 1991, an additional survey on overenumeration estimated the double-counting rate at 0.4%. The survey covered a sample of 55,000 people.

Since 1991, and no doubt also in the wake of the U.S. controversy over the same issue, Canada has adjusted its official census figures for use in setting levels of inter-province financial transfers.

Britain finds itself in a similar situation, with an underenumeration estimated at 1.2 million people, or 2% of the total. The omissions are
heavily concentrated in specific categories, particularly young age groups in large cities. Fully 20% of Inner London males aged 20-29 are thought to have been left out [JRSS].

The impact on the U.K. age pyramid is so significant that annual population estimates are still based on the 1981 census rather than the 1991 census. Several reasons have been advanced to explain the deterioration, including the homeless phenomenon, the protest against the poll tax,11 which coincided with the census, and some flaws in procedures for enumerating the institutional population.

The Census Validation Survey (CVS) located only one-seventh of all people overlooked by the census, and thus cannot be used to adjust the figures. Some regional estimates were computed from other sources such as local health service registers in Scotland, or by making adjustments to ensure a reasonably balanced distribution by gender and by broad age group in England and Wales. Comparable adjustments are still needed for smaller geographic units.

To end this article on a more upbeat note, we can look to East Asia: the figures reported by China are impressive in quantitative terms, of course (1.13 billion inhabitants enumerated in 1990), but even more so in qualitative terms. A post-enumeration survey of 43,500 households revealed an omission rate of only 0.07% and a double-count rate of 0.01%, putting the net underestimation rate at a slender 0.06%. The “demographic” method puts the underestimation rate in the 0.14-0.62% range, the most likely figure being 0.26%.

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11. Local capitation tax designed to replace the local occupancy-based taxes similar to France’s taxe d’habitation.
Demography as a key to long-range planning: the example of the Limousin region

The Limousin, a region of central France, is acutely sensitive to population trends. Well before other regions, it has become concerned about its demographic future. With 21% of its inhabitants aged 65 and over, and its population having started to decline between the 1982 and 1990 censuses, the Limousin foreshadows the France of the 2020s. All the problems that beset the region today—aging, inadequate fertility, geographic imbalance, and rural depopulation—will confront the entire nation three decades from now.

Alain Malmartel analyzes the Limousin’s demographic profile and its implications, demonstrating the value of regional statistical investigations. The statistical sources used, such as the population census, vital records, and the «permanent population sample,» go some way toward addressing the issues at stake.

With its small, dwindling population, the Limousin region has focused its attention on population issues and their implications.

Three recent operations highlight this new-found concern:

• The «Limousin 2007” projection exercise has stressed the importance of demographic factors in constructing a positive yet realistic scenario for the future.

• Discussions on regional planning have shown the need to preserve the existing population and to establish inter-municipal development coordination procedures for accommodating an influx of new inhabitants.

• The planning of social-services facilities and programs in the Limousin’s départements has focused on the needs arising from generational and age-linked effects.

«Demographic trends and the geographic distribution of the population are crucial issues in the Limousin’s future. The awareness of their implications forces the Region to examine its optimum population profile.» So wrote the region préfet [central-government representative] and the president of the Regional Council in their foreword to Limousin 2007, a projection study carried out under their supervision in 1993. Their sentiment is echoed by a statement from the Conseil Économique et Social du Limousin, a consultative body: «Demographic trends and the problems they entail will shape the economic, social, and cultural future of the Limousin.»

In a word, local demand for demographic information and analysis is strong, all the more so as the region is actively planning its future. In 1987, the Regional Council began to examine an optimistic yet plausible scenario for the Limousin in the two decades ahead. This long-range analysis was intended to guide local economic players in their day-to-day activities and to identify structural trends. Another goal was to pinpoint the promising factors for the future as well as the issues and challenges that would face the region—in order to allow a definition of strategy choices.

This forward planning took place in two separate stages, the first in 1987-88, the second in 1992-93, during which demographic issues were continuously in the forefront.

A history-laden future

The main cause for concern in the Limousin is its shrinking population. The statistics leave no room for doubt: one million inhabitants at the turn of the century, 720,000 enumerated in 1990, and 620,000 projected by 2020. As regards births, the Limousin combines two weaknesses: an aging population and a low fertility rate.

The oldness of the population is due to the losses of World War I, during which young Limousin men suffered losses as devastating as those of their counterparts in Lorraine, Picardy, and the Champagne region. Another factor was the emigration of young people of working age from the countryside to the towns after World War II—a phenomenon so intense that it came to be known as the «rural exodus.»

The low fertility rate—1.4 children per woman—is more complex to...
explain and raises many unanswered questions. The Family Survey—a sample survey linked to the population census—reveals an even more disturbing development: of the Limousin’s female inhabitants, those most likely to have children are the ones who were not born there. Why is it that, in the same age cohort, native Limousin women will give birth to significantly fewer children than non-native women, whereas the Limousin boasted above-average fertility in the early twentieth century?

The determinants of fertility are obscure, and it is hard to give an answer to the question above. In negative terms, it could be argued that a high birth rate allowed family-run farms, then in the majority in the Limousin, to dispense with hired labor. The spread of technical progress and the fall in infant mortality observed at the beginning of the century gradually eliminated the need for a high birth rate. Contraception may also have been perceived as a solution to the risk of breaking up family holdings. Under this scenario, family size adjusted to inheritance restrictions over the decades. Another possible factor is the loss of religious observance due to the heavy emigration of Limousins early this century. Lastly, in the absence of heavy industry, the farming decline depressed economic demand. This provided another reason for curtailing births, as children faced the stark choice of leaving for the towns or living an austere life on the farm.

Because of aging and insufficient fertility, the Limousin will be unable to maintain its population at its present level until the year 2020. For that to happen, its fertility rate would have to rise from 144 to 325 births per hundred women by 2000 and stay at that level for the following two decades. But the age distribution is such that the population would keep decreasing until 2002 and the natural change would not become positive until 2016!

**Identifying the forces at work**

Projection, however, is not futurology: it does not paint a picture of the future; rather, it describes the forces at work in shaping that future.

For this purpose, the analysis identified key variables that will shape the impact of demographic trends on the regional economy. These variables are of two sorts: the expected demographic pattern(s), and the corresponding behavior patterns.

The most important variable of all is the absolute number of inhabitants. Whatever the values of the other parameters, there are threshold effects: below a certain floor, no new businesses can start up; above a certain ceiling, new infrastructure is required.

Population density softens the absolute impact of the preceding variable. The Limousin has 44 inhabitants per square kilometer, a figure three times as small as the European average. This low density should not be regarded as a handicap. Space is an asset: Canada, with its three inhabitants per square kilometer, is hardly a country in decline.

The third important variable is age distribution, to which one should add life expectancy for projection purposes.

The existing or expected population will display specific patterns of social, work, and consumption behavior. Family-unit structure influences social behavior. Being smaller, the family will also be less fragmented than elsewhere. Low fertility and the high proportion of single-person households combine to keep households small and to curtail the number of large families.

On the other hand, there is multiple evidence of greater family cohesion than elsewhere: children leave their parents’ homes at an older age; inter-generational bonding is closer (the Creuse département posts a high rate of deaths at home); and the growth rate for divorces is below the national average (the 1990 census found 9% of Limousin women aged...
35-44 were divorced, as against 10% in the rest of France).

Limousins display a strong propensity to enter the labor market. Participation rates are well above the national average in all age groups, and especially among females. The 1990 census found more than 73 out of 100 Limousin women aged 20-59 in the labor force, as against 69 per 100 in the rest of France. Many Limousin women enter the labor market out of necessity, others do so because they are available, while some are driven by the quest for self-fulfillment through work.

Business development in the region will be shaped by future changes in the pattern of goods and services consumption by age, marital status, gender, and geographic location.

Clearly, the expected aging of the population will alter consumption patterns, but other changes will exert a strong effect as well. They include the decrease in family size, the renewal of generations reaching retirement age, the increase in living standards, changes in earnings, and solvency. In short, retirees of the 2020s will not have had the same life experience as today's old-age pensioners, and their behavior patterns will be radically different.

Lastly, the projection must take into account the features of the Limousin population—not merely its specific demographic traits, but the characteristics of the men and women that compose it. Naturally, in adapting the national and international trend scenarios to the Limousin, one must take into account a maximum number of the region's industrial, agricultural, demographic, geographic, and other features. But, underneath this economic fabric, and even after eliminating such so-called structural effects, there remains a history, a mind-set, a behavior, a culture that are unrelated to age, type of employment, or geographic location. Traditions and customs have shaped a highly typical way of life and of doing things. In the Limousin no less than elsewhere, cultural and ethnic factors determine many areas of human behavior.

A scattering of age-old hamlets

The debate preceding the «blueprint bill» (loi cadre) on regional planning also put the spotlight on demography, and in particular on geographic distribution.

Natural environment, rural depopulation, aging, isolation, and a low birth rate have helped to produce a demographic landscape weighted in favor of the western towns of Limoges and Brive-la-Gaillarde, to the detriment of the eastern districts running up against the foothills of the Massif Central.

Today's population distribution bears the eloquent traces of history, embodied in two seemingly paradoxical features: concentration and dispersion. One-third of all Limousins live in two towns: Limoges and Brive-la-Gaillarde. This concentration results from the «rural exodus» that gathered momentum in the 19th century. The remaining two-thirds are scattered throughout the surrounding countryside—where only a network, albeit a tight one, of hamlets survives. The Limousin identity expresses itself in a highly fragmented, highly dispersed population pattern.

Sparse settlements, a life-style bordering on autarky, and a mountainous terrain have gradually isolated local communities and restricted access to economic centers. By the year 2020, the Limousin is likely to restructure itself around a handful of towns: Limoges, Brive-la-Gaillarde, Tulle, and—to a lesser degree—Guéret and Ussel.

The rest of the region seems headed for an irreversible depopulation. The prime cause is an apparently unstoppable chain of phenomena. Objective developments and events such as the emptying of the countryside, the death of small crafts businesses, population aging, and run-down housing have combined to make it hard to meet even the most basic community needs where and when required.

When regional population change moves on such an inexorable path, a question arises. Can one and should one make the region’s «magnets» even more attractive while combating the disintegration of rural communities? Or must one abandon the areas that are losing their population and concentrate on the «magnets»? After all, an investment in the latter may eventually have a positive impact on the disadvantaged areas.

A changing social landscape

Faced with these demographic prospects, the Limousin is pinning many of its hopes on another phenomenon: immigration. For the past thirty years, the region has enjoyed a continuously positive net migration. This influx, now being closely examined, is known to be concentrated in rural zones. Most newcomers of working age come from neighboring départements, while the seniors come from the Paris area. The available data also show that the arrivals comprise young management-level employees with their children, students attracted to the University of Limoges, and recent retirees.

The main beneficiary of the influx is the countryside. Rural areas throughout the Limousin, including the heavily underpopulated département of the Creuse, have regained popularity over the past two decades. Indeed, in the past ten years, newcomers have been especially drawn to the rural heartland.

The quantitative impact is admittedly significant, since the figures show a ratio of one immigrant to every
death. But greater emphasis has been placed on the qualitative effect. The region’s future will hinge on the newcomers, whose cultural contribution is slowly but deeply transforming local society. Many new arrivals have organized their lives and their time to take full advantage of nature as a place for recreation and well-being. This relationship to space and time breaks with age-old traditions. In the Limousin, the land has long been the setting for work and production. Owing to changes in technology and life styles, most newcomers do not share that traditional outlook. For many new residents, «space» implies leisure, ample accommodation, and easy living. Their behavior is transforming the social landscape. The number of payroll workers is rising, while the proportion of farmers is dwindling. The new entrants are contributing to the break-up of the identity between the rural world and the farming community.

It is up to the Limousin to welcome and integrate the newcomers, but this calls for a collective attitude, an awareness of the positive side of the inflow.

The challenge for the region is to switch successfully from a «departure culture» to an «intake culture»—in other words, to accept the substitution of a promotion drive for an emigration strategy long viewed, implicitly, as a good thing (witness the comment sometimes heard that «it’s the best who leave»). There is every sign that, in the coming decades, the inevitable decline in the rural population will coincide with a change in its make-up and characteristics. Two factors will be responsible for this: the natural decrease in the native population and the corresponding increase in the percentage of immigrants.

**Senior citizens: a potential asset**

The Limousin’s first priority is to make the most of its population and to turn aging into an asset. As the region with the highest proportion of senior citizens in the European Union, it realizes that retirees are entering a new era—which will involve satisfying new needs, developing innovative products, organizing active leisure pursuits with a high cultural content, and promoting training programs where youth can benefit from experience. The Limousin is taking up a position in this market by testing a range of profitable products for seniors. Units have already set up to define aging-linked opportunities. In July 1992, for example, the Limousin Institute of Gerontology was founded for the purpose of advancing research on old age, improving care services, and communicating expertise. «Senior-citizen plans» are being drawn up. Based on the present demographic situation and outlook, on an inventory of facilities, and on

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**Population projections**

INSEE has developed a population projection model called OMPHALE, a French acronym for «Methodological tool for projections of the population, the labor force, housing, and school pupils.» OMPHALE generates projections for the number of inhabitants and households in a geographic area for every year from now to 2020.

It is important to bear in mind that these are population projections, not forecasts. They take the demographic variables—births, deaths, migration—and formulate assumptions about how these will move. They leave out the economic factors that can strongly influence migrations at the local level.

Trend projections are built on past demographic data and seek to give a picture of how the future may look if the underlying assumptions are borne out. The choice of assumptions therefore determines the final outcome.

At regional or département level, the uncertainty in the projection arises from the impact of migrations. These can be assessed only with hindsight after a population census, whereas births and deaths can be tracked year by year. Consequently, trend projections extrapolate migratory trends observed in the past—namely, between the 1975 and 1990 population censuses.

Local projections reflect the distinctive local demographic variations from the national averages measured by the latest population census (1990). The main features of the Limousin are its below-average fertility and a life expectancy comparable to the national figure.

In practice, the projection takes the age pyramid estimated at January 1, 1990, from the population census, and performs the following calculations:

- Generations are aged along the time scale;
- The ranks of each generation are thinned in accordance with the table of expected mortality by gender and age;
- Generational migration flows are estimated using migration rates by gender and age;
- Generational reproduction rates are calculated on the basis of expected fertility rates, in order to «feed» the age pyramid with births.

Other aggregates such as labor-force size and number of households are deduced from this distribution by applying appropriate rates. These, in turn, are based on several assumptions, such as sociological observations on changing patterns of female work or household break-ups.

The aim of a projection is not to predict the future but to suggest its outline on the basis of past behavior or to propose a range of scenarios based on specific assumptions. In fact, the validity of these assumptions is all that counts: the rest is mere computation.

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**Senior-citizen plans**

The Limousin is taking up a position in this market by testing a range of profitable products for seniors. Units have already set up to define aging-linked opportunities. In July 1992, for example, the Limousin Institute of Gerontology was founded for the purpose of advancing research on old age, improving care services, and communicating expertise. «Senior-citizen plans» are being drawn up. Based on the present demographic situation and outlook, on an inventory of facilities, and on
an analysis of community demands, the plans seek to define guidelines and new types of initiatives. Associations have been established to inform senior citizens, guide them in areas of everyday life, advise them on home improvements, and help them in their paperwork.

Population projections show that, by 2020, the new retirees from the baby-boom generation will be joined by a substantial proportion of dependent persons. Medical progress enables frail individuals to live to a very old age. Many of these people would like to live at home as long as possible. The Limousin is accordingly setting up welfare, human, and medical resources to promote a home-care policy. It is easy to perceive the vast potential for jobs offered by the growth in services of this kind, which require human contact, availability, and proximity more than high-level skills.

**Statistical films and stills**

To meet the varied demands for demographic information, statisticians need to tap several sources offering detailed results. The prime source, naturally, is the **population census**. It is exhaustive and covers a wide range of fields, including gender, age, marital status, educational attainment, employment, and housing. The census is the basis for all investigations into population structure and change on whatever order of magnitude—from a small village to the entire nation.

Another source of exhaustive information is the data base of **vital statistics** (État Civil) —the births, deaths, child recognitions, and marriages registered in each municipality. With their wealth of information on births, filiation, family history, and mortality, vital statistics are essential for the annual estimate of the natural change in the population.

National surveys of households yield valuable data on individuals but are often insufficiently representative to permit analysis at regional level. Special surveys on topics of local interest may, of course, be conducted with one or more institutional partners.

The «**Permanent Population Sample**» consists of a panel of individuals periodically monitored via biographical events documented in vital statistics and successive censuses.¹ The Sample’s distinctive

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¹ See Courrier des statistiques no. 73, March 1995.
advantage is that it can be used to study one of the most important phenomena for the regional demographer and local elected officials: migration. Panel studies have all the virtues of a «film» narrating individual life paths; a census, by contrast, is a «still» shot—admittedly well-focused, but somewhat static.2

Lastly, local population estimates will provide regular updates on the number of inhabitants in selected areas, a valuable item of information for regions such as the Limousin, which track their population so closely.

Looking at the figures compiled from these different sources, the more pessimistic observers will see the Limousin trapped in the vicious circle of continuous, self-perpetuating decline characteristic of France’s rural heartland. A shortage of young people is indeed bound to cause a shortfall in births, which, in turn, will mean fewer young people. The population distribution, the pessimists argue, bears the seeds of its own decay.

Other analysts, defending a more upbeat scenario, emphasize the advantages of low density. The difficulties due to overpopulation are no less acute. For example, the allocation of space in areas such as Hambourg (Germany), with 2,000 inhabitants per square kilometer, raises problems that are admittedly of a different kind, but no doubt more worrying than those of the Limousin. Rural environments also imply a web of human relationships based on a lesser anonymity and capable of fostering—among other things—a keener sense of community. Lastly, an aging population constitutes a potential market, whose needs could generate new economic activities.

Regional statistics tries to strike a balance between resigned pessimists, who see depopulation as synonymous with irreversible desertification, and faith-driven optimists, who fail to understand why the advantages of the Limousin territory are still a secret. Whatever the trends observed, however, the clash between the pessimists and the optimists will shape the future of the Limousin.

Beyond these analyses, a nagging question persists: are demographic phenomena a cause or a consequence of non-demographic changes, such as geographic isolation or shop closures? There are no truly clearcut answers. Indeed, the focus of the debate ought to shift to the central demographic challenge, which—all things considered—can be stated fairly simply as follows: offering people the opportunity, within the region and over relatively short distances, to come into the world, grow up, get an education, have a career, start a home, obtain medical care, pursue leisure activities, communicate—in short, to live.

2. By questioning respondents on their places of birth and previous residence, the census does allow a dynamic analysis of the population, but only for an inter-census period.