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SERVICE EMPLOYMENT IN FRANCE

Trends and patterns

Olivier BERTRAND - Joël BONAMY
assisted by A. HATHOUT

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C O N T E N T S

INTRODUCTION

At this intermediate stage of a research programme which is essentially qualitative and based on case studies at the firm level, this paper attempts to give a more comprehensive view of recent developments in service employment. It starts with a summary of the main issues discussed in connection with these developments and then proceeds to a statistical analysis of their different aspects: employment level, occupational structure, employment conditions and labour force patterns.

This preliminary version attemps to give an idea of the type of information available, of the kind of analysis which may be undertaken and of the methodological issues which are relevant. The paper is focused on the French situation, with some references to the international context. It is hoped that at a later stage it will be possible to bring together this contribution and that coming from other participating countries in order to carry out a comparative international study.

1. ISSUES RELATED TO THE DEVELOPMENT OF THE SERVICE SECTOR

1. Issues and debates which emerged during the last ten years or so from the research works or were discussed in the press may be grouped under three items:

-- what are the prospects for expansion of a tertiary economy and to what extent should the growing share of services be associated with the slow growth of the French economy?

-- what is the potential for employment creation in the service sector as a whole? To what extent is it differentiated between service industries?

-- is the progress of services related to a polarisation and to a degradation of employment conditions? What are the new skill requirements and their implications for education and training?

a) <u>Prospects for expansion of a tertiary economy</u>

2. Since the 70s, services have been the main source of employment creation in most industrialised countries (below, No.2). But rather distinct developments could be observed between, for instance, the Federal Republic of Germany, France, Japan and the U.S. Differences in productivity gains might explain the contrast between an "American model", with slow productivity gains, associated with a substantial employment growth and a "European model" with high productivity gains -- including in services -- and a slow growth employment (Galibert, Le Dem, 1986).

3. This macro-economic analysis is supported by a more theoretical approach according to which services cannot relay manufacturing for bringing about economic growth. It implies that the driving role of an economic sector is based on its ability to produce productivity gains and therefore a better efficiency of the whole system, by expansion of its own market and of the demand for other sectors (Petit, 1986).

4. The analysis of the various components of the demand for services (final, intermediate or external demand) leads to a rather pessimistic view of the capacity for services to initiate a dynamic for growth. Services are considered as integrating activities, depending upon the demand by firms or final consumers -- this obviously limits the potential for an autonomous growth of the market for services which would in turn generate the growth of the whole economy.

5. According to this approach, the new constraints of international competitiveness imply a model of durable slow growth for old industrialised countries.

6. Such an approach is, however, limited, as it is influenced by the traditional ideology of the predominance of manufacturing, seen as the main source of economic development and the one way of creating wealth. The conception of the role of the manufacturing sector and of the new implications of the development of services are therefore at the centre of the theoretical debate.

b) Potential for employment creation

7. In more concrete terms, there is also a debate on the respective potential for employment creation of two types of services: those provided to private households on the one hand and to business firms on the other.

8. The potential for services to private households (Strobel, 1987; Commissariat général du Plan, 1986) is linked to such socio-demographic trends as the rise of female activity ratio, the ageing population, the changing family structure and time allocation (between domestic and professional activities). These trends modify the relationship between work and domestic activity, opening prospects for growth in health, leisure activities, child care, assistance to ageing people and so on. But these prospects are limited by new policies for restricting Government expenditure, by the unfavourable evolution of the relative price of those services and by the growing costs of the investments required.

9. In order to realise the potential for growth of those services, innovative policies should be initiated, such as:

-- the supply of a combination of additional services requiring different occupations and including technical components. Such combination might be adapted to a diversified consumer's demand and generate new markets;

-- the development of new activities jointly financed by monetary and non-monetary resources and implying job creation at the borderline between profit and non-profit, public and private, formal and informal sectors.

10. Business services may be considered as integrating services, as they go together with overall economic development and are related to a variety of aspects, such as management, market identification and control, or financial flows. These services have been growing faster than the value added, but are affected by technology and by organisational change in ways which should bring about productivity gains. In the new international context, these services are a requirement for further economic growth, provided their cost does not become a brake for the profitability and growth of other activities. Employment creation, however, is not to come only from services, but from the re-deployment and combination of manufacturing with services.

11. The debate concerning the potential for growth of services is intensified to-day by the GATT negotiations and even more by the prospects for the opening of the E.E.C. market by 1992, which raise important issues concerning productivity, prices and norms in this area.

c) New employment conditions and new skills

12. Since services have been the unique sources of job creation for the last fifteen years, there was soon a discussion of the quality of those jobs. It dealt with three issues: self-employment, the degradation of employment conditions, the new skills and the inadequacy of training.

13. Since the mid-70s, there were a number of creations of small firms, which raised hopes that self-employment might contribute to the solution of the unemployment problem. In this process, services (especially commerce and activities related to professional occupations) played a major role. But the survival rate of such firms is limited (only one out of three surviving after three years).

14. In order to limit the progress of unemployment, Government programmes are now giving priority to intermediate forms of employment/training intended for young people. In this context, attention is drawn to-day to the development of contingent work, in two opposite ways: external mobility for higher and scarcer skills; progress of short-term contracts and precarious jobs for lower skills.

15. This degradation of employment conditions revives the debates on precarious work in a tertiary economy and on the breakdown of the working unit. Increasing workers' mobility in some service industries, the impact of computerisation, the transformation of work organisation in large service organisations, as well as the employers' will to develop flexibility on labour markets, seem to imply that the progress of contingent work is unavoidable.

16. But the observation of current trends indicates a more differentiated reality: in the French context, new forms of precarious employment have developed essentially in specific contexts of negotiation (e.g. collective agreements regarding interim work or discussions under way in banking).

17. Up to now, there has been relatively little debate on the central issues of the new skills required in the service sector and of the inadequacy of the educational and training systems. The latter is largely of a political nature, and therefore is beyond the scope of this paper.

2. METHODOLOGICAL ISSUES ARISING IN CONNECTION WITH STATISTICAL ANALYSIS

18. In view of the specfific nature of services and of the difficulties of international comparisons, these issues are of particuiar importance. This is not the place to get into the conceptual debate on the nature of services and on the distinction between services and goods (for further information on this point, see Ochel and Wegner, 1986 and Petit, 1986). But, there are more concrete classification problems which cannot be entirely ignored. (Fontaine, 1987).

19. Electricity and water supply for instance are considered as part of the manufacturing sector in France, while they are included in the services in the U.S. Eating and drinking outside home are now included in the production of

the service sector in France, but used to be considered as food consumption. Repair services are part of the service sector in France and in the U.S., but are considered as goods in the U.N. classification, which is used by OECD.

20. Going beyond classification problems and considering the nature of activities performed, the borderline between goods and services tends to be blurred. The most obvious trend is the externalisation process, which will be further discussed, and whereby manufacturing companies sub-contract outside services that they used to perform themselves. Even less apparent in the statistics is the transformation of activities in a number of traditional crafts, which used to consist essentially in the production of goods, and which now tend to shift to the installation, presentation and sale of goods purchased outside (e.g. bakery). Similarly, a growing share of the activities of the construction industry today is devoted to the maintenance of existing buildings and equipment, which should be considered as services rather than production of goods.

21. The immaterial or intangible nature of services makes it difficult to assess levels of production and of productivity. It can be done either in physical, or in financial terms. Identifying physical measures is an increasingly questionable approach for a number of services. Using financial measures raises problems relating to price structures and to the stable nature of the services provided. The value of services is also considerably increased when statistics assign a value to owner-occupied estate.

22. If there is nevertheless a broad consensus on the concept and limits of the service sector, the analysis of the sector clearly shows -- as will appear below -- that it is extremely heterogeneous. This raises again problems of classification within services. At the conceptual level, economists have suggested a number of classifications which are much more controversial (Ochel, Wegner, 1986), and which have been reviewed and discussed by Barcet (1986) and by Petit (1986). Let us just mention some of the basic distinctions:

-- between services to persons and services affecting goods and changing their physical condition (Hill, 1977). To these, Preel (1986) adds a third category, corresponding to collective services (Government and Army). Along the same lines, Barcet (1986) suggests a distinction between services related to goods, immaterial or "intellectual" services (relative to information, culture or finance) and services related to people (health, education, care etc.).

-- between distribution services and services integrating activities related to production, such as transportation, communication, wholesale trade (Brende et al, 1980);

-- between services used for the most part by firms and those used for the most part by consumers, a common classification supported among others by Petit (1986).

23. Noyelle and Stanback (1983) have suggested a classification based on the type of service provided (intermediate or final) and on the institutional framework whereby it is provided (private, non-profit, public).

24. Statistical data are often referring to this type of approach, which will therefore be used below, but specific classifications used by national accounting systems and by studies on services are very heterogeneous, which makes comparisons between countries rather difficult (Petit, 1986).

25. This can be illustrated by a look at the French, Japanese and U.S. classifications given in Annex 2, which show very different structures at the aggregate level. The basic distinction in the French system only, between profit and non-profit making services, as well as the specific items for Federal and for State and local enterprises in the U.S. classification are likely to make comparisons difficult. And this, even considering that a better comparability may be achieved in most cases at the more disaggregated level: this is for instance necessary to identify in the French classification broadcasting services (included in recreational and cultural services), eating and drinking places (grouped with hotels), or profit-making educational services (unexpectedly included in business services). But even at the most disaggregated level, this classification does not clearly distinguish between automobile sale and repair, which appear separately in the other systems.

26. Classification problems will also arise when it will be attempted to compare occupational structures. A look at the ILO Yearbook shows that no data are provided concerning France and Italy, probably not because they are unavailable, but because they are not classified according to the same system. Analysing the occupational structure for other countries leaves some doubts on the comparability of published data.

27. Even within the same country, analysing time series may be difficult. In the French context, the occupational classification has changed in 1982, so that there is a break in some of the statistical series.

28. Another methodological issue concerns the sources of statistical information. Each country has a different system of collecting data and each source of information suffers from some kind of limitation, either in scope, or in coverage, or in reliability (linked with sampling procedures), or in periodicity. The list of statistical sources available in France, with their main characteristics, is given in Annex.

3. THE SERVICE SECTOR AS A WHOLE: A GROWING SHARE OF EMPLOYMENT

29. Table 1 and diagram 1 (both from Fontaine, 1987) show strikingly similar trends in the OECD countries participating in the programme. In all of them, employment in the service sector has been substantially growing in absolute terms and as a relative share of total employment. In most countries, the growth rate has been slower after 1979 and in two of them (France and the F.R.G.) overall employment decreased during that period.

30. In countries like Japan and the U.S., the comparatively better employment situation is not only due to the progress of services, but also to more macro-economic aspects, which are beyond the scope of this paper.

31. It would also be worthwhile to further investigate some of the national situations, for instance the relatively low share of services in the Federal Republic of Germany, or the accelerating growth rate in Italy. Are there differences in definition or in the structure of the economy? For all countries, a number of questions arise, such as:

- -- is the growth of employment in services real, or to what extent can it be explained by transfers of activities from the manufacturing sector (externalisation) or by the progress of part-time work?
- -- what other causes may explain the progress of services? What are the prospects for this growth to last in the future?

32. With regard to the first point, Fontaine (1987) estimates that <u>the incidence of part-time work</u> is indeed positive, as it is more widespread in the service sector and as it has been growing lately (see 5.3), but it is very limited. According to U.S. National Accounts for 1983, the share of services in terms of full-time equivalent would represent 70.4% of total employment, instead of 72.7% in terms of the total number of people employed. This way of calculating the share of services would not affect the overall trend very much, since the respective figures for 1948 were 52.9 and 54.7.

33. The incidence of part-time work would be even more limited in the French context. Fontaine estimates the share of services as follows for 1970 and 1984:

	1970	1984
No of people employed	49.2	60.6
Full-time equivalent	48.6	59.7

34. Concerning <u>transfers from manufacturing</u>, Trogan (1984) states that in view of this process, the growth of profit-making services in France from 1975 to 1982 was somewhat ambiguous. But the figures concerning employment creation in industries which may have benefited from the process appear quite limited compared to overall employment creation in those services(1).

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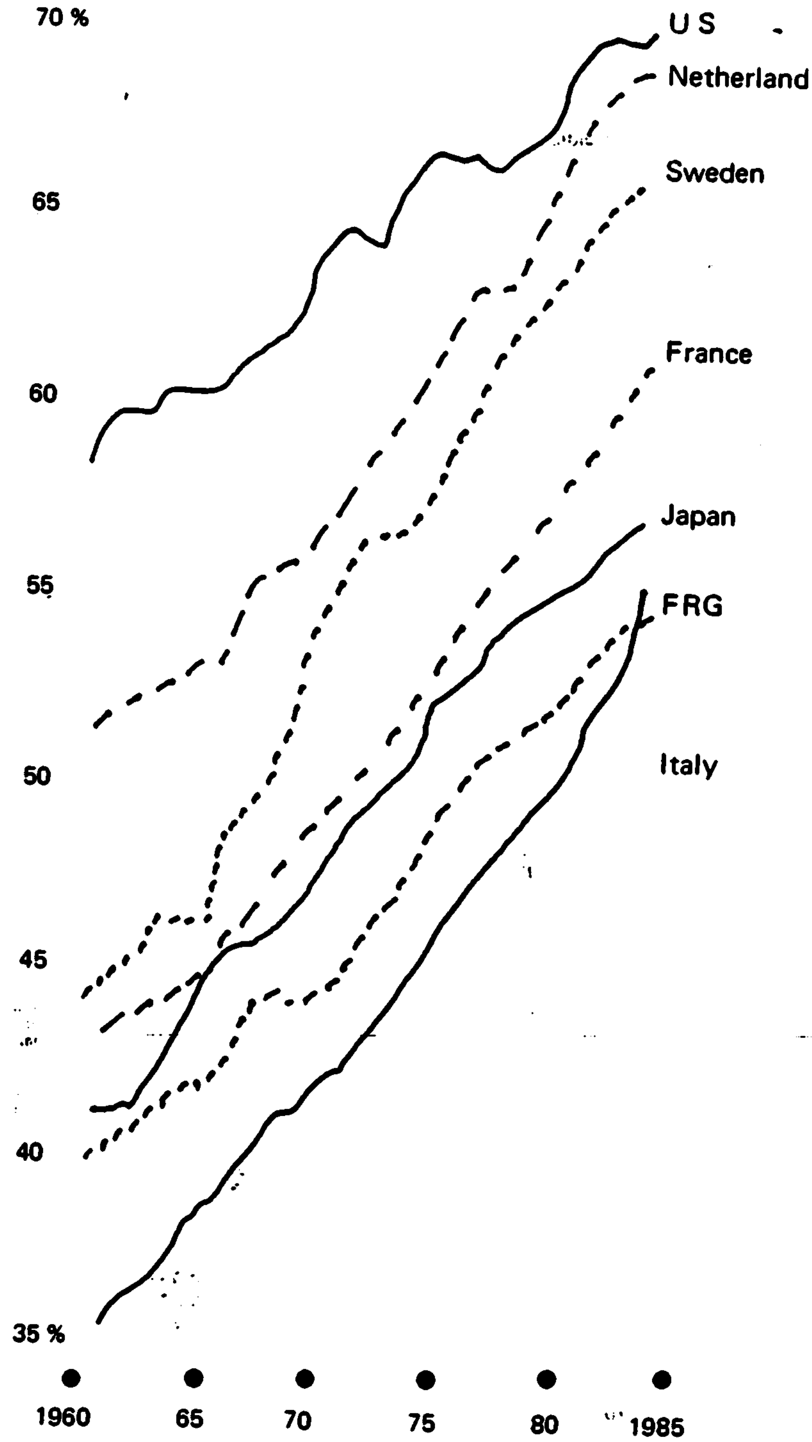
(1) 800.000 jobs created over the period, of which 52.000 for engineering and sub-contracting, 32.000 in accounting and legal services, 28.000 in interim work, 54.000 in miscellaneous business services.

Diagram 1

SERVICES AS A PROPORTION OF THE TOTAL ACTIVE POPULATION



Fontaine (1987)

Table 1

ANNUAL GROWTH RATES OF EMPLOYMENT IN THE SERVICE SECTOR AND IN THE WHOLE ECONOMY

	1960-84	1960-73	1973-79	1979-84
F.R.G.				
Services	1.1	1.2	1.0	0.3
Total	− 0.2	0	− 0.6	− 0.9
France				
Services	2.0	2.0	2.1	1.1
Total	0.5	0.7	0.4	0.3
Italy				
Services	1.8	1.1	2.4	2.8
Total	0.1	− 0.6	0.8	0.3
Japon				
Services	2.5	2.9	2.2	2.0
Total	1.1	1.3	0.8	1.1
Netherlands				
Services	1.9	1.9	1.8	2.0
Total	0.6	0.9	0.5	0.3
Sweden				
Services	2.6	2.6	2.9	1.4
Total	0.8	0.6	1.1	0.2
U.S.				
Services	2.7	2.8	3.1	2.0
Total	2.0	2.0	2.5	1.0

From : Fontaine (1987)

(1) Including the Army, except for France.

35. Buttner and Mouriaux (1984) also came to the conclusion that even if the discussion is restricted to business services, the impact of the externalisation process was somewhat limited.

36. For us, this discussion appears somewhat out-of-date, as it is based on a concept of opposition between goods and services, while modern economies are more based now on the combination and integration of goods and services (Barcet, Bonamy, Mayere, 1984).

4. DIVERGING EMPLOYMENT TRENDS APPEAR WITH A BREAKDOWN OF INDUSTRIES AND OF PERIODS

37. If the analysis of trends in service industries appears quite homogeneous for long periods and for very aggregated groups, further breakdown underlines contrasting evolutions. Diagram 2 (from Préel, 1986) shows at the same time the magnitude and the rate of growth of service industries between the last censuses. It shows that the largest number of new jobs was created in non-profit activities (health, education and other Government), while the highest growth rate was in business services, social services and eating places. But, in six industries, the employment level actually decreased.

38. Diagrams 3 and 4 give a more recent picture. They show a slight reversal of trends in commerce industries and a more pronounced one in automobile sale and repair.

39. Further breakdown between industries (Table 2) (available only for wage and salary earners) indicates contrasting trends between 1983 and 1985: while the highest growth rate is recorded by retail trade for food in department stores, employment in other retail shops has been actually decreasing, which implies transfers from one industry to the other. High growth rates were also achieved in recreational services and in repair (other than automobile), while a substantial decrease was recorded in water transportation, transportation ancillary services, automobile sale and repair, and various areas of commerce.

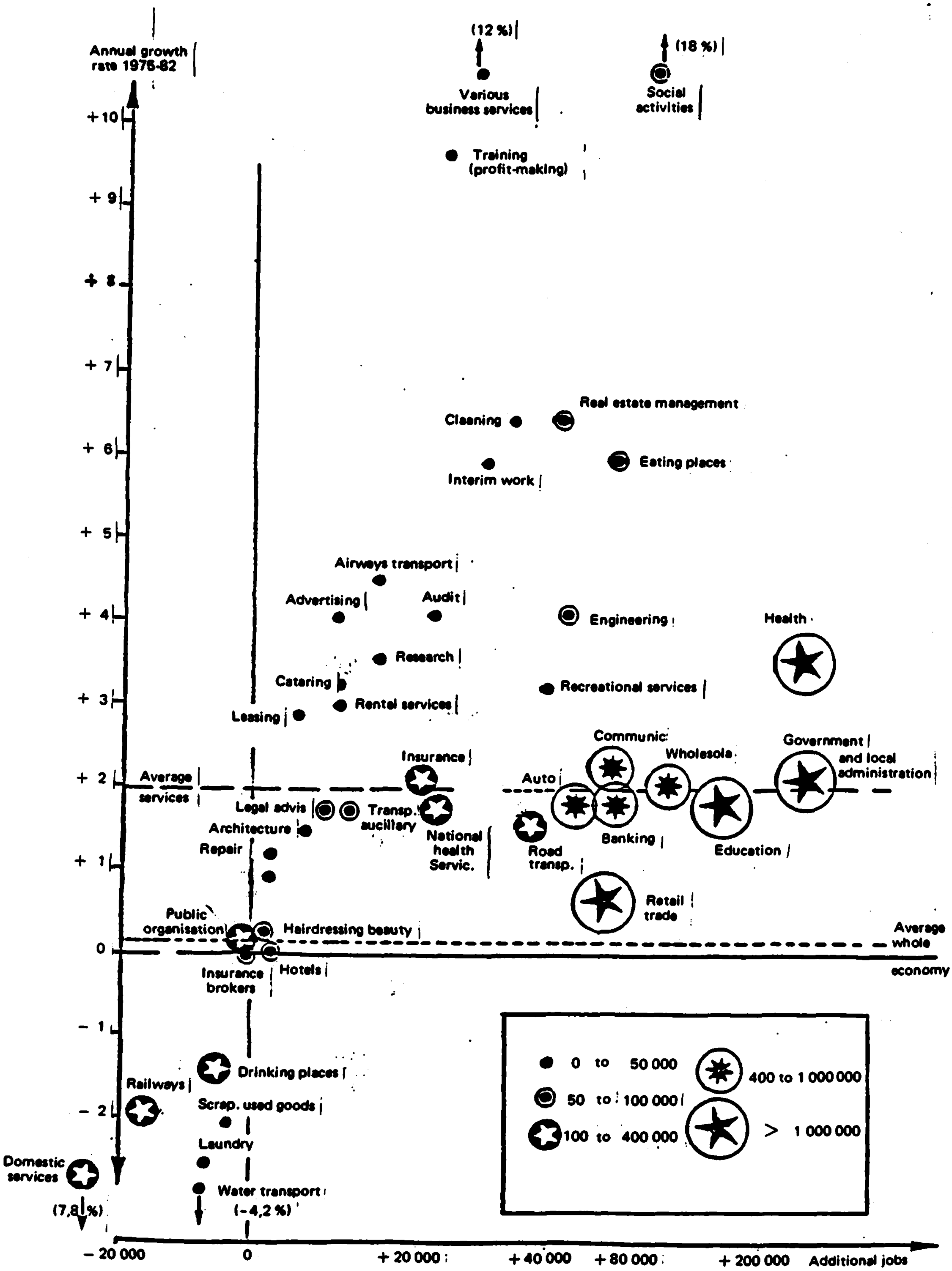
40. Most statistical sources don't provide any information on Government and non-profit services, which represent a very large share of employment and of employment increase. According to the latest statistical yearbook, the breakdown was as follows in 1984 and 1980:

	1984	1980
- Defense	450,000	454,000
- Education	1.038,000	985,000
- Central		
- Other Government	631.000	598.000
- Region and local district administration	1.059.000	
- Hospital	742.000(1983)	

(*) Not including postal and telecommunication services accounting for 486.000 in 1984 and 450.000 in 1980, but which appear as a specific industry.

Diagram 2

SERVICE INDUSTRIES FROM 1975 TO 1982



Source : Préel (based on census)

Diagram 3

EMPLOYMENT TRENDS

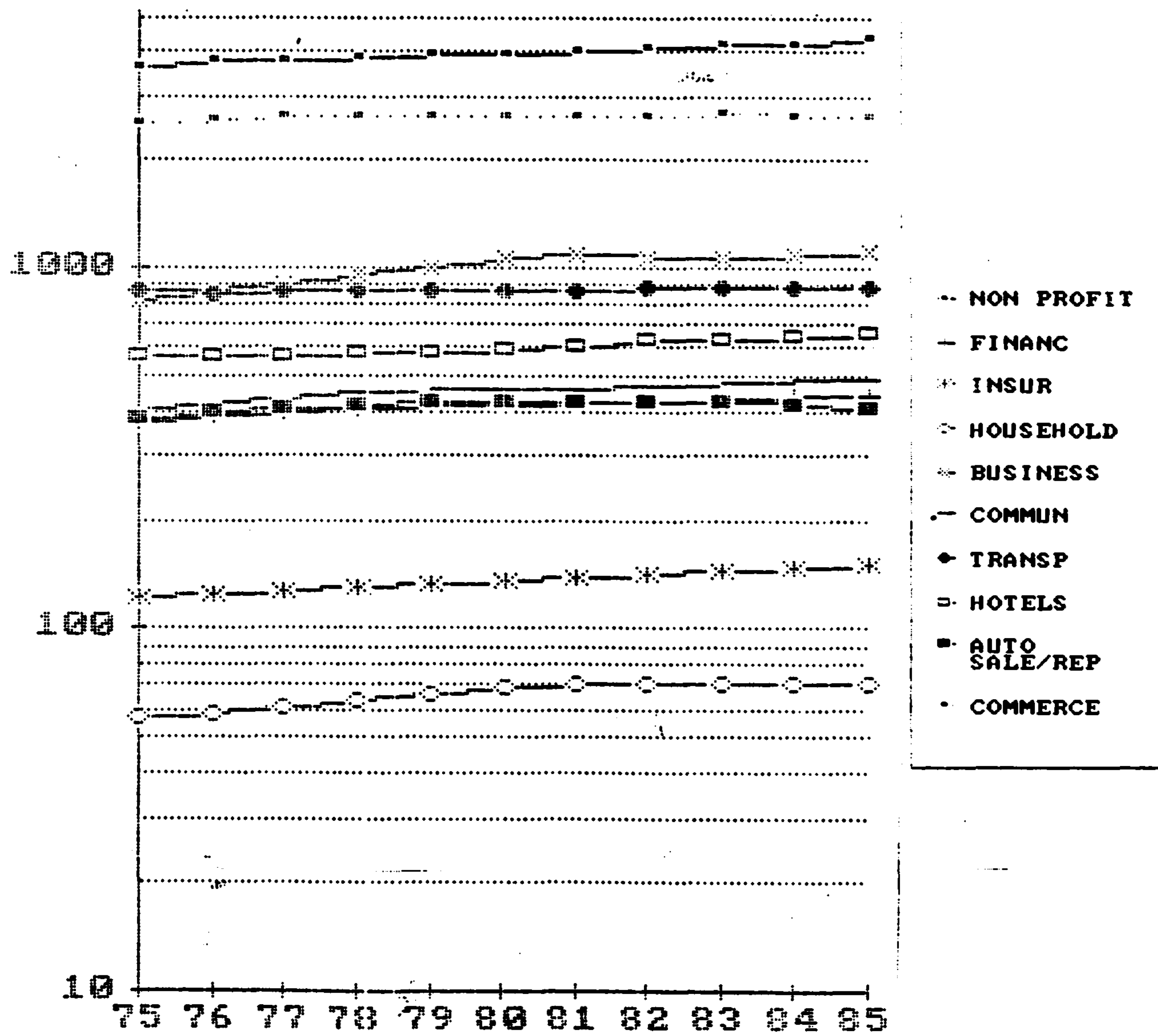


Diagram 4

SERVICE INDUSTRIES FROM 1983 TO 1985

(National accounts)

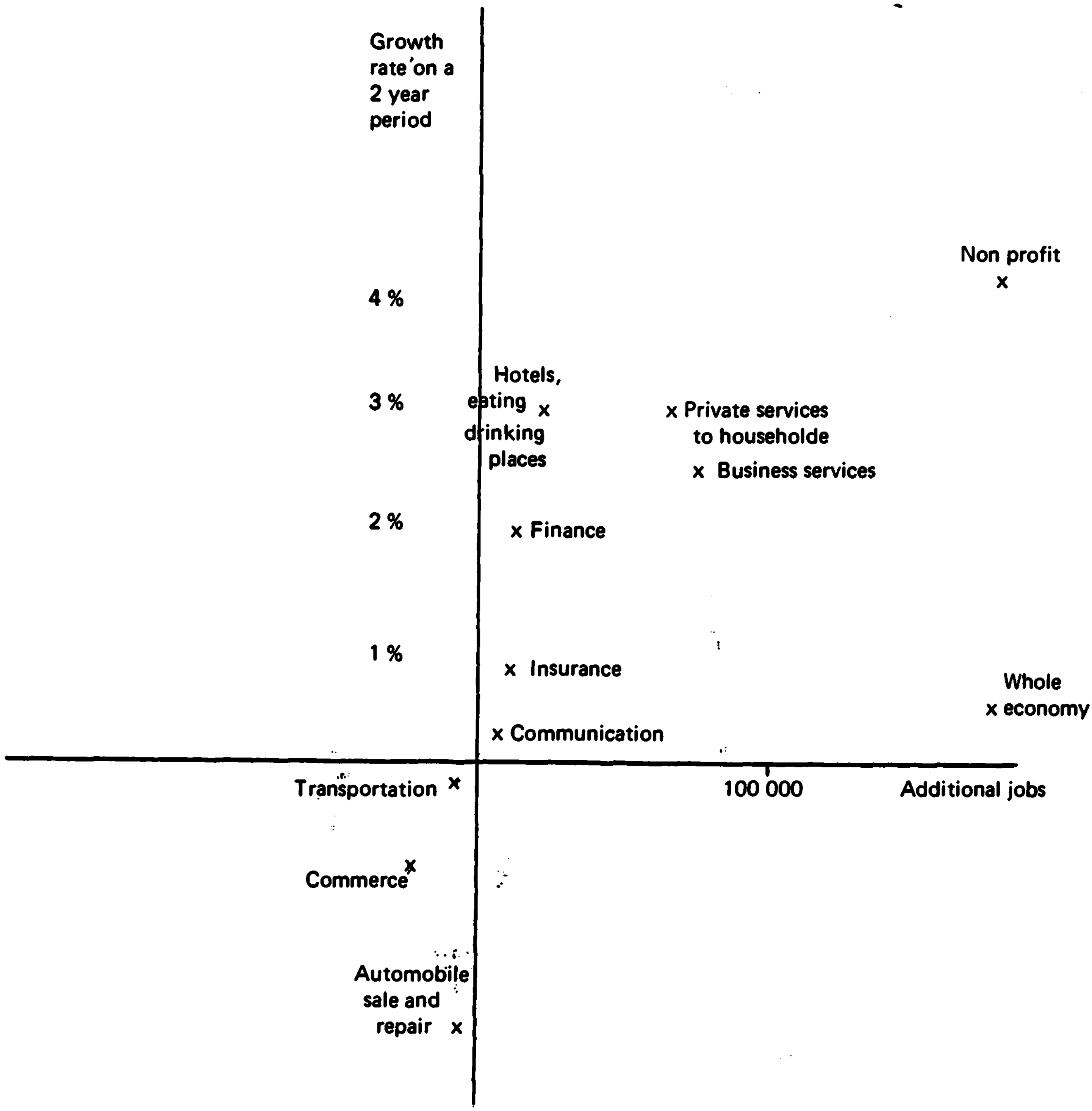


Table 2

RECENT EMPLOYMENT TRENDS
(Wage - earners - Thousands)

	Dec 1983	Dec 1985	Index (1983=100)
Wholesale trade - food	254	241	95
Wholesale trade - industrial	365	356	98
Wholesale trade - others	264	265	100
Commercial brokers and agents	65	65	100
Retail trade - department stores (food	167	194	116
Retail trade - local	345	324	94
Retail trade - other than food	723	698	97
Automobile sale and repair	350	329	93
Hotels - eating and drinking places	454	464	102
Road transportation	282	287	107
Water transportation	26	23	88
Transportation auxil.serv.	168	165	92
Advisory business services	728	806	111
Financial brokers and agents	56	58	103
Real estate : building, management	129	133	103
Leasing	39	40	103
Real estate : rental services	32	32	100
Profit-aaking social services	79	90	114
Profit-making recreational	77	81	105
Various repair services	21	22	105
Insurance	138	139	101
Financial institutions	353	364	103
Personal services to households	324	336	104

Source : UNEDIC

5. AN ATTEMPT AT IDENTIFYING GROUPS FOR TNE ANALYSIS OF EMPLOYMENT AND LABOUR PATTERNS

41. When the analysis shifts from employment levels to employment and labour force patterns, the service sector again appears more or less heterogeneous, depending on the level of aggregation.

42. Considering the service sector as a whole, in comparison with the rest of the economy, a few broad characteristics may be observed:

- -- the service sector employs, as may be expected, a much larger proportion of non-manual workers (professional, clerical and service);
- -- it is correlated with a higher level of educational attainment;
- -- as mentioned earlier, the proportion of part-time jobs is bigger: nearly 14.7% of wage and salary earners, against 10.9 only for the whole economy;
- -- there are more female workers and less foreigners in the service sector;
- -- the rate of mobility outside the firm is higher in the service sector, which corresponds to more contracts of limited duration, and more voluntary departures, despite a smaller number of lay-offs and of retirement.

43. But a more detailed analysis of service industries shows that in most of these areas they are even more heterogeneous than from the point of view of employment trends. This may be illustrated by the fact that, considering the whole economy as the average, service industries appear to be spread on both sides of this average in most respects. As a result, one may wonder whether it has any meaning to talk about services as a sector and in general terms.

44. Starting from this observation, several attempts have been made to identify more homogeneous groups of service industries, by defining a typology of services. Such typologies are based on the selection and combination of criteria, which are supposed to be meaningful for the analysis of the development of service industries. Most of these criteria are usually of an economic nature.

45. Bonamy et al. (1986) have undertaken such an attempt by analysing data concerning profit-making firms (investment, salaries, other expenditure). The resulting typology differentiates three groups of industries: one with emphasis on investment, another with emphasis on personal expenditure and the third one of an intermediate nature. This approach raises issues concerning various development policies with contrasting implications for labour.

46. Mention may be made of other research works, more limited to manufacturing, but based on the assumption that economic activity might not be the best way to group firms. Emphasis was then put either on the size, or on such structural criteria as capital-intensity, or the occupational structure (Delattre, Eymard-Duverney, 1983).

47. Another study was specifically devoted to labour mobility and led to the identification of distinct groups within the service sector (Cezard, Rault, 1986 - see below).

48. For the purpose of the CERI research programme, we have collected a number of data concerning specifically employment and labour force patterns and employment conditions in service industries (see Annex 1). These data, which appear on Table 3, were then processed, using statistical methods (correspondence analysis), in order to analyse the relationship between the variables, between industries and the variables and the possibility of identifying more homogeneous groups. Further details on the methodologies used and on related problems, as well as the resulting diagrams, are given in Annex 1.

49. For the sake of simplification, two diagrams only are shown here. They help in the identification of three distinct groups of service industries, with rather clear features from the point of view of this study.

50. Group 1 includes industries offering to their personnel a status which is more-or-less comparable to that of civil servants. It means a high degree of stability and a very high proportion of wage and salary earners. The proportion of professionals and of managers is unusually high, but there is also a high percentage of clerical workers. This implies a high level of educational attainment. Women often constitute the majority of the labour force. Most typical of the group are Government and non-profit services, insurance and financial institutions. Telecommunications, business services and private services to households are somewhat less homogeneous and stand therefore on the borderline of this group (for details, see Annex). This group is by far the most important, since these industries employ altogether about 8.5 million people, or nearly 40% of the total active population.

51. Group 2 offers a rather contrasting picture, although it also employs a large proportion of female workers. But the dominant occupational group is constituted by service workers, which is correlated with a low level of educational attainment. Part-time work is more widespread and self-employed workers constitute a substantial proportion of the labour force. Employment stability is lower than the average. This group, which includes retail trade, hotels, drinking and eating places and wholesale trade (other than food) employs approximately 2.8 million people.

52. The third group is not typical of service industries and shares some characteristics in common with most manufacturing industries. There is a substantial amount of manual work, for which a number of craftsmen and operatives are employed. This goes together with a low level of educational attainment, a low female ratio and a higher proportion of foreign workers than in other service industries. This group includes automobile sale and repair, wholesale trade (food) and transportation.

53. Altogether, employment in these industries amounts to 1.8 million workers.

54. This approach could be further elaborated and refined (See Annex 1). It could be combined with the use of economic data, in order to analyse the dynamics of services and their employment implications. It could also be more fully used in the more detailed distinction of each criteria, which follows.

Table 3

EMPLOYMENT AND LABOUR FORCE PATTERNS IN SERVICE INDUSTRIES

Per cent of

	Manual workers		Clerical and other service		Wage earners		Part-time		Female		Foreigners	
	1980	1986	1980	1986	1980	1986	1980	1986	1980	1986	1980	1986
Government & non-profit	16.2	10.0	-	44.1	99.1	99.8	14.2	20.0	57.0	57.8	3.8	3.1
Telecommunication, postal	10.1	4.6	51.6	58.8	99.9	99.9	5.9	12.0	39.8	41.5	0.8	0.3
Insurance	1.3	2.2	68.7	48.8	94.1	96.1	4.7	8.9	55.4	60.1	1.4	2.7
Financial inst.	2.8	3.1	64.9	56.8	99.8	99.9	3.2	7.8	46.4	49.8	1.8	1.8
Real estate	38.3	22.5	20.8	52.2	96.7	92.7	5.4	15.5	47.8	50.1	5.7	8.8
Retail trade (food)	13.8	20.6	48.8	41.9	69.0	74.8	11.0	17.4	52.1	53.1	3.8	5.8
Retail trade (other)	15.6	12.1	34.8	36.7	66.8	65.8	13.2	16.2	58.7	62.5	2.8	3.8
Hotels, eating	20.7	11.7	-	40.8	61.4	64.1	11.9	16.5	54.3	50.8	9.8	10.1
Transportation	53.9	51.9	43.0	19.4	93.8	92.6	2.9	5.5	14.8	17.8	4.3	4.8
Wholesale (food)	44.1	45.6	26.0	21.7	89.7	90.7	5.9	6.2	29.9	31.2	5.8	5.0
" (others)	-	28.7	-	22.8	-	91.2	-	5.2	-	32.1	-	4.8
Auto sales & repair	48.3	47.8	19.1	16.0	78.1	77.0	5.0	5.5	19.2	19.8	5.9	5.8
Business services	11.9	9.8	26.6	34.0	82.6	89.2	10.1	12.5	44.2	46.3	5.1	6.7
Personal & repair services	19.1	12.7	9.5	39.2	81.9	82.5	10.3	16.8	65.5	66.8	4.1	5.8
All sectors	36.6	29.0	16.9	26.5	82.8	83.4	7.9	11.7	39.2	42.1	6.1	5.8

Source : Enquête emploi 1980 and 1986.

Diagram 5

GROUPING OF SERVICE INDUSTRIES

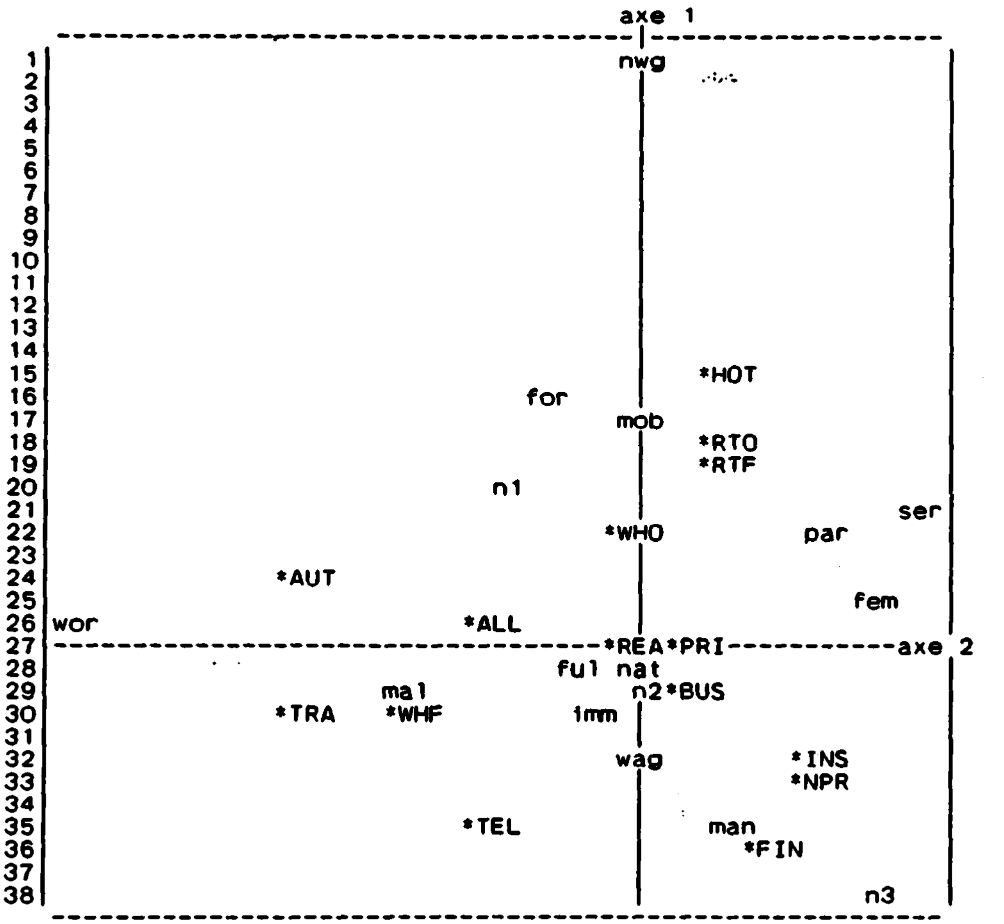
1. Analytical approach based on 4 criteria

Dominant occupational group	Educational attainment	Dominant sex	Employment conditions	
			Stable wage earning	Unstable self employed
Industrial	Low	Male	Air transport Rail	Road trans Auto sala Wholesale
Managers professionals clericals	High	Female	Government Non profit Finances Business services Private services	
Service workers	Low	Female		Retail Hotals eating, drink

Diagram 6

GROUPING OF SERVICE INDUSTRIES

2. Statistical approach based on correspondence analysis (first analysis)



- Small letters indicate the relative position of the variables (e.g. fem for female workers are close to par for part-time work).
- Capital letters identify industries in relation to those variables.
  For further details, see appendix.

6. CHANGING EMPLOYMENT PATTERNS

55. If the service sector is considered as a whole, it may be said that, during the last ten years or so, it has followed the same trends as the rest of the economy, namely:

-- the occupational structure was affected by a decreasing proportion of manual workers and a growing proportion of other occupational groups, especially managers and professionals (Table 6);

-- there was a corresponding rise in the level of educational attainment of the labour force (Table 9);

-- the proportion of female workers was constantly growing:

	1975	1982
Whole economy	36.7	39.4
Services	47.3	49.3

-- the proportion of wage and salary earners was also increasing:

Whole economy	82.0	83.1
Services	85.8	87.5

-- There was remarkable progress in part-time work and a constant degradation -- since the late 70s -- of the employment situation, leading to the development of contingent work.

56. A more detailed analysis of data included in Table 3, or coming from other sources, shows, however, that the picture is not so simple. In many cases, there are substantial differences, either at the level of the broad groups identified above, or at the industry level, or at different periods of time. This more detailed analysis will be undertaken for each of the main characteristics of the employment and labour force structure.

6.1 Relationship with the firm

a) Employment by size

57. In France or elsewhere, it is currently admitted that employment growth does not come any more from large firms, but only from small firms. During the period 1977 - 1983 (Amar, 1987), this was true of manufacturing and construction, where employment decreased more in large firms than in the smaller ones, but not in the services, where employment in large firms increased by an average annual rate of 1.6%, against 1.4% only for smaller firms (less than 500 employees).

58. More detailed and more recent statistical data (INSEE - SIRENE) for broad groups of service industries show diverging trends for the period 1980 87: the proportion of wage and salary earners increased in small firms and decreased in large ones for commerce and profit-making services; the trend was the opposite in non-profit making services (where Government jobs constitute a large share of the total):

Table 4

Distribution of Wage and Salary Earners by Size of Firm

	up to 10		10 to 49		50 to 499		500 +		Total
	1980	1987	1980	1987	1980	1987	1980	1987	
Commerce	28.9	30.5	25.1	25.1	22.8	22.5	24.2	21.7	100
Profit-making services	26.6	32.5	20.3	22.4	25.1	24.6	28.9	20.4	100
Non-profit making services	13.4	11.3	16.0	15.3	40.8	33.3	29.7	37.9	100

59. A similar analysis of the size of establishments shows that (Table 4):

- -- the average size of establishments is smaller in the service sector than in the whole economy;
- -- the proportion of active population employed in small establishments has been growing in all sectors at the cost of that employed in large ones.

60. No detailed data are available at the industry level.

b) Wage and Salary Earners and Self-Employed

61. In the long run and at the aggregate level, there has been a constantly growing proportion of wage and salary earners in the labour force. For the most recent period, however, and in connection with the degradation of the employment situation, the trend appears more questionable. Out of 14 service industries, the proportion of wage and salary earners was decreasing in three of them between 1984 and 1985 and in eight of them (a majority) between 1985 and 1986; it is for business services that the trend appears more significant (Table 3).

6.2 The Occupational Structure

62. It may be analysed at different levels and from a variety of sources, which are providing slightly different indications: they are more

comprehensive in the census (but for a limited period), more detailed and more regular in the occupational surveys, which concern 455 occupations, but which were affected by recent changes in the classification systems, so that it is too early to analyse recent trends.

63. To take a broad perspective of the changing occupational structure in the whole economy, Tables 6 and 7 underline the changes which took place between the last population censuses. Contrasting with a sharp decline of farmers and of farm labourers and, more recently, of operatives (which led to a stabilisation of industrial workers), all service occupations were growing. By 1982, they represented slightly more than 50% of the employment, not including proprietors, against 42% only for blue collar workers in manufacturing and agriculture. This trend has further accelerated afterwards: according to the 1986 labour survey, blue collar workers decreased to less than 36% of the total and service workers increased to more than 56% (not including proprietors and independent workers).

64. This trend may, of course, be explained by two transformations in the economic structure:

-- the shift from agriculture and manufacturing to service industries;

-- within manufacturing, the shift from production to other functions employing essentially white-collar workers (Audier 1985).

65. Further analysis of statistical data could show the relative weight of those trends.

66. If we limit the analysis at this stage to service industries, Table 7 gives the occupational structure of each industry and emphasises again their differences, since they stand at rather extreme positions compared to the whole economy: see for instance the craftsmen, from 4.9% in transportation (divers are included in this category) to 0.8% in financial services; managers and professionals, from 20.9 in business services, to 4.7 in retail trade.

67. Table 9 outlines those occupations which recorded the fastest growth and an actual decline between the last censuses. The weight of health and social activities is noticeable. But, here again, it appears that disaggregation of occupational groups underlines contrasting trends within groups which, at first, might be seen as homogeneous:

-- within data processing and related occupations, a sharp decline of punching and computation clerks is related to the previous stage of computerisation;

-- within health occupations, a stability of assistants to dispensing chemists, contrasts with the fast growth of other occupations;

-- within clerical jobs, there is a stability of the less skilled and a rapid progress of the skilled clerks.

Table 5

WAGE EARNERS EMPLOYED BY SIZE OF ESTABLISHMENT

(per cent)

	1975		1980		1984	
	Services	Whole economy	Services	Whole economy	Services	Whole economy
1 to 9 employed	28.2	18.4	29.7	20.8	31.0	22.8
10 to 49 "	30.3	24.6	30.9	26.1	31.0	27.0
50 to 199 "	20.8	22.2	21.1	21.9	20.8	21.7
200 to 499 "	10.2	14.1	9.2	13.0	9.2	12.2
500 +	10.4	20.7	9.1	18.2	8.2	16.1
TOTAL	100	100	100	100	100	100

Table 6

THE CHANGING OCCUPATIONAL STRUCTURE
OF THE ACTIVE POPULATION 1975-1982

	Numbers (000)		Index 1982/75	Gain or loss (000)
	1975	1982		
Farmers	2.131	1.827	85.7	– 304
Craftsmen, operatives	7.951	7.226	90.8	– 726
Draughtsmen, techniciens	775	919	118.5	144
Technical managers and professionals	295	415	140.5	120
Administrative and commercial managers and professionals	982	1.108	112.8	126
Clerical and service workers	5.113	5.603	109.5	490
Directors and independant commerce	907	889	98	17
Health occupations	883	1.287	145.7	404
Intellectual workers	977	1.107	113.3	130
Others	923	1.080	117.	157
All occupations	20.940	21.463[1]	102.4	523

Sources : BREF (CEREQ) on the basis of populations censuses.

Table 7

THE CHANGING OCCUPATIONAL STRUCTURE
IN THE WHOLE ECONOMY

	1968	1975	1982
Farmers	2.464	1.651	1.448
Farm laborers	584	375	304
Proprietors (manufacturing and services)	1.955	1.709	1.738
Managers and professionals	995	1.459	1.810
Technicals and related workers	2.006	2.765	3.254
Clerical workers	2.996	3.841	4.676
Craft workers and operatives	7.706	8.207	8.266
Service workers	1.166	1.243	1.532
Others	526	524	497
TOTAL	20.398	21.774	23.525

Source : Population Census

Table 8

THE OCCUPATIONAL STRUCTURE IN SERVICE INDUSTRIES

(per cent)

	Proprietors	Managers and profess.	Technical and related	Clerical sales services	Craftsmen	Operatives	All occupations
Wholesale trade (food)	2.08	8.01	16.18	22.08	32.22	19.40	100
" " (other)	2.15	13.50	23.17	27.89	24.81	9.06	100
Retail " (food)	0.77	4.89	9.48	65.15	14.94	4.95	100
" " (other)	1.77	6.65	17.25	52.54	13.72	8.04	100
Automobile - sale, repair	2.42	4.79	20.58	19.61	45.01	7.56	100
Hotels, eating, drink	0.92	4.87	16.64	64.29	10.43	2.71	100
Transportation	0.64	6.78	13.72	19.58	48.87	10.27	100
Communication - postal	1.34	14.32	27.90	17.49	28.97	9.95	100
Business service	1.25	20.88	22.92	35.20	9.96	9.75	100
Service to household	0.78	6.86	23.96	35.94	8.29	24.16	100
Real estate	0.81	14.32	14.24	41.28	11.56	17.74	100
Insurance	0.37	19.76	27.95	49.65	1.09	1.25	100
Financial services	0.20	17.31	34.99	44.92	0.79	1.86	100
Non profit	0.45	12.88	27.83	52.19	3.21	3.42	100
All industries	0.94	9.10	18.91	22.61	31.62	16.69	100

Source : Enquête structure des emplois, 1984.

6.3 Distribution of the Labour Force

a) By Educational Attainment

68. It may be assessed, either in terms of degrees or diplomas, or in terms of the school-leaving age -- Table 9 provides data by industry from that point of view. Educational attainment appears consistant with the occupational structure and with the typology defined above -- the relative weight of those criteria being quite heavy in the definition of groups. Hotels, retail trade and automobile sales and repairs show the lowest educational level; the highest level may be observed in industries belonging to our group 1, with more homogeneity among financial services and less among personnel and business services.

69. If educational attainment in the service sector as a whole is higher than the average, it is because the level is particularly high in the three industries with a large employment size (Government and non-profit, business services and personnel services). Otherwise, it may be observed that the level is below the average in half of the industries.

70. As a whole, the level appears quite low, with as much as 40% or more workers who had left school below the age of 17. It was much lower in 1975, when that category represented more than half the total in six industries. The rise during the period is substantial in all industries, which may reflect more the supply effect (more schooling) than the demand for different types of jobs.

71. Table 10 shows that a large proportion of personnel employed in service occupations don't declare any diploma, while the proportion of holders of university or post-secondary degrees is still quite low in many groups. To a limited extent this may be explained by the fact that undeclared are comprised with those who declare no diploma.

b) A slower progress of female employment

72. With a growing share of employment and a higher proportion of female workers, the service sector as a whole bears the main responsibility for the continuous overall feminisation of the work force. Within the sector, however, there appears to be differences between industries and the trend seems to be diminishing recently. Out of 14 service industries, a decreasing proportion of females was recorded in two of them between 1984 and 1985 and in six of them between 1985 and 1986 (Enquete emploi). For the two-year period, there was stability or a decrease in the three largest industries (non-profit, business services and services to household).

73. These evolutions are the result of two trends: the increasing supply of female workers on the one hand, and the changing occupational structure, which recently tended to favour occupations which used to be predominantly male (managers and professionals) and to begin to threaten some of the typically feminine occupations (clerical), while service occupations, also feminine, are constantly growing.

Table 9

TRENDS IN SELECTED OCCUPATION(1)

1975 to 1982

	Index 1982/1975	Additional jobs (ooo)
Fastest growth rate		
Child care assistants	263	65
Cultural activities	212	14.6
Psychologists	154	7.3
Kinesitherapists	151	15.7
Medical doctors	146	48.8
Social workers	146	37.8
Assistant nurses	143	113.6
Guides, air hostesses	142	12.8
Clerks, office workers	139	174.8
Fastest decline		
Data punching	54	– 11.1
Computation clerks	54	– 3.4
Railways station masters	79	– 5.1
Domestic services	87	– 48.6
Collectors	90	– 2.7
Store managers	94	– 2.2
Haird ressers	98	– 2.3

(1) Except for education

Source : CEREQ BREF n°19/20 based on population census.

Table 10

EDUCATIONAL ATTAINMENT OF THE EMPLOYED POPULATION, 1975, 1982

Industry \ School leaving age	Below 17		17 to 19		20 and above		N.A or Students		Total
	1975	1982	1975	1982	1975	1982	1975	1982	
Wholesale trade	52.5	40.4	30.9	35.3	9.6	13.5	7.0	10.8	100
Retail trade	61.3	47.2	24.0	30.5	6.9	9.6	7.8	12.7	100
Transportation	57.6	44.3	27.2	33.0	7.0	9.8	8.2	12.9	100
Communication, postal serv.	41.4	31.0	43.7	47.2	9.5	14.6	5.4	7.2	100
Automobile sale, repair	58.1	44.7	29.8	36.8	4.1	5.0	8.0	13.5	100
Hotels, eating, drinking	65.4	49.6	18.0	26.1	4.8	6.3	11.8	18.9	100
Business services	31.7	24.1	36.1	34.6	24.2	28.5	8.0	12.8	100
Personal and repair	42.9	31.7	23.3	25.6	22.4	27.5	11.4	15.2	100
Real estate	54.6	45.2	27.0	29.4	9.2	11.0	9.2	14.4	100
Insurance	35.4	25.0	43.0	44.4	15.6	21.9	6.0	8.7	100
Financial services	27.7	19.4	47.6	44.9	19.1	26.8	5.6	8.9	100
Government, non profit	37.0	27.9	27.1	29.7	25.8	30.4	10.1	12.0	100
All sectors	55.2	42.5	24.3	29.7	11.3	15.6	9.2	12.1	100

c) <u>By Age Structure: More Concentration on the Middle Groups</u>

74. Age structure reflects recent employment trends, labour management policies and workers' mobility. Table 12 indicates more concentration on the central age-group 24 to 50, and a decrease in the proportion of younger and older workers. This trend is spectacular in most industries belonging to our group 1, when low workers' mobility was combined with a policy aiming at stabilising the employment level without lay off (see below). The exception is the non-profit industry, where there was continuous growth and therefore recruitment of young people. The opposite trend may be observed in hotels and eating/drinking places, where accelerated growth combined with high mobility resulted in a growing proportion of young people.

75. The less substantial decrease in the proportion of elder workers may be explained, to some extent, by policies encouraging them to take early retirement.

6.4 Employment Conditions and Mobility

76. Tables 3 and 13 show the progress and the impact of part-time work. It is constantly growing in all sectors and especially in service industries. It is highest in non-profit activities, which is consistent with the fact that it is higher among employees of regional and local administrations (15.9%), and of central Government (11.0%) than among wage-earners in the private sector (8.6%).

77. It is also consistent with the fact that part-time work is much more common among female workers, especially those who have several children, going to school. If this means that part-time work corresponds to a demand, it may also be mentioned that 40% of the unemployed males and 50% of the females are willing to accept a part-time job, for lack of any other opportunity (Belloc, in INSEE, 1986).

78. In the recent context of degradation of employment conditions, the service sector contributes to the development of various forms of contingent work, especially of employment contracts of limited duration (usually less than six months, whereas the normal recruitment practice is for an unlimited duration). Such contracts have been growing fast recently and represent to-day more than half of annual recruitments. They now concern females as much as males and services even more than manufacturing. In the service sector, the majority of these contracts is for less than one month duration; they correspond largely to seasonal activities.

79. Interim work through specialised agencies is slightly less developed and has been progressing less in service industries than in manufacturing or construction (Corbel et al. in INSEE, 1986). It affects more men than women. Three service industries are concerned in a substantial way: business services, wholesale trade (other than food) and transportation.

80. Another sign of the unsatisfactory employment conditions is the proportion of workers employed, but looking for another job. It is highest in some service industries: hotels, eating and drinking places (12.3%), retail trade (food): 10.3%, business services (9.9%) and wholesale trade (9.5%). From the occupational point of view, the group "Service Workers to Households", is the most concerned. (Heller, in INSEE 1986).

Table 11

EDUCATIONAL ATTAINMENT IN SELECTED OCCUPATIONAL GROUPS

(Degree or diploma obtained - Per cent)

	Total	Elementary or no diploma or undeclared	Secondary or vocational below 12 years	Full Secondary	Higher than secondary
Technical and supervisory personnel in service occupations	100	29.4	35.3	22.6	12.7
Technical personnel in industrial occupations	100	16.3	35.4	30.0	18.3
Government employees	100	48.9	38.2	10.7	3.1
Secretaries and clerical	100	33.1	44.2	17.9	4.8
Sales occupations	100	58.5	34.1	6.2	1.2
Private service occupations	100	73.8	21.3	4.2	0.7
All occupations	100	48.9	29.1	11.1	10.9

1982 Population census.

Table 12

AGE STRUCTURE OF THE LABOUR FORCE

	Age 15 to 24			Age 50 and above		
	1978	1982	1986	1978	1982	1986
Wholesale trade (food)	18.9	15.0	14.5	25.0	25.5	20.9
" " (other)	15.4	12.5	10.6	22.4	19.9	20.3
Retail trade (food)	21.8	21.6	21.1	23.4	18.8	17.6
" " (other)	16.6	14.9	12.8	28.0	27.2	24.2
Automobile sale and repair	25.6	24.2	16.9	14.0	14.8	16.5
Hotels, eating and drinking	17.2	17.9	19.3	27.3	24.7	22.1
Transportation	10.6	11.0	8.4	22.4	19.8	19.0
Communication	15.4	8.8	7.4	20.2	19.0	18.7
Business services	14.8	12.4	11.3	22.3	19.4	18.3
Services to households	17.6	14.8	13.4	19.0	18.2	16.1
Real estate	10.6	12.8	8.0	34.2	33.1	28.8
Insurance	17.5	9.6	9.5	21.2	20.0	15.3
Financial services	15.4	10.0	8.3	13.5	16.6	12.3
Non profit	11.7	9.6	10.4	22.2	22.3	19.3
Total labour force	15.0	12.8	11.7	23.4	23.0	20.9

Enquêtes emploi

Table 13

IMPACT OF PART-TIME WORK
BY SEX AND INDUSTRY

(per cent)

	Men		Women		Total	
	1984	1985	1984	1985	1984	1985
Manufacturing	1.0	1.2	9.5	10.1	3.5	3.8
Commerce	2.9	3.1	20.6	21.5	11.4	12.2
Transportation communication	1.4	1.7	19.7	21.2	5.9	6.7
Other profit-making services	4.6	5.9	19.2	19.9	12.5	13.5
Financial inst.	1.2	1.7	13.7	15.4	7.7	8.9
Non-profit	4.1	5.4	26.8	28.6	17.3	18.8
Total services	3.4	4.3	22.0	23.2	12.9	14.0
Whole economy	2.7	3.2	21.0	21.8	10.3	10.9

INSEE - Annuaire statistique, 1986.

Table 14

PROGRESS OF INTERIM AND OF CONTRACTS OF LIMITED DURATION

	March 1983			March 1985		
	Interim	Limited period	Total wage earners	Interim	Limited period	Total wage earners
Men						
Manufacturing	33.5	43.1	3.638.1	34.8	59.2	3.539.2
Services	26.6	59.2	5.322.6	25.6	83.0	5.292.2
Total	68.6	127.8	10.480.1	71.6	178.6	10.213.7
Women						
Manufacturing	18.2	42.2	1.532.3	18.8	34.6	1.494.8
Services	23.2	85.6	5.721.6	20.1	95.4	5.883.8
Total	44.3	135.5	7.432.1	41.0	136.4	7.532.1

From Enquête emploi. Annuaire statistique 1986.

Interim corresponds to people employed by interim agencies and put at the disposai of other firms for a very limited duration. Contrats of a limited duration usually cover a period of 3 to 6 months only, while recruitment is usually done for an unlimited period. Wage earners include also salary earners.

81. Concerning mobility patterns, a detailed anlysis of industries was conducted on the basis of data covering the period 1976 - 1980 (Clémenceau, Gelin, 1983). The findings were the following:

-- patterns were quite different for men and for women; there was more stability among the former (more than 80% of men were in the same business the previous year) and mobility was taking place within the active population, while it concerned more the non-active and the unemployed for female workers;

-- for men, patterns differed clearly between manufacturing and service industries (diagram 7), as there was more stability in the former. In the stable service industries (corresponding roughly to the first group identified above), mobility took place, within the same firm or administration, but between different locations or branches,

-- Commerce, business services and insurance were recruiting more from outside; automobile sales and repair, hotels and eating places from the educational system. The recruitment of food retail trade, hotels, automobile repairs and services to household amounted to 23% of the whole economy (against 13% of employment).

-- For the female labour force (diagram 8) the picture was not so clear, but again high stability within firms belonging to the first group was associated with mobility between branches. In business services, there was competition between non-active, unemployed and young women, while other profit-making services showed a more ambiguous image, with the emergency of contingent work.

82. A more recent study (Cézard, Rault, 1986) has underlined the changes that took place as a result of economic recession. After 1977, there was less mobility between industries, as a result of the reduction of recruitments. The gap was growing between "open" industries with a high rate of mobility and "protected" industries offering a special status implying a high degree of stability to their personnel. Most profit-making services were included in the first group, with a further distinction between:

-- hotels, eating and drinking places, automobile sale and repair and various personal services, which receive young and unemployed workers with low stability, low salaries and limited prospects, some of them taking independent jobs later;

-- recreational and cultural services, as well as most business services offer better jobs and better prospects;

-- commerce would stay in an intermediate position, with a sharp distinction between male and female workers in terms of occupational structure and employment conditions;

83. The public sector was still growing and recruiting large numbers, especially of young people. But there was an extremely low mobility towards other industries.

84. Diagrams 7 and 8 are based on correspondence analysis; as is diagram 6.

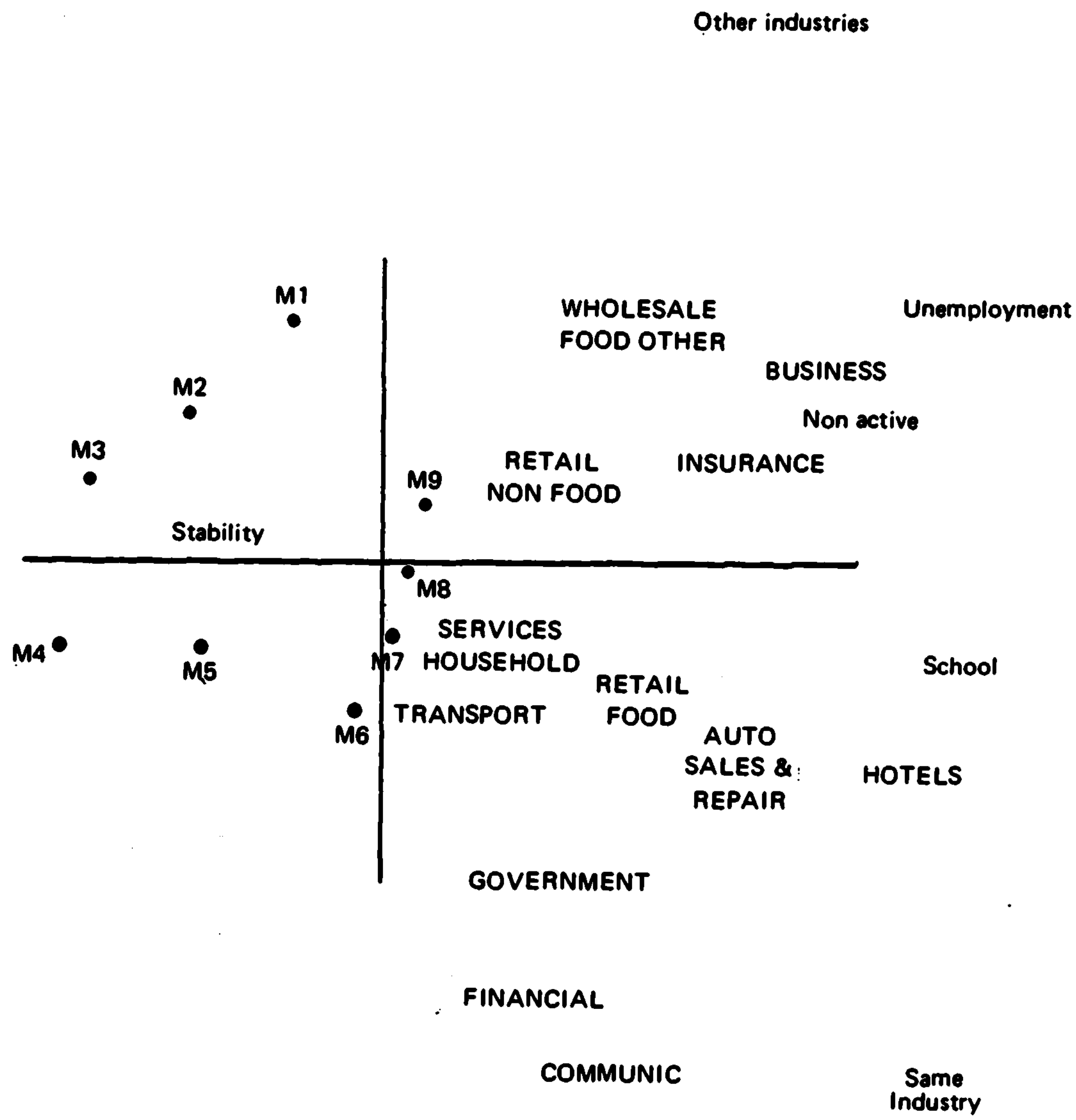
-- Small letters indicate the various types of activity of the workers surveyed, one year before the survey: unemployed, non active, at school, in the same type of job and same company (stability), in the same industry but with another company (same industry), employed in other industries, etc...

-- Capital letters indicate the relative position of workers in different sectors, with regard to these types of activity. In the hotels sector for instance a large proportion of men were at school one year earlier, while a relatively small proportion were stable in the same firm or were working in a different industry.

-- In order to simplify the diagram, manufacturing industries have been mentioned only by initials (M1, M2 or MA, MB). They are close together, while service industries are more scattered.

Digram 7

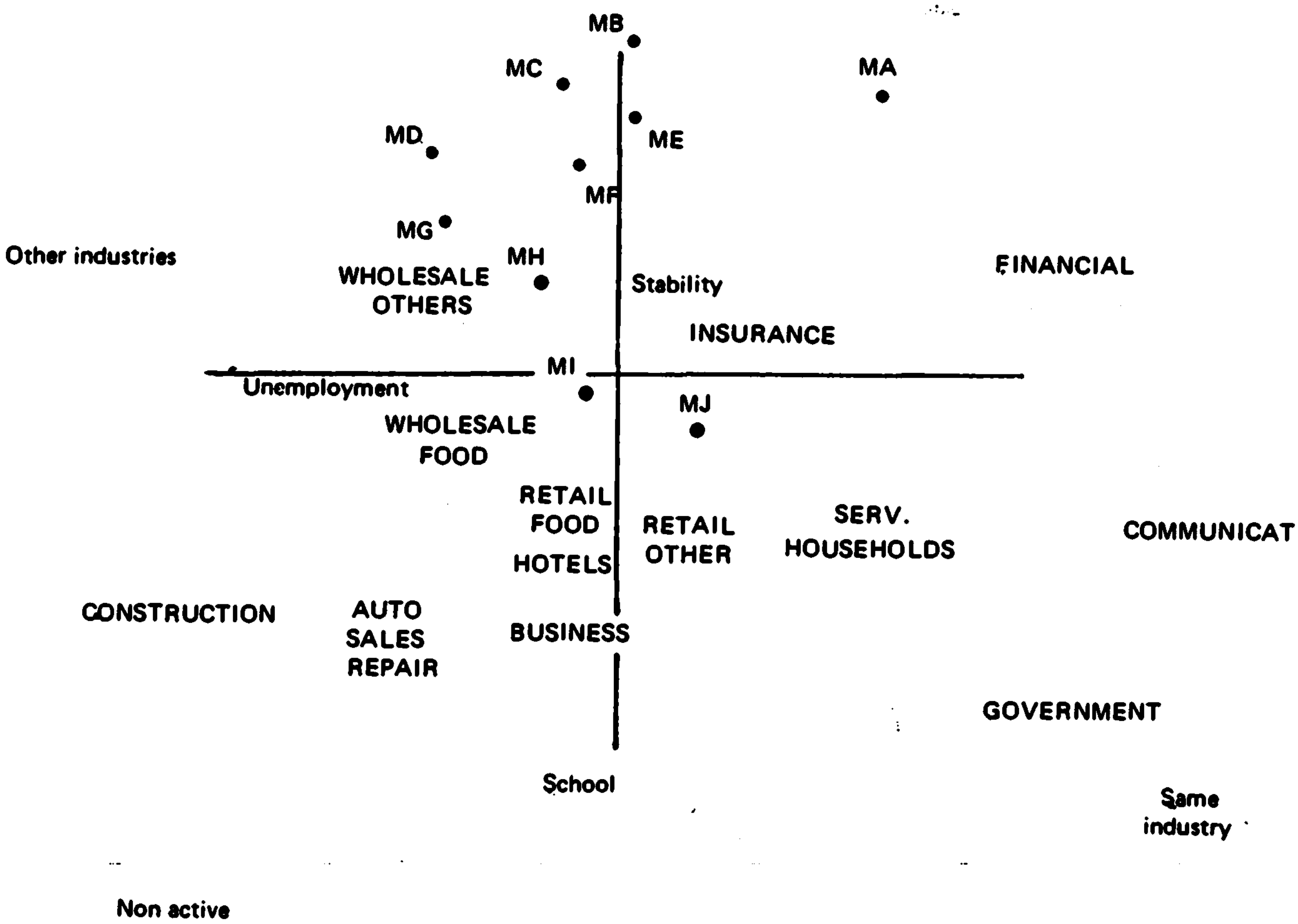
MOBILITY PATTERNS IN SELECTED INDUSTRIES
Situation of employees one year earlier
Period 1976-1980 (Men only)



Correspondence analysis, from Clémenceau, Géhin 1983.

Diagram 8

MOBILITY PATTERNS IN SELECTED INDUSTRIES
Situation of employees one year earlier
Period 1976-1980 (Women only)



Correspondence analysis. Clémenceau, Géhin, 1983.

85. This example indicates that mobility has to be assessed with caution, taking into account changes in the level of employment as well as turnover rates as such. An analysis of turnover rates in 1982 (Koepp, Perreaux, 1985) indentified three groups of industries from that point of view:

-- those where employment was growing while turnover rates were high (essentially hotels, retail trade and business services);

-- those where there was low mobility combined with employment growth (at that time financial services and insurance, which now tend towards stability);

-- most manufacturing industries, where employment decreased, with a relatively low level of mobility.

86. According to this analysis, mobility was also related to the seasonal character of the activity and to the size of the firm (less mobility in large firms).

87. A more recent study analyses the causes for departure. Here again, the service sector as a whole stands in a different position compared to manufacturing: lay-offs and retirement play a minor role, while end of contract, resignation and end of the trial period appear to be the main causes of departure in the services (Corbel et al. 1986).

CONCLUDING REMARKS

88. This intermediate presentation of some of the statistical data concerning employment and employment patterns in service industries allows for three series of observations:

a) Analysing the service sector raises more difficulties than for other sectors, especially when economic and productivity aspects have to be taken into account. But, in the French case at least, there is a great wealth of information on employment and the labour force which would make it possible to develop the analysis much further, provided that the data are taken with a great deal of caution.

b) There is a need for several levels of analysis, in view of the heterogeneous nature of the service sector: in some respects, it is typical, if compared to other sectors. For instance, in the area of employment conditions and mobility patterns, the service sector seems to be a meaningful concept and refers to a more homogeneous reality. In many other respects, the various service industries exhibit contrasting patterns. It is possible to identify broad groups of service industries which appear more homogeneous from the point of view of occupational structure and employment conditions, but such groups are not very consistent with economic criteria and with traditional groupings based on these criteria.

c) Trends which appear clearly at an aggregate level and for long periods are not so clear when the analysis concerns detailed industries and shorter periods. In the French context at least, the worsening employment situation and the various factors which affect the occupational structure contribute to a blurring of trends, if not yet to a reversal. The concept of break in the trends during the year 1982 applied to commerce industries (Albert, 1987) may also be valid for other industries at slightly different periods. In this context, forecasting appears especially difficult and the consistency between findings of qualitative surveys and statistical data requires constant attention.

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Annex 1

METHODOLOGY USED FOR THE STATISTICAL ANALYSIS

The data used for this analysis were the following:

Occupational structure: percentage of craftsmen and operatives, (abbreviation: wom.), of managers and professionals (man) and of other workers (ser.);

Level of educational attainment of the labour force: percentage who left school below the age of 17, (N1) between 17 and 19 (N2) and later (N3).

Composition of the labour force: proportion of women (fem.) and of foreign workers (for.).

Employment conditions: percentage of wage-earners (wag.) and of part-time work (par.);

Workers' mobility between firms: percentage of workers who were already in the same firm the previous year (mob. -- this is not fully adequate, because it also reflects recruitment levels; see 5.4).

Diagrams show the relative positions of these variables and of industries, using the following abbreviations:

ALL : All sectors.
AUT : Automobile sales and repair.
BUS : Business services
FIN ; Financial institutions
HOT : Hotels, eating and drinking places
INS : Insurance
NPR ; Government and non-profit institutions
PRI : Private services to households
REA : Real estate
RTO : Retail Trade (food)
RTO : " " (others)
TEL : Telecommunication
TRA : Transportation
WHF : Wholesale trade (food)
WHO : " " (others)

Two slightly different statistical approaches were used (technical description below). The first analysis quite clearly identifies three groups of industries which are placed in three directions in relation to the average situation of the whole economy. It is structured around two main axes: the first one is defined essentially by reference to the percentage of manual workers and to the sex distribution, which are correlated between themselves and for which very contrasting situations between industries may be observed. The second axis is essentially defined by reference to the proportion of non-wage earners and of managers and professionals.

The second analysis gives a more balanced weight to the various criteria and somewhat reduces the bias resulting from the selection of data, which at this stage gives more weight to the occupational structure and to the educational attainment and less to workers' mobility. With this second analysis, the three groups are less clearly identified and the diagram looks more like a continuum of situations -- which is a less spectacular, but more faithful representation of reality. The average for the whole economy is no more in the middle of the diagram, but industries are still scattered in different directions.

Again, this is a first attempt and the approach could be further elaborated, either by changing the variables, or in some cases (mobility) by taking other data and therefore changing the value assigned to each variable.

A distinction could also be made between two stages of analysis, corresponding to two sets of criteria:

-- those concerning the nature of the work performed, which determines the occupational structure and is highly correlated with educational attainment and sex;

-- employment conditions, which result from the institutional situation and the labour management policy of the firm. It determines mobility and the status (especially wage and non-wage earning).

This approach is reflected in the second diagram included in the text. Emphasising this distinction may also lead to further disaggregation of some industries. Taking transportation for instance, its occupational structure and sex distribution are not very different from that of manufacturing, while employment conditions in rail and air transportation are rather similar to what they are in government agencies and in financial services, with a high degree of stability and a high proportion of wage-earners. But it is different for road transportation.

Similarly, business services are somewhat heterogeneous, since they include interim work, with very different characteristics from other business services. Even more heterogeneous are private services to households, which include high-skill activities (like health) and low-skill services (especially such as cleaning). This may explain why (in diagram C), those services appear in a somewhat intermediate situation, together with real estate, which is not very far from the average situation of the whole economy.

This is enough to see that such a classification may differ quite substantially from classification based on such economic criteria as the type of service provided or the kind of uses. Another example of this is wholesale trade: trade of food and of other goods appear in quite different locations, depending on whatever the statistical method used.

1.Correspondance Analysis(CA)

ABSTRACT

Correspondence Analysis (CA) is related to factor analysis, principal component analysis and some régression techniques(1). It computes jointly perpendicular directions (axis)through the space of the original variables.
Cells are supposed to have only non negative values.
As input, we can generally use frequency tables or any table whose cells measure the positive relation between observations and variables.
Each observation and each variable is represented on each axis by a point (variable-point and observation point : VP and OP below).
All what can be said on VP can also be said on OP

DEFINITIONS

-The sum of a line(observation) over all columns(variabies) is called the weight of the line.
-The sum of a column over all lines is called the weight of the column.
-The inertia (variance) of a point is:

W(i)*D(i,g)*D(i,g)

where:W(i) is the weight of the point i and D(i,g) is its distance of the barycenter.
-Total inertia is the sum of variances over all VP or OP
-Absolute contribution of a point is the part of the variance of the point expressed on the axis.
-Relative contribution of a point is the absolute contribution of the point on the axis divided by its total variance i.e. the correlation of the point with axis

MAIN FEATURES

The distance used makes the following features typical to CA :
-Symetry:
The total inertia of Variable-points is equal to the total inertia of Observation-points.
All statistics computed on VP can be computed on OP
-Simultamous plotting representation
The more the cell value (actual) is great relatively to the expected value (total line*total column/total data), the more the variable-point corresponding to this cell is near the observation-point on axis.
-Distributional equivalence
Two observations having different weights but the same row percent values (same distribution) for all cells will have the same place on axis.
-Transition formula
Coordinates on axis of variable points determine coordinate on axis of observation points and vis versa
-Axis stability
An easy to compute formula depending on weights, eigenvalues and absolute contribution gives an idea of axis rotation whenever a point is supressed(2).

SECOND ANALYSIS

IV.1.Transformations made on data before tne second analysis:
Let K(i,j) be tne cell analysed previously,the following transformation are made on data:

1ɾ-all variables have mean o and standard deviation 1.
2ɾ-let K'(i,j) be the cell resulting from the previous transformation. The cell of the analysed table is:

K''(i,j)=ABS(M(i))+K'(i,j) ....(T)

where M(i) is the minimum variable's value in the observation i and ABS(M(i)) is its absolute value.
This transformation is made because all cells are suoposed to be positive or equal to zero.
The analysis of both K and k'' seems to be helpful in analysing data where variable's variance is very unequal.
(see table below for our example)

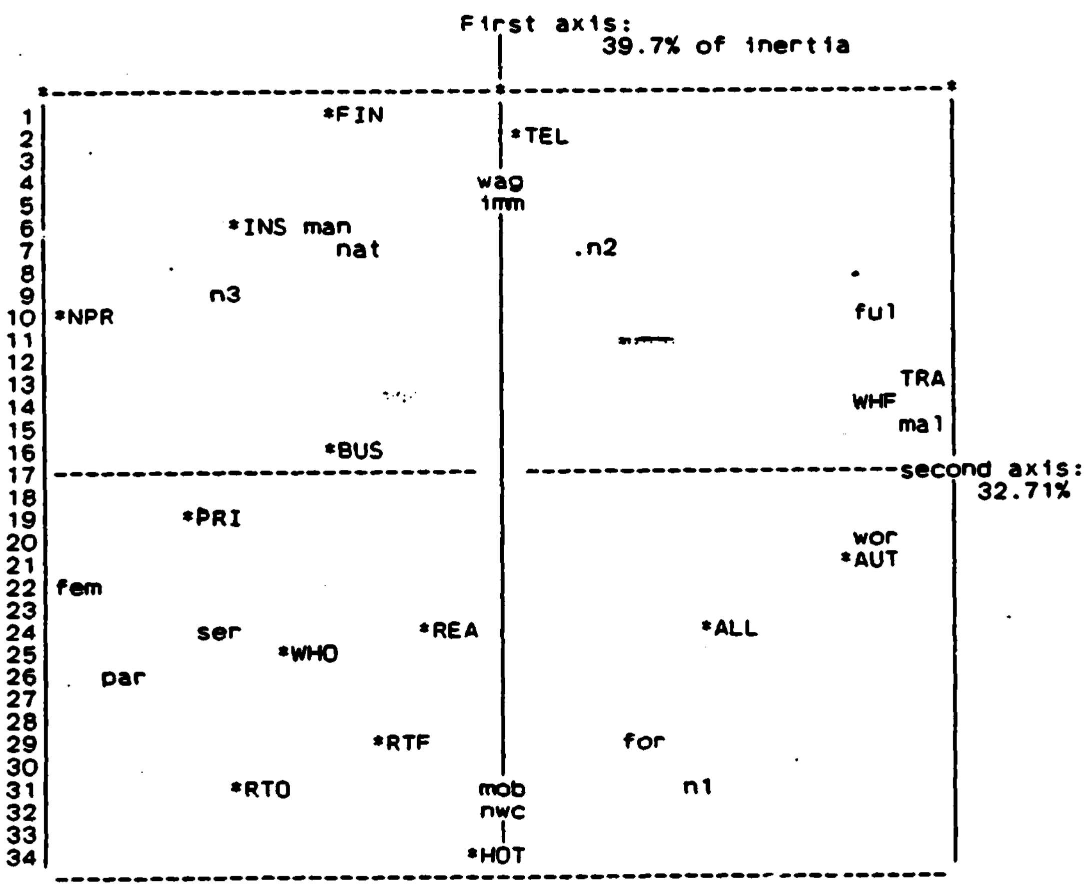
Variance in K

1	man	51.
2	wor	169.
3	ser	98.
4	N1	37.
5	N2	6.
6	N3	64.
7	wag	26.
8	nwg	151.
9	par	25.
10	ful	3.
11	fem	72.
12	mal	66.
13	for	21.
14	nat	1.
15	imm	10.
16	mob	38.

variance in K''

1	man	8.
2	wor	9.
3	ser	8.
4	N1	9.
5	N2	8.
6	N3	8.
7	wag	8.
8	nwg	9.
9	par	9.
10	ful	9.
11	fem	8.
12	mal	9.
13	for	8.
14	nat	7.
15	imm	7.
16	mob	8.

RESULTS OF SECOND ANALYSIS



*LLL upper case letters identifie observations (sectors)
mmm lower case letters identifie variables

Annex 2.1

THE JAPANESE CLASSIFICATION OF SERVICE INDUSTRIES

G. Electricity, gas, water and heat supply.

H. Transport, communications

Railways; road; water; air; warehousing; services incidental; communication.

I. Wholesale and retail trade and eating and drinking places

J. Financing and insurance

K. Real estate

L. Services

Goods rental and leasing; hotels; domestic services; laundry, etc; other personal services; recreational services; broadcasting; automobile parking; automobile repair; other repair; co-operative associations n.e.c.; information services; other business services; professional services n.e.c.; medical health; public health; waste; religion; education; social insurance and welfare; research; political, business and cultural organisations; other services; foreign governments and international agencies.

M. Government n.e.c.:

National Government; prefectural and local governments.

Annex 2.2

THE JAPANESE CLASSIFICATION OF SERVICE INDUSTRIES

G. Electricity, gas, water and heat supply.

H. Transport, communications

Railways; road; water; air; warehousing; services incidental; communication.

I. Wholesale and retail trade and eating and drinking places

J. Financing and insurance

K. Real estate

L. Services

Goods rental and leasing; hotels; domestic services; laundry, etc; other personal services; recreational services; broadcasting; automobile parking; automobile repair; other repair; co-operative associations n.e.c.; information services; other business services; professional services n.e.c.; medical health; public health; waste; religion; education; social insurance and welfare; research; political, business and cultural organisations; other services; foreign governments and international agencies.

M. Government n.e.c.:

National Government; prefectural and local governments.

Annex 2.3

THE US CLASSIFICATION OF SERVICE INDUSTRIES

111. Railroad transportation
112. Local transit and intercity buses
113. Truck transportation
114. Water transportation
115. Air transportation
116. Pipeline transportation
117. Transportation services
118. Radio and television broadcasting
119. Communications except radio and television
120. Electric utilities, public and private
121. Gas utilities, excluding public
122. Water and sanitary services, except public
123. Wholesale trade
124. Eating and drinking places
125. Retail trade, except eating and drinking
126. Banking
127. Credit agencies and financial brokers
128. Insurance
129. Owner-occupied real estate
130. Real estate
131. Hotels and lodging places
132. Personel and repair services
133. Barber and beauty shops
134. Miscellaneous business services
135. Advertising
136. Miscellaneous professional services
137. Automobile repair
138. Motion pictures
139. Amusements and recreation services
140. Doctors' and dentits' services
141. Hospitals
142. Medical services, except hospitals
143. Educational services (private)
144. Nonprofit organizations
145. Post Office
146. Commodity Credit Corporation
147. Other Federal enterprises
148. Local govemment passenger transit
149. Other State and local enterprises
150. Noncomparable imports
151. Scrap, used and secondhand goods
152. New construction industry
153. Govemment industry
154. Rest-of-world industry
155. Private households
156. Inventory valuation adjustment

Annex 3

SOURCES OF INFORMATION IN FRANCE

1. The census provides comprehensive data on the labour force, its occupational structure and educational attainment, but it is available only for specific years (latest 1975 and 1982).

2. Annual information on employment of wage-earners is provided by the administrative records (UNEDIC), but Government services are not adequately covered and revised data differ slightly from the figures initially published (latest: 31.12.1985).

3. The statistical institute (INSEE) organises an annual labour force survey (Enquetes emploi) which provides a large range of information on industrial and occupational structure and employment conditions. Its validity however is somewhat limited by the size of the sample (1/300). Latest information available: 31.3.1986.

4. Another annual survey (Enquete structure des emplois) conducted among firms provides detailed and systematic data on the occupational structure (for up to 455 occupations), but the coverage of some industries -- especially in the public sector -- is inadequate. Recent changes in the classification systems limit the possibilities for comparing time series. Latest data available: 1984.

5. Another survey among firms (Enquete annuelle d'entreprise) is oriented towards economic information, but contains also data on the employment level. It is also subject to limitations concerning the coverage.

6. The Statistical Institute uses the various sources of information available to prepare every year the National Accounts Statistics, which include revised data on employment by aggregate industries.

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