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Employees' skills in the Italian private sector: Qualification, competences and task discretion

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Abstract

The main aim of this paper is to contribute to the debate on New Forms of Management and their impact on the involvement of the workforce in the organisation. Broadly speaking, it could be described as the shift from an 'industrial relations' perspective to a 'human resource management' perspective. In particular this paper addresses - on the basis of an Organisation, Learning and Competences survey - the relationship between competence and organisational commitment among Italian private sector employees in several economic sectors and occupations. In order to analyse this relationship the paper uses principal component analysis, building some summary indicators for skills, task discretion and organisational commitment.

The survey evidence shows a low correlation between skills development and organisational commitment. Therefore, the hypothesis of a virtuous cycle between new technological and organisational systems, high quality productive process and products, and development of skills and organisational commitment is not confirmed. Particularly, this cycle is not confirmed for professionals, personal services workers and advanced sectors. The article concludes with the hypothesis that high skilled employees are more attached to their jobs than to their organisations, confirming that job commitment does not always imply organisational commitment.

1. Main objectives

This work seeks to broaden our understanding of the distribution of technical ability and know-how of Italian employees among occupations and economic sectors in a period of important economic transformation, on the basis of the results of the Organisation, Learning and Competences (OLC) project. In particular, the aims are to present a comprehensive description of work skills in the Italian labour market and to find out whether there exists a positive correlation between competences and organisational commitment and identity. The research contributes to the debate on whether or not the development of skills and greater task discretion encourages higher commitment and more involvement in organisations. To achieve this aim we also build some summary indicators for skills dimensions and organisational commitment.

In this analysis we follow partially the methodology used in the research *Skill in Britain, 1997* and *1986–2001*, with the aim in the future of comparing the two countries. The next step of this study is to analyse the relationship between organisational innovations (quality circles, teamwork, work evaluation, diffusion of information, and so on), working conditions (working time, working hours, shift work, and so on) and organisational commitment.

2. OLC project

The OLC Project is a national representative survey of employees skills in the Italian private sector conducted by ISFOL[1] (2004–5) and funded by the European Social Fund within national measures (the so-called 'system actions') of the Ministry of Labour. The survey was motivated by a recognition of the increasing importance of skills in modern economies, as well as a return to traditional concerns about the role that skills play in determining the quality of jobs. Our main international reference in designing the survey was the project 'Skills in Britain' conducted periodically since 1997 (Ashton et al., 1999; Gallie et al., 2002).

[1] ISFOL (Institute for the Development of Vocational Training for Workers) is an independent agency under the Ministry of Labour. It was created in 1973 and is a public research institute (with about 700 employees and collaborators) in the field of socio-economic applied research. Its activities are devoted to the development of employment and training policies and methodologies within two main areas: i) research on economic, social and organisational dynamics linked to education and training processes (such as labour market trends; evolution of jobs; skills and qualifications patterns; new training methods and technologies); ii) counselling to the European Commission, the Italian regions, the Italian Labour Department and other national institutions. Moreover, ISFOL is the Italian technical unit for the European Social Fund and different community programmes.

The theoretical framework of the OLC project is based on the assumption that the *nature and dynamics of competences should be correlated with organisational and learning processes.* According to this approach, competences are seen as a product of the interactions between people involved in work activities and within organisational contexts. A non-standardised concept of competence is thus adopted. The competences are clusters of technical, behavioural and cognitive skills needed in work practices, based on both tacit and explicit knowledge. In this regard, competences should be interpreted not only as abstract (personal or job-related requirements), but also as context-dependent factors. The approach adopted aimed to go beyond the traditional categories of analysis of competence, in order to establish a methodological and theoretical framework able to connect different variables such as skills, work context and learning.

The project has adopted a Job Requirement Approach (JRA) methodology, mainly aimed at understanding which skills are required on the job. The idea behind this method is to focus on the job rather than on the person who fills it. Major international research supports this approach: that skills used at work are a good proxy for the skills held by the workers. According to some authors, individuals are well informed about what they do at work and describe it more objectively than if you asked them about personal capabilities and attitudes (Green, 2006). The major limitation of this approach is a lack of information on the potential of skills and human capital present on the labour market. Hence, the results will apply to labour demand only. In compensation, it has the advantage of providing us with information on the nature and level of skills required in a job during a period of important change in economic and productive structure.

3. Data

The OLC Project consists of two surveys, one sent to employees and the other to firms. The data has been collected through the Computer Assisted Personal Interviewing technique. The first survey is based on 4,000 interviews (3,605 usable interviews) with employees in the manufacturing and service sectors, excluding agriculture, fishing, mines, construction and personal-related services.[2] The interviews had an average length of 60 minutes. The second part is a quantitative

[2] Public services and the self-employed are also included in the Skills in Britain Survey 1997 and 2001 sample.

large-scale survey of 1,750 firms. The following analysis is based on the employee survey, which has already been completed.

The sample for the employees' survey has been drawn from the lists of employees interviewed by the Labour Force Survey – a survey conducted by the Italian Statistical Institute every three months during 2003 and 2004. A probabilistic sample has thus been identified and 1,800 interviews have been undertaken in four months. The response rate has been around 30 per cent; sometimes the eligibility condition of the sample unit has been revealed as incomplete and for this reason the number of nominatives in some of the sample strata has been insufficient. Some of the nominatives supplied by ISTAT has also been unusable, either because of transcription mistakes made by public officers in recording names, or because of changing conditions of eligibility (for example, people who were no longer employed). These problems forced the researchers to change the sample design, adopting a quota methodology instead of the probabilistic one. Another sample, using the quota methodology, has been utilised in order to obtain 4,000 completed interviews.

Changes in the sample strategy forced us to put in place a complex validity procedure in order to verify whether estimations gained from two different sections of the sample would refer to the same population or if there could be too much distortion. In confronting the two in 370 tests, only 23 couples of estimations have resulted in significant differences. The correlation between the frequencies of each of the questions in the questionnaire is particularly high (r^2=0.90). It is possible to state that the sample strategy adopted has been successful. The quota sample for half of the interviews did not produce important distorting effects.

The statistical design has encompassed an ex-ante stratification, considering the geographical dimensions (North West, North East, Centre, South and Isles) and representation on a city base (big cities, medium and small cities) (**Table I**). Ex-post the respondents have been stratified by occupations and economic sector (**Table II**). Occupations have been stratified according to the English Standard Occupational Classification, 2000[3] and economic sectors have been stratified according to seven categories. Moreover, the manufacturing sector has been disaggregated on the basis of innovative characteristics, according to the Pavitt taxonomy (Pavitt, 1984),

[3] For a detailed description of the occupation refer to Annexe 1– Standard Occupations Classification – 1 digit

distinguishing between traditional manufacturing, scale intensive manufacturing and science based manufacturing.

Table I. Ex-ante sample stratification

	Number	**%**
Total	3605	100
Gender		
Male	2253	62,5
Female	1352	37,5
Age groups		
< 30	691	19,2
30–44	1711	47,5
>44	1203	33,4
Qualification[4]		
Compulsory school	878	24,3
Professional qualification	538	14,9
High school leaving certificate	1709	47,4
University degree	480	13,3
Occupations		
Manager	1037	28,8
Clerical worker	1034	28,7
Worker	1534	42,6
Establishment dimension		
1 – 3	474	13,1
4 – 9	918	25,5
10 –15	580	16,1
16 – 49	702	19,5
50 – 99	276	7,7
100 – 499	451	12,5
≥ 500	177	4,9
n.d.	27	0,7
Geographical area		
North West	956	26,5
North East	1017	28,2
Centre	798	22,1
South and Isles	834	23,1

[4] *Compulsory school* = 5 years of primary school plus 3 years of middle school. Compulsory school attendance: 9 years of school or 15 years old. Professional qualification: compulsory school plus 1–3 years of vocational training. *High school leaving certificate* = five years of high school. *University Degree* = 4 years of University.

Table II. Ex-post sample stratification by occupations and economic sectors

	%
Occupations	
Managers and Senior Officials	3,8
Professionals Occupations	0,8
Associate Professional and Technical Occupations	2,5
Administrative and Secretarial Occupations	34,3
Skilled Trades Occupations	15,2
Personal Service Occupations	0,8
Sales and Customer Service Occupations	7,4
Process, Plant and Machine Operatives	20,8
Elementary Occupations	14,4
	100
Economic sector	
Manufacturing:	41,9
- *Manufacturing: traditional*	*16,2*
- *Manufacturing: scale intensive*	*14,2*
- *Manufacturing: science based*	*11,5*
Services: wholesale, retail, hotels	22,3
Services: Transport, storage	7,9
Services: Communication, ICT	8,2
Services: Financial and monetary intermediation	9,5
Services: Real estate, renting, research	10,3
	100

4. Skills dimensions, transformations of labour market structure and organisational commitment

4.1 *Skills dimensions*

Both studies, OLC and Work Skills in Britain, have used a non-standard way to measure abilities held by the workforce. Generally, a common way of measuring them is to examine the qualifications held by the workers. Most of the quantitative studies concentrate in the main on an analysis of the trend in formal qualifications, such as an educational or vocational qualification, to identify a developing trend of skills present in the labour market. It is well known that many of those indicators do not reflect fully this evolution. The analysis of the formal qualification trend for manufacturing or services, or both, is generally a poor indicator of the real quality of performance, due

to the inherent limits of such indicators and the direct influence on their composition of contractual power relations and the nature of industrial relations.

In the past, there have been attempts to explore workers' skills on the basis of actual tasks. It is well known that the type of cases analysed were often limited as they took place frequently when technical–organisational innovation was in progress, and for this reason were not representative of a more generalised and diffused context. An example is Touraine's (1955) classical analysis of work evolution at the Renault factory in 1945. In this case, the evolution of skills was analysed through the filters of technological transformation and work organisation, by identifying the characteristics of the qualification in terms of required skills and job autonomy. It failed to make the necessary distinction among the several dimensions which make up the quality of a job.

This study, based on English research experience, seeks to analyse several dimensions of skill and place them in their relevant context. This is achieved through a quantitative study, which is representative of Italian private sector employers, and specific empirical indicators on worker perception of their jobs. These empirical indicators are summarised into three groups that are able to measure the trend in developing skills (Ashton et al., 1999): broad skills (or job complexity), competences and task discretion.

Broad skills: The term 'broad skills' is used in 'Work Skills in Britain'. It refers to the stock of knowledge required by the workforce. The term 'skills', in this case, is used not only as an indicator of competences, capability or dexterity, but in a broader sense where the concept of knowledge and experience predominate. Broad skill is synonymous with the ability to perform a job well, thanks to knowledge acquired at school, on-the-job training and learning by doing.

Competences: Changes in the world of production and, consequently, knowledge and capabilities, have somehow reduced the value of educational and vocational qualifications as indicators of individual capabilities sought or held (Leoni, 2006). Today this role is better performed by the concept of 'competence', the concept and instrument of managing and organisational learning, especially important in contexts where there is fast innovation and instability (Tommasini at al., 2005). The term used in 'Work Skills in Britain' to define this dimension is 'generic skills'. Competences (or generic skills) can have a wide application across different organisational and employment contexts as well as offering a universal basis for

success in the labour market (Payne, 2004). They include: literacy skills, physical skills, numeracy, technical 'know-how', horizontal and vertical communication, planning and problem solving.

Task discretion: This term defines the degree of workers' control over the job. Particularly, it provides the opportunity for them to influence the work process, make decisions about it, and be responsible for it. According to some authors (Blauner, 1964) because of technological innovations and new ways of organising work, there has been a task discretion enhancement, with a shift in responsibility towards the employees. The new personnel management policy, contrary to the traditional paradigm of the scientific organisation, considers workers' autonomy a factor that is able to improve client communication, flexibility and adaptation to market conditions. Moreover, many authors (Gallie et al., 2001; Walton, 1985) believe that work autonomy is accompanied by the development of individual skills. This gives the possibility of a virtuous cycle. With the development of new technology and high quality processes, workers should be granted greater discretion to use their initiative in work and take responsibility for work quality.

4.2 *From industrial production to services and the changing labour market structure*

In recent decades, both in Italy and many other western countries, there has been a heated debate about the transformations in economic structure, and consequently in the labour market. The most noticeable aspect of these transformations has been the rising number of employees in the service sector – who at different times and in different countries have overtaken the number of employees in the manufacturing industry – and the key importance of information in the productive process. Many terms have been used to define these transformations: 'Service Society', 'Post-industrial Society' and 'Post-Fordism'. However, a paradox in today's socio-economic debate is the emphasis on the growing centrality of the service economy and the difficulty in defining its main characteristics.

Gershuny (1978) defines services as the opposite of goods production: 'goods are material, permanent, made by people using machines, which are sold or otherwise distributed to people who thereafter may use them at will. Services, we infer by contrast, are immaterial, impermanent, made by people for people' (Gershuny, 1978, p. 56). It is apparent that service occupations defined as those outputs which are non-material or ephemeral are not limited to the service sector (Gershuny and Miles, 1983,

p. 43). An accountant working in a bank or in an electronics factory can be categorised as belonging to either the service or the manufacturing sector, though the work done scarcely differs. Similarly, a carpenter working in an education college or on a building site can be in either category. Hence, according to the definition of these authors the service sector is composed of enterprises and occupations which have different origins but all of which perform tertiary activities and produce intangible goods.

A second definition of these transformations in today's productive structure is based on the changing nature of technology and its effects on knowledge. According to authors such as Daniel Bell, Peter Drucker, Manuel Castells, Scott Lash and John Urry, a better definition for today's productive transformations is the Information Society. According to Peter Drucker (1969), in the Information Society the means of production will no longer be capital, natural resources and work, but knowledge. Information and communication technology gives the opportunity to realise a direct connection, online, between activities previously separated: for example planning, production, management, distribution, consumption.

In this way, the best use of capital, and the economic and social results, will be produced by the higher cognitive capacity of the workers to realise the innovation and the effective utilisation of information and communication technology. Another way to define these transformations is to emphasise a specific way to organise production. In fact, what seems to distinguish the industrial model of mass production from the modern model of production is the attention to the customer. Particularly interesting on this theme is Richard Normann's (1984) synthesis. According to this author the strategy of any firm should start from the relationship with the customer rather than production or products.

Thus the definition of service becomes of paramount importance. While the production of goods is something concrete, services are usually an immaterial activity; in the conventional economic literature they are defined as 'intangible goods'. Services cannot be stored up or transferred; the focus is on people interacting with people and serving the customer rather than transforming physical goods. The result of a service is achieved through social acts, starting with direct contact with the customer. Richard Normann defines services as 'personality intensity' workplaces, underlining that the quality of service is the result of workers' behaviour and motivation. For this reason, the effectiveness and competitiveness of the services

depend crucially on the ability to handle people: reinventing roles, finding new ways to utilise human resources, learning systems, keeping up and developing a friendly environment.

The problem for the traditional conception of skill in interpreting these transformations has led to an increased use of the notion of 'competences', which better captures this wider range of capacities (Dugue and Maillebouis, 1994). Many authors (see the Italian case Consoli e Benadusi 'L'emergenza della metodologia delle competenze nel pensiero teorico e pratico manageriale', Osservatorio ISFOL n° 5–6, 1999) have highlighted that the concept of 'competences', among many other concepts, is the most interesting in interpreting today's workplace transformations. Innovation, in this case, is the explicit acknowledgement that worker ability, his/her social sharing, is not only certified by traditional methods, for example educational or vocational qualification, but also by how this certification will be translated into behaviour in work activity.

In exploring this phenomenon, we seek to answer the following questions: What are the most required competences and qualification profiles in the most important economic sectors and occupations? What are the differences among the occupations or among traditional industrial sectors, service sectors and advanced sectors? There is a heated debate taking place on work quality between those who see a progressive trend of deskilling, the diffusion of routine, work fragmentation and task standardisation – even in jobs generally considered skilled – and those who see a growth of professional roles and skilled occupation (Schon, 1983; Wood, 1989). We argue that the changes in the nature of jobs cannot be interpreted on the basis of these all-absorbing and unilateral theories, particularly if we analyse the occupations and new professional profiles which are rapidly growing. In the United States, as well as in most western countries, there is a belief that much of the expansion of the workforce is due to the new professions,[5] such as managerial jobs and in technology

[5] 'New professions' is a term used to define a group of professional roles where work task discretion and work quality is based on basic knowledge or on the classification of knowledge in actions and repertories, as well as carrying out a diagnosis to understand customer needs for the realisation of the service. These new professions are similar in part to the professions or semi-professions such as nursery, elementary, middle school teachers, professors or researchers with regard to education, and physicians, nurses, health technicians, therapists, social workers and health clerks. Also, this second group of traditional professions and semi-professions have had a huge expansion, especially in the second half of the last century. '"Service workers" … 'are that sub-set of the working population personally engaged in information handling, in making intangible products, or in other "non-production" employment' (Gershuny and Miles, 1983, p. 23). They can belong to any economic sector

based services. Nevertheless, these professions only account for a small part of the total workforce. Service manual workers are, on the contrary, a considerable quota of the total workforce. Their development is not as fast as the technology based service workers, but the increase, in absolute value, is more significant and so they represent the most significant quota of the labour force.

In this sort of labour market, integrated with the industrial labour market and its technical and organisational transformations, the activity of learning is intrinsic to an organisation. Even though product and service innovation has reached a rate of stability, there is always going to be a problem of their development and a demand for the expansion of knowledge and skills by both employer and employee (Mokyr, 2002). For this reason, we are experiencing a reversed perspective, compared to the previous industrial experience, of the rules governing working life (della Rocca, 1986). Learning and the development of knowledge are not limited to fewer people, an employment period or formal classroom activity, but has become an intrinsic activity of the organisation.

Therefore, knowing the dimension of skills, how they are differentiated by occupational roles and by traditional and advanced sectors, becomes very important for institutional actors: state, regions, local authority, enterprises, employers' associations and trade unions. What aspects of skills and task discretion do occupations and economic sectors have in common? What are the main differences among them?

4.3 *Organisational commitment and identity*

We use the OLC dataset of Italian employees to find out whether there exists a relationship between the level of skills (the three dimensions of broad skills, competences and task discretion) and a sense of attachment to an organisation and enterprise. The term more appropriately found in the sociological literature to define this sense of attachment is 'organisational commitment', which is considered strategic in periods of turbulence for the management of human resources. Organisational commitment 'implies identification with an organisation and acceptance of its goals

(such as cooks, personal care workers, domestic helpers, cleaners, protective service workers or salespersons, or those who work in recreational, cultural and sporting activities), with a greater disposition to mobility among workplaces and sectors than industrial workers; and an adaptability, being willing to accept flexible working hours (Perulli, 1988).

and value as one's own' (Lincoln and Kalleberg, 1990, p. 22), or simply, the willingness of the individual to give higher commitment to work. In business management studies, the concept of commitment is also defined as the intensity relative to the psychological identification and employee involvement in the organisation. According to this definition, the consequences of commitment are, for example, the willingness to stay with the organisation, acceptance of the aims of the firm or, generally, the identification of employees with the values of the enterprise (Audia et al., 1995).

According to some authors (Gallie et al., 2001), to create the conditions for organisational commitment, to 'work hard' and with responsibility, is the most important aim of management, as well as being key to many important theories underlying Human Resource Management studies. While it is true that higher levels of competition, organisational and technological innovation and quality of service emphasise the importance of human resources as a condition for the success of an enterprise, it is also the case that the level of commitment has always been one of the fundamental aims of management and generally of employer authority.

However, 'organisational commitment' does not necessarily mean job or work commitment or the attachment of individuals to their work (Gallie *et al*., 1998; Lincoln and Kalleberg, 1990). Research on the labour market tells us that the skills development of individuals is not always accompanied by an increase in the sense of attachment to an organisation. Research on workers' motivation in low skilled industries tends to distinguish the two effects. In this case, the goals are self-realisation and personal satisfaction. Traditional 'Taylorist' methods of management, with their emphasis on work parcelling and tight supervisory control, were thought to lead to demotivation among workers and to a pure instrumental approach to work. On the contrary, new methods of management (task rotation, multitasking and semi-autonomous teamwork), with an emphasis on job enrichment and workers' autonomy, are thought to increase work quality and consequently organisational commitment.

At times organisational commitment and work commitment can coincide, especially in the case of the Taylorist method of management. Most organisational experimentation has tried to look at both aspects of the question: to improve interest in the work as well as to establish an effective cooperative system. Important from this point of view are the pioneering works of the Tavistock Institute summarised by Davis and Taylor (1972), and Federico Butera's 1972 and 1977 essays for Italy.

However, we need to remember that whoever feels committed to work looks to the growth of his/her profession independently of the organisation's results while we can also have organisational commitment and strong identity with low-skilled jobs and tight supervisory control. In this case, commitment and identity can depend on other factors such as job security – as used to be the case in private industry in Japan for formal and informal lifelong employment – or a friendly work environment. In many industries the internal climate is considered as one of most important factors for enterprise management. A worker with a strong degree of personal identification with his/her organisation would not consider a close-knit organisation restrictive, while the same cannot be said for a worker who is inclined to self-realisation and individual creativity.

However, skills development of individuals and commitment are often identified, especially in case studies, as an integral part of the human resources development process. In fact, according to Walton (1985) there exists a virtuous cycle between development of new technological and organisational systems, high quality processes and products, and quality of work and commitment. We find a similar virtuous cycle in the job re-design theory, where the growth of job content and task discretion increases job satisfaction and consequently encourages higher commitment to doing his/her work (Gallie *et al*, 1998; Lawler *et al*., 1995).

In the following paragraphs we analyse the distribution of skills dimensions through personal and firm characteristics, and then compare them with organisational commitment.

5. Demand for skills: broad skills, competences and task discretion

5.1 *Broad skills*

In the Italian, as well as in the English questionnaire, we find some very simple empirical indicators of the level of necessary ability to do the job well: school qualifications, on-the-job training and learning time. The following questions are asked in the questionnaire:

1. If you were applying today, what qualification, if any, would someone need to get the type of job you now have?

2. At the moment of hiring, have you had side by side training for the type of work that you currently do by colleagues or senior staff? How long, in total, did that training last?
3. How long did it take for you, after you first started doing this type of job, to learn to do it well?

The first indicator is the level of qualification which would have been required if someone applied to get the job the respondent currently holds. The level of qualification is measured on the basis of the Italian school system: primary school (five years), middle school (three years post primary school), high school (five years post middle school and preceding university), university (four or five years), post-degree (Masters or PhDs). It is worth pointing out that compulsory school attendance is nine years of school or to 15 years old, meaning primary school plus middle school. The second indicator is the length of on-the-job-training by colleagues or senior staff. The scale to measure this indicator is split into eight levels, from no training at all to more then one month. Finally, the third indicator of required ability is the time taken to learn to do well in the job. In this case, the scale is split into seven levels, from less then one week to more then two years. These indicators represent the level of ability required to do the job well or the stock of knowledge required from workers. We defined these skills above as 'broad skills'. The hypothesis is that there is a positive correlation between broad skills and job complexity.

With the aim of analysing the distribution of broad skills among Italian employees, we built an index which summarises the three dimensions (qualifications, on-the-job training time and learning time): **Index of Broad Skills**. As additional information we have a statistical annexe about the trend of responses in percentage of the sample of private sector workers (3,605 interviews, excluding self-employment and economic sectors such as agriculture, fishing, mining and construction).[6]

The method utilised to build the index is the principal component analysis (PCA). The PCA is a statistical technique that transforms a number of (possibly) correlated variables into a (smaller) number of uncorrelated variables called *principal components*. The PCA revealed that the three dimensions form part of a single component or factor, which means that the three dimensions are correlated, with an

[6] See the statistical annexe with tables on the website www.oac-isfol.it

eigenvalue of 1.50 and accounting for 50 per cent of explained variance.[7] It is worth underlining that all three scales to measure the variables go in the same direction, from negative to positive.

Table 1. Index of broad skills by personal and firm characteristics

	Mean	Std. Deviation
Gender		
Male	0,099	1,040
Female	-0,158	0,911
Age groups		
15–29	-0,164	0,905
30–44	0,077	1,000
45–64	0,014	1,069
Qualification held		
Compulsory school	-0,632	0,909
Professional qualification	-0,067	0,893
High school leaving certificate	0,348	0,871
Degree + post-degree	0,811	0,795
Establishment dimension		
1 – 3	-0,174	0,871
4 – 9	0,043	1,011
10 – 15	-0,002	0,918
16 – 49	-0,092	1,018
50 – 99	-0,062	0,944
100 – 499	0,161	1,118
500 – w	0,431	0,998
Occupation		
Managers and Senior Officials	1,138	0,809
Professional Occupations	1,160	0,658
Associate Professional and Technical Occupations	0,867	0,852
Administrative and Secretarial Occupations	0,448	0,769
Skilled Trades Occupations	0,061	1,003
Personal Service Occupations	0,260	0,524
Sales and Customer Service Occupations	-0,226	0,904
Process, Plant and Machine Operatives	-0,524	0,842
Elementary Occupations	-0,786	0,787
Economic sector		
Manufacturing: traditional	-0,284	0,833
Manufacturing: scale intensive	-0,114	0,957
Manufacturing: science based	0,076	0,980
Services: wholesale, retail, hotels	-0,128	0,979
Services: Transport, storage	-0,082	0,977
Services: Communication, ICT	0,650	0,904
Services: Financial and monetary intermediation	0,919	0,854
Services: Real estate, renting, research	-0,095	1,040

[7] *alpha* di Cronbach 0.50, test di *sampling adeguacy* di Kaiser-Meyer-Ohlin 0,60, test di *sphericity* di Barlett p<.000

In **Table 1** we analyse the distribution of broad skills by personal characteristics. In interpreting the results it is useful to remember that the component scores are standardised, which means they have a mean of zero and a standard deviation of one. Therefore, a positive value means a demand for broad skills above the mean, negative below the mean. The results by personal characteristics highlight that, generally, men hold more skilled jobs than women, an average component score of 0.099 against -0.158. Moreover, middle-aged employees (30–44) hold more skilled jobs compared to other employees. Finally, there is a direct correlation between school qualifications and broad skills: employees with higher education usually hold more complex jobs. Regarding firm characteristics, there is a positive correlation between firm dimension and broad skills: for example large firms, of more than 500 employees, show an average component score of 0.431, whilst small firms, 1–3 employees, show a score of -0.174.

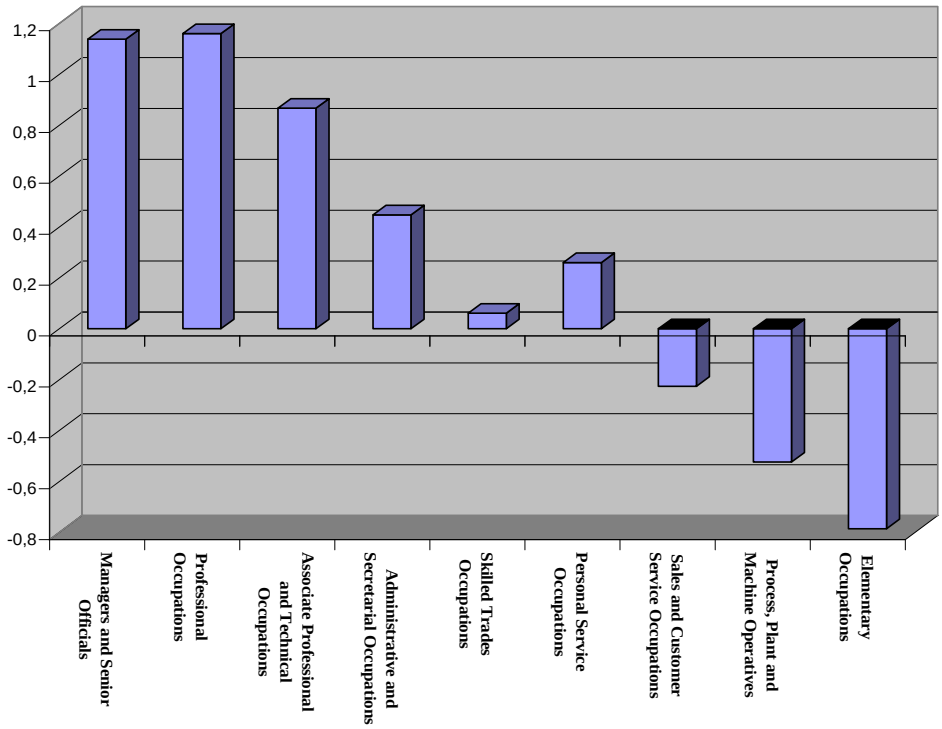
Graph 1 gives the distribution of broad skills by occupation. As we can see, it is quite clear that there is a positive correlation between broad skills and occupational roles.[8] Managers, professionals, technicians and administrative personnel show a higher index compared to elementary workers, assembly-line workers and sellers. However, it is interesting to note that an analysis on the three dimensions disaggregated showed that trade workers and personal service workers have higher indices regarding learning time, suggesting that these jobs need a substantial period of learning on-the-job rather than vocational training or school qualification.[9]

Graph 2 gives the distribution of broad skills by economic sectors. It is clear that broad skills vary markedly between economic sectors. The manufacturing sectors and service sectors such as 'wholesale, retail, hotels', 'transport and storage', 'real estate, renting and research' show on average a lower level of broad skills. Particularly, they show lower broad skills indices compared to the advanced sectors (information and communication technology, financial intermediation) where the new professions are more diffuse. Although in the case of learning time,[10] the differences are less relevant. Sectors such as science based and scale intensive manufacturing are in an intermediate position, with the period of training and learning time longer compared to traditional services ('transport and storage', 'wholesale, retail, hotels'

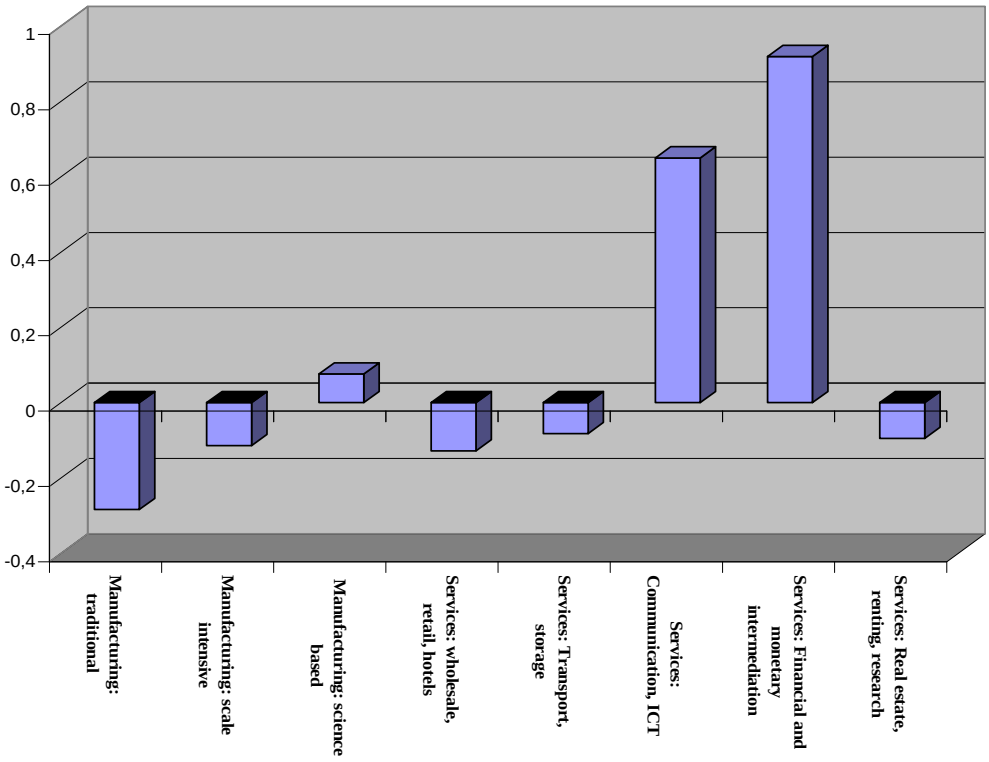
[8] For detailed definitions see Annexe 1 – Standard Occupations Classification.
[9] See Annexe 2 – Graph A1.
[10] See Annexe 2 – Graph A2.

and ‘real estate, renting, research’) and similar to the advanced sectors (‘communication and ICT’ and ‘financial and monetary intermediation’).

Graph 1. Broad skills by occupation



Graph 2. Broad skills by economic sector



5.2 *The competences requested*

Section 'G' of the OLC questionnaire investigates the frequency of the usage of skills across Italian workers. The skills are measured on a seven levels frequency scale, from rarely to always (zero for not applicable).[11] Respondents were asked a series of detailed questions about their job tasks. The method utilised to analyse these questions is the principal component analysis. In particular, we followed a two step principal component analysis (Di Franco and Marradi, 2003). The first step, which we call multiple component analysis, was exploratory. The aim was to isolate, through exploratory principal component analysis, the most relevant dimension among a set of variables. In the second step, we analysed separately the dimensions (components) through a confirmative principal component analysis to get the component score of each dimension. Moreover, the total index of generic skills is the sum of the generic skills scores weighted by variance explained by each component.[12]

Table 2. Distribution of generic skills by gender, age and qualification held

	Literacy	Reliability	Problem Solving	Instructing, training and teaching people	Planning and work organisation	Customer communication	Teamwork	Dexterity	Job autonomy	Numeracy	Total Index of Generic Skills
Gender											
Male	0,019	0,034	0,099	0,092	0,090	-0,014	0,100	0,188	0,050	-0,011	0,028
Female	-0,030	-0,053	-0,158	-0,146	-0,144	0,023	-0,159	-0,299	-0,080	0,018	-0,044
Age											
15–29	-0,145	-0,061	-0,138	-0,225	-0,158	-0,033	-0,068	0,051	-0,107	0,011	-0,074
30–44	0,095	0,008	0,044	0,054	0,057	0,023	0,024	0,001	0,005	0,057	0,038
45–64	-0,039	0,045	0,054	0,122	0,047	-0,011	0,021	-0,053	0,098	-0,122	0,000
Qualification held											
Compulsory School	-0,621	0,040	-0,405	-0,324	-0,436	-0,398	-0,141	0,375	-0,133	-0,512	-0,252
Vocational Training	-0,198	-0,082	-0,025	0,016	-0,040	-0,064	-0,035	0,234	-0,084	-0,096	-0,071
High School Certificate	0,391	0,005	0,225	0,120	0,246	0,227	0,073	-0,272	0,083	0,296	0,153
Degree + post degree	0,854	0,017	0,455	0,649	0,509	0,523	0,263	-0,604	0,301	0,682	0,354

[11] In the Skills in Britain Survey a five level importance scale (not at all important/does not apply, not very important, fairly important, very important, essential) has been used to capture generic skills. In the Italian survey, however, a seven level frequency scale has been preferred because it is less vulnerable with respect to the objectivity of respondents, who could exaggerate the importance of their skills; the seven levels also permit a better discrimination among jobs and employees.

[12] For the detailed procedure see the methodological note on the website www.oac-isfol.it

Following this procedure, the 44 items of the questionnaire have been reduced to ten generic skills: 'literacy', 'reliability', 'problem solving', 'instructing, training or teaching people', 'planning and work organisation', 'customer communication', 'teamwork', 'dexterity', 'job autonomy' and 'numeracy'. **Tables 2–3** show the results of this analysis. **Table 2** gives the distribution of generic skills according to personal characteristics (gender, age, qualification). The analysis by gender shows that men have values above the mean in all skills, with the exception of 'customer communication' and 'numeracy' in which women prevail. We believe that this result is due mainly to the kind of work women do; most of them are: sales workers, checkout assistants, administrative employees and accountants, jobs which require interaction with the public and numerical ability. This result confirms the analysis of Work Skills in Britain 1997 (Ashton et al., 1999).

The variable age highlights that component scores are always above the average for workers aged 30–44. By contrast, they are below the average for those aged 15–29, with the exception of 'dexterity' and 'numeracy'. Finally, workers aged 45–64 show positive indices in 'instructing, training and teaching people' and 'job autonomy'. In other words, workers aged 30–44 hold jobs which require dexterity and numerical ability, while workers aged 45–64 hold jobs which require autonomy and a high level of communication skills. Finally, the qualification shows a linear trend: there is a positive connection between skills and qualification, with the exception of 'dexterity'. In this case the less skilled workers show a better score.

In the first part of **Table 3**, we analyse the relationship between generic skills and occupations. Generally, high ranking occupational groups show a higher level of generic skills. For example, 'managers' and 'professionals' show component scores far above average, with the exception of 'dexterity'. By contrast, workers in the less skilled occupations show component scores below average, with the exception of some specific skills such as 'dexterity' for the assembly-line workers, elementary workers and skilled trade personnel, or 'customer communication' for the sellers.

However, there does not appear to be a polarisation or clear correlation between occupational hierarchy and type of skills. The 'personal service occupations' show positive scores for 'managers', 'professionals' or 'technicians'. The score of 'customer communication' is high for the personal service occupations as well as, although to a lesser extent, 'administrative occupations'. Alternatively, looking at the table vertically, we can see that many generic skills are required across several

occupations, such as ‘literacy’, ‘problem solving’, ‘reliability’, ‘instructing, training and teaching people’ and ‘teamwork’, all of which present positive scores in several occupations. On the other hand, ‘dexterity’ and ‘job autonomy’ are skills more specific to some occupations.

Nevertheless, we have a concentration of some generic skills in specific economic sectors. For example, ‘customer communication’ in the service sector ‘wholesale, retail, hotels’ gains a score far above the average, as does ‘literacy’ in ‘transport and storage’.

Table 3. Index of generic skills by occupations and economic sector

	Literacy	Reliability	Problem solving	Instructing, training and teaching people	Planning and work organisation	Customer communication	Teamwork	Dexterity	Job autonomy	Numeracy	Total Index of Generic Skills
Occupations											
Managers and Senior Officials	1,011	0,253	0,812	1,474	0,944	0,860	0,796	-0,369	0,524	0,682	0,520
Professional Occupations	1,046	0,322	0,783	0,630	0,773	0,310	0,586	-0,620	0,563	0,546	0,470
Associate Professional and Technical Occupations	0,657	0,237	0,651	0,607	0,646	0,556	0,294	-0,455	0,445	0,354	0,330
Administrative and Secretarial Occupations	0,678	-0,080	0,282	0,203	0,327	0,290	0,028	-0,605	0,064	0,620	0,241
Skilled Trades Occupations	-0,337	0,179	0,171	-0,075	0,039	-0,353	0,129	0,735	0,091	-0,339	-0,073
Personal Service Occupations	0,560	0,136	0,368	0,224	0,291	0,820	0,009	-0,369	0,191	0,085	0,241
Sales and Customer Service Occupations	-0,287	-0,168	-0,162	0,057	-0,050	1,045	-0,214	-0,336	-0,179	-0,097	-0,098
Process, Plant and Machine Operatives	-0,612	0,125	-0,388	-0,403	-0,529	-0,598	-0,120	0,572	-0,181	-0,517	-0,249
Elementary Occupations	-0,697	-0,225	-0,598	-0,394	-0,450	-0,380	-0,213	0,242	-0,152	-0,597	-0,319

In the second part of **Table 3**, we analyse the relationship between generic skills and economic sectors. ‘Financial and monetary intermediation’ and ‘communication and ICT’ are the economic sectors which show almost all the skills

have positive scores, far above the average, except for 'dexterity' and 'reliability'. In contrast, manufacturing sectors show all scores as negative, except for 'dexterity', 'reliability', 'teamwork', 'problem solving' and 'job autonomy'. Traditional manufacturing shows 'dexterity' and 'job autonomy' as positive; scale intensive and science based manufacturing have positive scores for 'reliability', 'problem solving', 'teamwork' and 'dexterity'.

Table 3. Index of generic skills by occupations and economic sector (*continued*)

	Literacy	Reliability	Problem Solving	Instructing, training and teaching people	Planning and work organisation	Customer communication	Teamwork	Dexterity	Job autonomy	Numeracy	Total Index of Generic Skills
Economic Sectors											
Manufacturing: traditional	-0,337	0,128	-0,086	-0,240	-0,197	-0,415	-0,143	0,366	0,019	-0,214	-0,121
Manufacturing: scale intensive	-0,117	0,104	0,050	-0,108	-0,087	-0,362	0,056	0,240	-0,004	-0,077	-0,035
Manufacturing: science based	-0,069	0,025	0,006	-0,043	-0,169	-0,340	0,164	0,316	0,000	-0,134	-0,027
Service: wholesale, retail, hotels	-0,135	-0,167	-0,126	0,076	0,063	0,428	-0,075	-0,123	-0,034	0,025	-0,050
Service: Transport, storage	0,171	-0,026	-0,174	-0,233	-0,073	-0,184	-0,229	-0,137	-0,199	-0,128	0,007
Service: Communication, ICT	0,391	-0,059	0,255	0,181	0,264	0,206	0,163	-0,372	0,066	0,060	0,146
Service: Financial and monetary intermediation	0,872	0,129	0,528	0,576	0,462	0,892	0,393	-0,693	0,110	0,775	0,379
Service: Real estate, renting, research	0,237	0,007	-0,016	0,104	0,071	-0,004	-0,055	-0,249	0,085	0,146	0,075

5.3 *The level of task discretion*

In this section we analyse the level of workers' control in the execution of their job, that is, the level of task discretion. It is often argued that rising skills will be accompanied by higher levels of task discretion, reflecting the twofold idea that employers need to motivate workers who carry out more complex jobs but, at the same time, have great difficulty in controlling more skilled workers. But discretion

requires exercise of judgment, hence more skills. This connection between task discretion and skill has been assumed in a long-standing social scientific tradition (Blauner, 1964; Braverman, 1974; Zuboff, 1988).

In the OLC questionnaire there are some questions which allow us to investigate this topic. The respondents were asked questions about how much choice they have in carrying out work and the level of influence they have over various aspects of it, including work effort, choice of task and method of work. Particularly, the first question provides a general picture of workers' autonomy. The more detailed questions, on the other hand, allow us to investigate the influence that workers have over specific aspects of their job: how much personal influence workers have on time and work effort, or in deciding what tasks to do or how to do the task.

The questions are:

- How much choice do you have over the way in which you do your job?
- How much influence do **you personally** have on time and work effort?
- How much influence do **you personally** have on deciding what tasks you are to do?
- How much influence do **you personally** have on deciding how you are to do the task?

The questions are measured on a seven level scale, from absolute choice to no choice at all. **Table 4** shows the percentage distribution of the first question: almost 35 per cent of respondents report some broad discretion in their job (above the average). Therefore, a large number of employees perceive they have broad discretion in the way they do their job.

Table 4. Employees task discretion

	%
Absolute (Total)	2.7
A great deal of choice	9.9
Quite a lot choice	23.1
On the average	38.5
Some choice	13.6
Hardly any choice	6.9
No choice at all	5.4

To analyse these results more deeply we have built a synthetic indicator, utilising the three questions on 'personal influence': **Index of Task Discretion**. The methodology utilised is the same utilised for the previous indices, the principal component analysis. Here too, the PCA showed that the three questions form part of a single component (or factor), with an eigenvalue of 2.41 and an explained variance of 80 per cent.[13] It means that the variables have a high correlation and a single factor explains most of the variance of the variables.

Table 5 shows the results of this analysis by personal and firm characteristics. The results highlight that men enjoy a higher degree of autonomy on the job compared to women. Regarding age, employees aged 45–64 enjoy more autonomy compared with younger colleagues and there is a direct correlation between autonomy and school qualification. Therefore, as we expected, employees with higher qualifications and of middle age usually enjoy a higher degree of autonomy in comparison with their colleagues.

If we look at the data by firm characteristics first of all, we note that there is almost a linear correlation between establishment dimension and autonomy: employees who work in small establishments enjoy higher control in their job than employees who work in large establishments. In **Graphs 3** and **4**, by contrast, we summarise the relationship between job autonomy and, respectively, occupation and economic sector. As expected, **Graph 3** highlights that job control is strongly correlated to occupational groups, so skilled employees exercise more control in their job. Managers and professionals (lawyers, chemists, biologists, architects, university professors and so on) are the roles with the highest job autonomy, in contrast to assembly-line and manual workers who enjoy a very low degree of job autonomy.

Looking separately at the four questions,[14] approximately 60 per cent of managers report having a 'great deal' of choice over the way they do their tasks, and at the other end we find the elementary and assembly-line workers with approximately 19 per cent. However, it is interesting to note that 'associate professionals and technical occupations' (laboratory technicians, electrical/electronic technicians, paramedics, medical radiographers, physiotherapists), whose main tasks involve giving support to professionals, report having more choice over the way they

[13] *alpha* di Cronbach 0.88, test di *sampling adeguacy* di Kaiser-Meyer-Ohlin 0,72, test di *sphericity* di Barlett p<.000
[14] See Annexe 2 – Table A1.

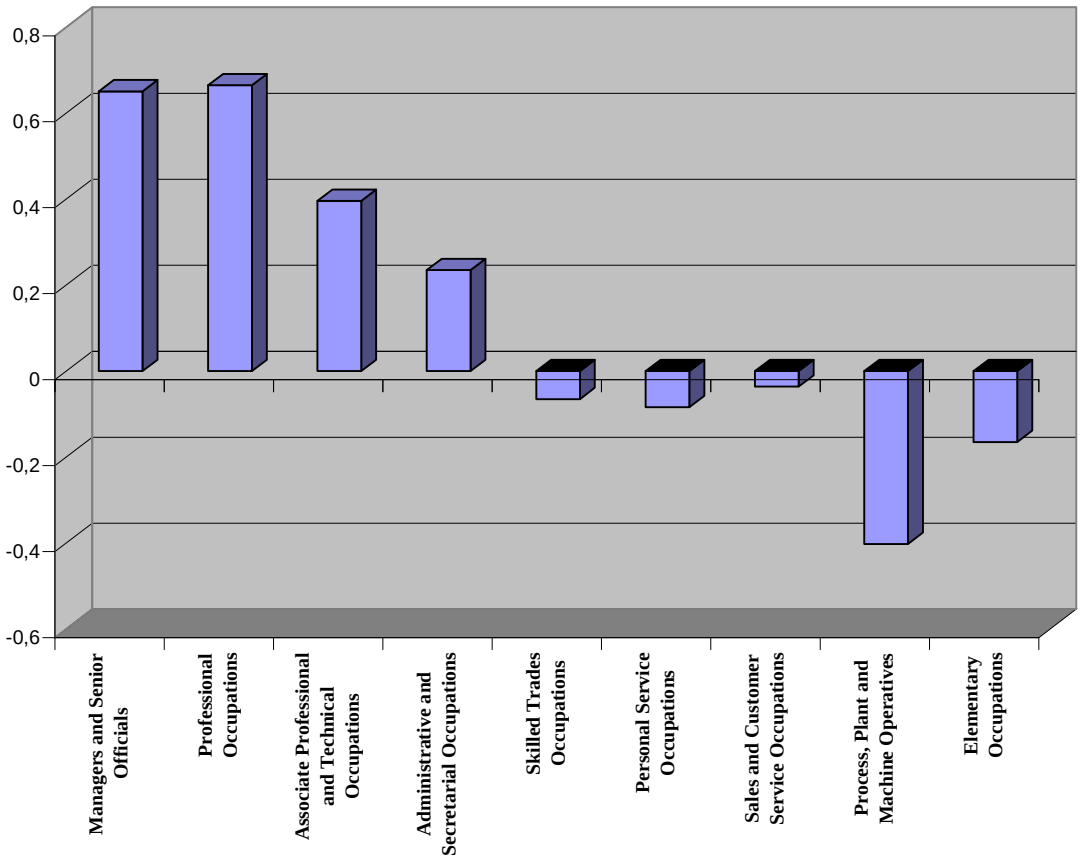
Table 5. Index of task discretion by personal and firm characteristics

	Mean	Std. Deviation
Gender		
Male	0,074	1,001
Female	-0,117	0,987
Age groups		
15–29	-0,131	0,970
30–44	0,016	0,993
45–64	0,101	1,029
Qualification held		
Compulsory school	-0,238	1,093
Professional qualification	-0,030	0,992
High school leaving certificate	0,131	0,929
Degree + post-degree	0,321	0,758
Establishment dimension		
1 – 3	0,170	0,913
4 – 9	0,154	0,917
10 – 15	-0,040	0,943
16 – 49	-0,083	1,121
50 – 99	-0,117	0,965
100 – 499	-0,157	1,057
500 – w	-0,205	1,030
Occupation		
Managers and Senior Officials	0,651	0,704
Professional Occupations	0,665	0,883
Associate Professional and Technical Occupations	0,396	0,845
Administrative and Secretarial Occupations	0,235	0,875
Skilled Trades Occupations	-0,065	1,013
Personal Service Occupations	-0,084	0,908
Sales and Customer Service Occupations	-0,036	0,904
Process, Plant and Machine Operatives	-0,402	1,101
Elementary Occupations	-0,165	0,981
Economic sector		
Manufacturing: traditional	-0,176	1,038
Manufacturing: scale intensive	-0,227	1,026
Manufacturing: science based	-0,201	0,987
Services: wholesale, retail, hotels	0,124	0,990
Services: Transport, storage	0,053	1,000
Services: Communication, ICT	0,314	0,881
Services: Financial and monetary intermediation	0,221	0,902
Services: Real estate, renting, research	0,168	0,890

do tasks (53.7 per cent) than professional occupations (41.7 per cent). If we look at the question on 'personal influence' instead, professionals report more personal influence in comparison with associate professionals. Moreover, personal service occupations report a personal influence on 'what to do' (45.4 per cent) and 'how to

do' (48 per cent) quite similar to associate professionals and administrative occupations. If we look at the question across occupational roles vertically, generally employees felt more influence on how to do the job with respect to 'what to do' or 'time and effort'. For example, approximately 70 per cent of managers report having a great deal of influence on how to do the task, 69 per cent on 'what to do' and 53 per cent on 'time and effort'.

Graph 3. Task discretion by occupation

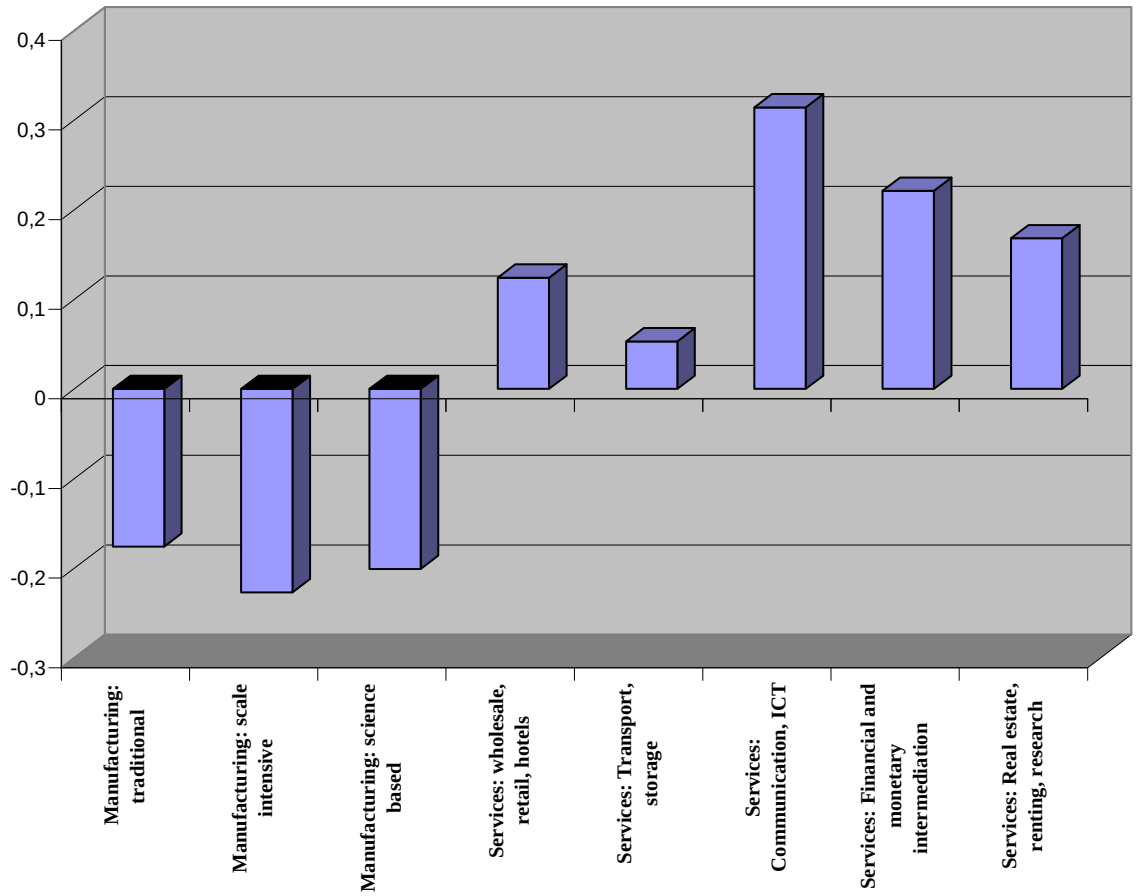


Graph 4 illustrates the relationship between job autonomy and economic sector. As can be seen from the graph there is a positive correlation between services and job autonomy. The sectors where employees enjoy more job autonomy are: 'communication/ICT' and 'financial and monetary intermediation'. Conversely, the economic sectors where employees enjoy less job autonomy are manufacturing sectors, particularly in the scale intensive sector. If we look at the question on job

autonomy separately,[15] we can see that approximately 40 per cent of employees in the 'wholesale, retail, hotels' sector and 36 per cent who work in the 'communication and ICT' sector report a 'great deal of choice' in doing their job, against approximately 20 per cent of the traditional and scale intensive manufacturing sectors.

In the case of economic sectors, personal influence on work performance was also felt to be higher with respect to how to do tasks. For example, approximately 55 per cent of workers in the 'Communication and ICT' sector report having a great deal of influence on how to do their tasks, 45 per cent on which tasks to do and 46 per cent on work effort; in the 'traditional manufacturing' sector they report approximately 37 per cent on how to do tasks, 29 per cent on which tasks to do and 31 per cent on work effort.

Graph 4. Task discretion by economic sector



[15] See Table A2 – Annexe 2 – Tables and Graphs

5.4 *The skills demand: a synthesis*

It is evident from the data displayed above that there exists a positive correlation among broad skills, generic skills and task discretion, and between these skills dimensions and skilled occupations and advanced economic sectors. For the most skilled occupations, for example managers, professionals and technicians, a higher level of broad skills and generic skills is required, accompanied by greater task discretion. This pattern is similar for occupation groups where we find the new professions. At the other end we find the low skilled roles, accompanied by low discretion, such as assembly-line workers in the traditional manufacturing sector, and elementary workers which include 'service workers' like cleaners, laundry workers, waiters, barmen, doorkeepers.

However, it is interesting to note that service workers show higher task discretion compared to assembly-line workers. In the intermediate position we find all the other occupations: administrative workers like secretaries, bank clerks, receptionists and the personal service workers, a typical new figure in the service industry. The latter shows indices of broad skills and generic skills higher than the average, and an index of task discretion similar to industrial workers. Using this data it is possible to outline the professional profiles required by occupational groups, on the basis of the most relevant aspects of broad skills, generic skills and task discretion:

- *Managers and Senior Officials*: they have high indices of skills. The typical requirements are a degree and a learning time longer than two years. The generic skills most required, in order of importance, are: 'instructing, training and teaching people', 'literacy', 'planning and work organisation' and 'customer communication'. They have a great deal of influence on what tasks to do and how to do them.

- *Professionals*: they also have high indices of skills. The requirements are: high school certificate and a degree, a prior training time for the type of job and at least one year spent on learning. The most required skills are: 'literacy', 'problem solving' and 'work organisation and planning'. They also have a great deal of influence on their tasks.

- *Associate Professional and Technical Occupations*: they also have quite high indices of skills. Requirements are high school certificate, less than one month

of training time and at least one year of learning time. The most required skills are: ‘literacy’, ‘problem solving’ and ‘planning and work organisation’. They have a great deal of influence on what tasks to do and how to do them.

- *Administrative and Secretarial Occupations*: high school certificate is required, and from one to twelve months of learning time. The most required skills are: ‘literacy’, ‘numeracy’ and ‘dexterity’. They have a great deal of influence on what tasks to do and how to do them.

- *Skilled Trades Occupations*: requirements are vocational training or compulsory school and more than two years of work experience. The most required skill is ‘dexterity’. Quite high is the influence on what tasks to do; on the other hand the influence on work effort is quite low.

- *Personal Service Occupations*: requirements are high school certificate, more then one month of training, from one to twelve months of work experience. The most required skills are: ‘customer communication’ and ‘literacy’. They have a great deal of influence on what tasks to do and how to do them, but the influence on time and work effort is quite low.

- *Sales and Customer Service Occupations*: requirements are either high school certificate or compulsory school, from less than one month to up to six months of learning time. The most required skill is ‘customer communication’. The influence on what tasks to do is low, but it is higher in influencing how to do them.

- *Process, Plant and Machine Operatives*: requirements are compulsory school and less then one month of learning. The most required skills are: ‘literacy’, ‘dexterity’ and ‘planning and work organisation’. The influence on work effort, what tasks to do and how to do them is low.

- *Elementary occupations*: requirements are compulsory school and less then one month of learning time. The most required skills are: ‘literacy’ and ‘problem solving’. The influence on work effort and what tasks to do is very low, but they have a little bit more autonomy on how to do the tasks.

As with occupations, we outline professional profiles required by economic sectors, based on professional dimensions: broad skills, generic skills, and task discretion. We find the highest indices in the most advanced services like 'communication and ICT' and 'financial and monetary intermediation'. At the other end we find the manufacturing sectors with the lowest indices. It is interesting to note that the 'real estate, renting, research' sector, which includes real estate consulting, market research agencies, recruitment agencies and advertising agencies, shows quite low indices. We can observe the same trend for the science based manufacturing sector, which includes manufacturing of telecommunication equipment, electronic equipment, aircraft and ships.

- *Traditional manufacturing*: requirements are compulsory school and from less than one to six months of learning time on the job. The most required skills are: 'reliability' and 'dexterity'. The influence on time and work effort and what tasks to do is low; it is higher on how to do the tasks.

- *Scale intensive manufacturing*: requirements are mainly high school certificate or compulsory school, less than one to six months of learning time on the job. The most required skills are, first of all, 'dexterity', and then 'reliability' and 'teamwork'. As in traditional manufacturing, the influence on work effort and what tasks to do is low; it is higher on how to do the tasks.

- *Science based manufacturing*: requirements are high school certificate and vocational training, from less than one to six months of learning time on the job. The most required skills are: 'dexterity' and 'teamwork'. Also in this case, the required task discretion is not very different from other manufacturing sectors.

- *Wholesale, retail, hotels*: requirements are high school certificate and from one to six months of learning time on the job. The most required skills are, first of all, 'customer communication', then 'instructing, training and teaching' people and 'planning and work organisation'. Task discretion on work performance (work effort, what tasks to do, how to do them) is high.

- *Transport and storage*: requirements are high school certificate and vocational training and from one to six months of learning time on the job.

'Literacy' is the only relevant skill. Task discretion on work effort and how to do the tasks is high.

- *Communication and ICT*: requirements are high school certificate (with a high percentage of response), some training and from one to six months of learning time. The skills required: 'literacy', 'planning and work organisation', 'problem solving' and 'customer communication'. Task discretion on work performance is high.

- *Financial and monetary intermediation*: requirements are high school (with a high percentage of responses), some training, from one to six months of learning time. We find also a high percentage of workers who say more than two years of learning time on the job is necessary. The relevant skills with a positive score are: 'customer communication', 'literacy', numeracy' and 'problem solving'**.**

- *Real estate, renting, research*: requirements are high school certificate and less than one month of learning time. The relevant skills are: 'literacy' and 'numeracy'. There is high task discretion on work effort, what tasks to do and how to do them.

It is clear that vocational training and the length of prior training for the type of job play a limited role in the occupations and economic sectors compared to the generic skills - 'workers autonomy', 'reliability' and 'dexterity'. By contrast, 'literacy' and 'problem solving' play an important role.

6. A virtuous cycle between skills and organisational commitment?

6.1 *Organisational commitment*

Organisational commitment, as we have already underlined, is a multi-faceted concept: hard work, involvement with organisational activities, and implicit and explicit identification with organisational values. In this case, as Lincoln and Kalleberg (1990) explain, the company's fortune matters to the worker. The committed employee's involvement in the organisation takes on moral overtones, and his/her stake extends beyond the satisfaction of merely personal interests in employment, income, and intrinsically rewarding work. The employee becomes

conscious of the needs of the organisation and sensitive to how his or her actions contribute to the fulfilment of those needs. To identify with the organisation, then, implies that the worker is willing to expend effort for the sake of the company, and the firm's performance is experienced as a personal success or failure as well. Moreover, committed employees are loyal to the organisation, feel personally defensive when it is threatened and desire to maintain the employment relationship even when presented with an attractive alternative.

In the questionnaire there are questions which allow us to analyse organisational commitment on the basis of this affective dimension:

1. I am willing to work harder than I have to in order to help this organisation succeed;
2. I feel very little loyalty to this organisation;
3. I find that my values and the organisation's values are very similar;
4. This organisation really inspires the very best in me in the way of job performance;
5. I am proud to be working for this organisation;
6. I would take almost any job to keep working for this organisation;
7. I would turn down another job with more pay in order to stay with this organisation.

The response scale was on seven levels: completely disagree, strongly disagree, disagree, indifferent, fairly agree, mostly agree, completely agree. The item on loyalty was reversed to give consistency to the direction. **Table 6** gives the percentage distribution of employees who fairly agree, mostly agree and completely agree with the statements. To simplify the presentation we aggregated 'fairly agree' and 'mostly agree' in 'agree', leaving only 'completely agree'.

Looking at the table, it is clear that the majority of employees express quite a positive view of their organisation. Most of the employees 'fairly' agree with the statements which presume employees' organisational commitment.[16] However, it is interesting to underline that the percentage in the last two statements, about internal and external mobility, are much lower in comparison with the others, and only a minority of employees show a strong organisational commitment. The statements

[16] See Graph A3 - Annexe 2 – Tables and Graphs

which show the highest positive score are 'loyalty' (44.2 per cent agree and 29.4 per cent completely agree), followed by 'proud' and 'work hard'; however, employees strongly attached to their organisation are a small percentage. The items with the lowest score are 'to take any job' and 'turn down a job with more pay'. In this case the questions are more demanding. The respondents, in order to prove their sense of attachment to the organisation, have to be willing to turn down a better job or to take any job in the organisation. Approximately 37 per cent of the workers express a willingness to be flexible over the job they do and only 20 per cent would stay with the organisation in the face of better pay. Therefore, in general, Italian workers are not hostile to their organisation, but their sense of attachment is linked to the costs, in terms of quality of job or the loss of higher pay with another employer. These last results are particularly interesting in the light of the current debate concerning flexibility.

Table 6. Organisational commitment (%)

	Agree	Completely agree
I am willing to work harder than I have to in order to help this organisation succeed	55.6	12.1
I feel loyalty to this organisation	44.2	29.4
I find that my values and the organisation's values are very similar	48.8	6.7
This organisation really inspires the very best in me in the way of job performance	52.3	7.0
I am proud to be working for this organisation	59.1	11.7
I would take almost any job to keep working for this organisation	37.2	6.5
I would turn down another job with more pay in order to stay with this organisation	20.1	4.1

To analyse these aspects more deeply, we have built, also in this case, a summary indicator: **Index of Organisational Commitment**. The index has been built using the seven questions above. As for the previous indices, we used the principal component analysis to find the latent dimensions among the variables. The PCA showed here too that the seven questions are part of a single component, with an eigenvalue of 3.41 and variance explained of 50 per cent.[17]

[17] *alpha* di Cronbach 0.80, test di *sampling adeguacy* di Kaiser-Meyer-Ohlin 0.86, test di *sphericity* di Barlett p<.000

Table 7. Index of organisational commitment by personal and firm characteristics

	Mean	Std. Deviation
Gender		
Male	0,039	0,99
Female	-0,062	1,02
Age groups		
15–29	-0,056	0,993
30–44	0,010	1,030
45–64	0,036	0,943
Qualification held		
Compulsory school	-0,116	1,105
Professional qualification	-0,018	0,904
High school leaving certificate	0,079	0,969
Degree + post-degree	0,068	0,892
Establishment dimension		
1 –- 3	0,170	0,965
4 –- 9	0,191	0,937
10 – 15	-0,092	0,964
16 – 49	-0,184	1,035
50 – 99	-0,141	1,008
100 – 499	-0,090	1,099
500 – w	-0,069	0,885
Occupation		
Managers and Senior Officials	0,501	0,821
Professional Occupations	-0,093	1,145
Associate Professional and Technical Occupations	0,089	0,950
Administrative and Secretarial Occupations	0,099	0,948
Skilled Trades Occupations	-0,029	1,029
Personal Service Occupations	-0,192	0,813
Sales and Customer Service Occupations	0,170	1,043
Process, Plant and Machine Operatives	-0,217	1,051
Elementary Occupations	-0,113	0,948
Economic sector		
Manufacturing: traditional	-0,159	1,002
Manufacturing: scale intensive	-0,108	0,961
Manufacturing: science based	-0,097	1,057
Services: wholesale, retail, hotels	0,224	0,966
Services: Transport, storage	0,061	0,908
Services: Communication, ICT	-0,147	1,076
Services: Financial and monetary intermediation	0,101	0,860
Services: Real estate, renting, research	-0,019	1,043

Table 7 gives the distribution of component scores of the index of organisational commitment by personal and firm characteristics. Regarding personal characteristics, as we have seen before for the skills dimensions, men are more attached to an organisation than women, and employees aged 45–64 are more attached to an organisation compared to younger colleagues. Finally, there is a linear relationship between organisational commitment and qualification held. Employees

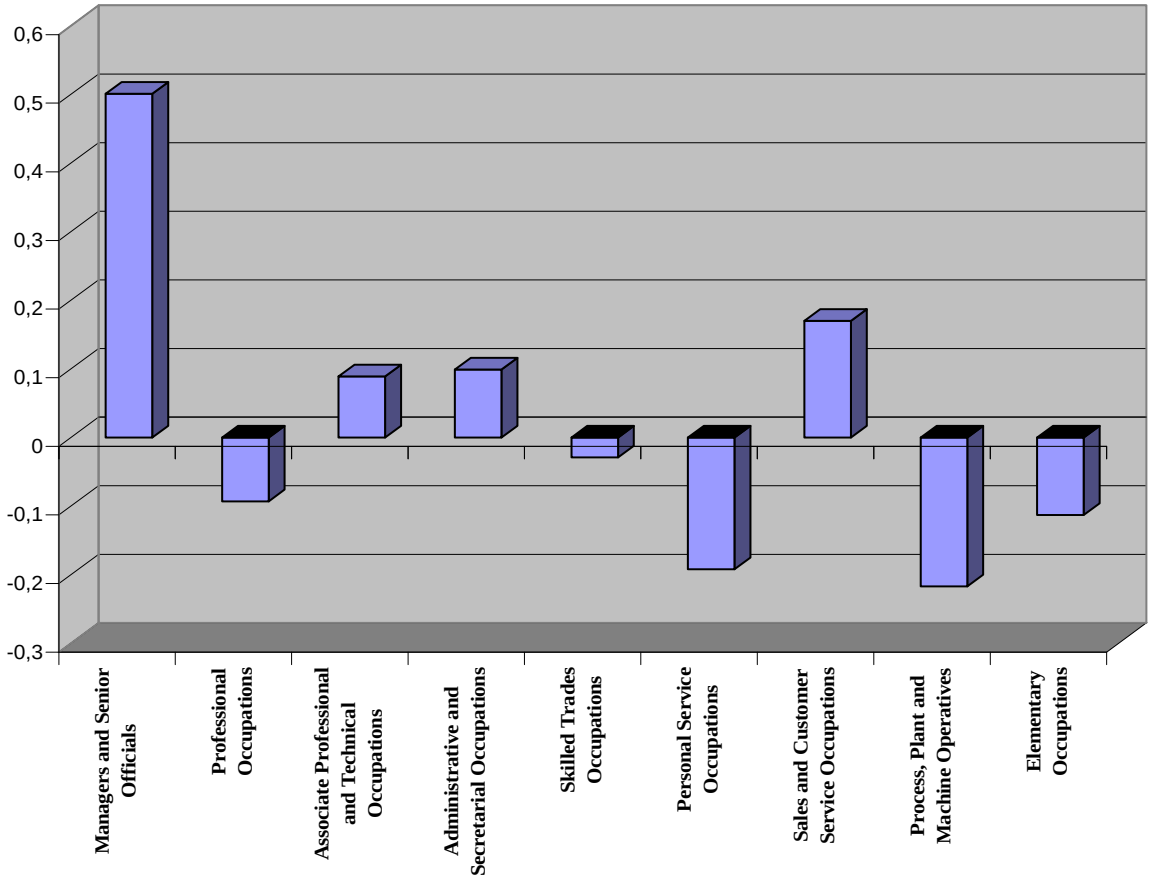
with higher qualifications usually show more attachment to their organisation. It comes as no surprise that the middle-aged male with high education shows more attachment to his organisation than other employees or women. It depends on the jobs they hold: they usually hold more complex jobs and enjoy more job autonomy by comparison to women and younger colleagues.

In **Graphs 5** and **6** we give the distribution of organisational commitment by occupation and economic sectors. In general we could say that, if we look at **Graph 5**, there is an imperfect correlation between organisational commitment and occupation hierarchy, unlike that observed for broad skills, competences and discretion. In fact, although managers show the highest organisational commitment and assembly-line workers and manual workers the lowest, it is interesting to note that professionals and personal service occupations show organisational commitment far below the average. We can, in part, explain these results by looking at the composition of occupational groups. The professionals group is mainly composed of engineers, doctors, lawyers, architects and programmers. All these professions come from a long tradition of freelance work; even though our sample includes only employees, we can safely assume that most of these employees have a second job as a freelance. The doctors are a typical example: most of them work for the public health service but at the same time they have a doctor's surgery. Similarly, most engineers, lawyers and architects have a teaching job and at the same time a private practice, or they work as trainees in private practice, hoping to set up their own practice in the future. These work conditions induce them to be more attached to their job then the organisation they work for.

The other unexpected result is the organisational commitment, far below the average, of personal service occupations. As for professionals, if we look at group composition we might better understand why they have an organisational commitment below average. The personal service group covers occupations whose tasks involve the provision of a service to customers. The main tasks associated with these occupations involve the care of the sick and elderly, the supervision of children, the care of animals, and the provision of travel, personal care and hygiene services. Most of the occupations in this group require a good standard of general education and vocational training. To ensure high levels of integrity, some occupations require professional qualifications or registration with a professional body. Gallie et al. (1998) found in their research that the highest level of job involvement was among those

whose work predominantly involved people, meaning that they found their work to be interesting and all-absorbing. In general, it might be expected that jobs involving higher levels of skills and responsibility, like most of the personal service occupations, would be associated with a higher degree of job involvement. The low score in organisational commitment could underline a lack of opportunity for these employees to use their ability, and with their ability to use their own initiative. But we verify this hypothesis in the next section when we will compare skills dimensions with organisational commitment.

Graph 5. Organisational commitment by occupation

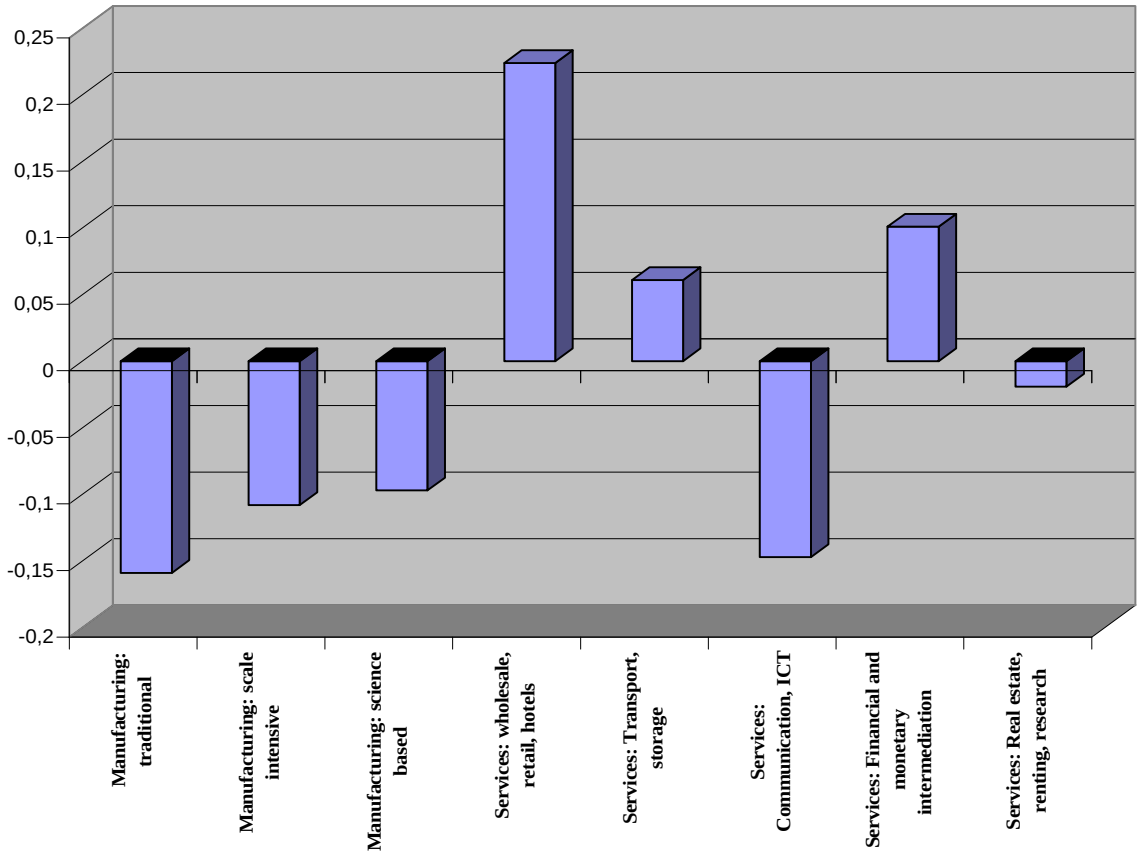


An analysis of the seven questions separately confirms our hypothesis.[18] If we look at the questions about 'work hard', 'loyalty', 'proud', 'values' and 'friendly organisation', professionals show less attachment to an organisation in comparison with other skilled roles, for example managers or technicians. Personal service occupations, like professionals, show lower scores in all questions compared to other

[18] See Annexe 2 Table A3

occupational roles. Particularly, both occupational roles show the lowest score in the last two questions. If we analyse organisational commitment by economic sectors (**Graph 6**), as we expected manufacturing sectors show a very low score. Less expected are the scores, far above average, of the 'wholesale, retail, hotels' sector, and the negative score, far below average, of the 'Communication/ICT' sector. As before, we can try to explain these results by looking at the sector composition.

Graph 6. Organisational commitment by economic sector



The 'wholesale, retail, hotels' sector shows a relatively high share of small firms compared to the other service sectors; more then 70 per cent of firms are under 15 employees. As we have seen before (see **Table 7**), employees who work in small firms show more attachment to their organisation than employees in large firms. In fact, if we look at the question 'to accept any job in order to keep working in the organisation', the employees in this sector show a higher percentage (44.4 per cent), than the managers (44.8 per cent).[19]

[19] See Annexe 2 Table A4

6.2 *Skills, task discretion and organisational commitment*

Finally, we have to answer the question about the relationship between the level of skills: broad skills, generic skills and task discretion) and organisational commitment. New technological and organisational systems, high quality production processes and products, quality of work and commitment are parts of a virtuous cycle which favours the development of the economy and enterprise. We can have a high level of commitment to work without having the same level of commitment to the organisation, or vice versa. In fact, we should be aware that commitment and work identity could be the result of other factors such as job security and a friendly work environment, rather then broad skills, generic skills or task discretion. However, this does not mean that we cannot have a positive correlation between the individual dimension of commitment and organisational commitment.

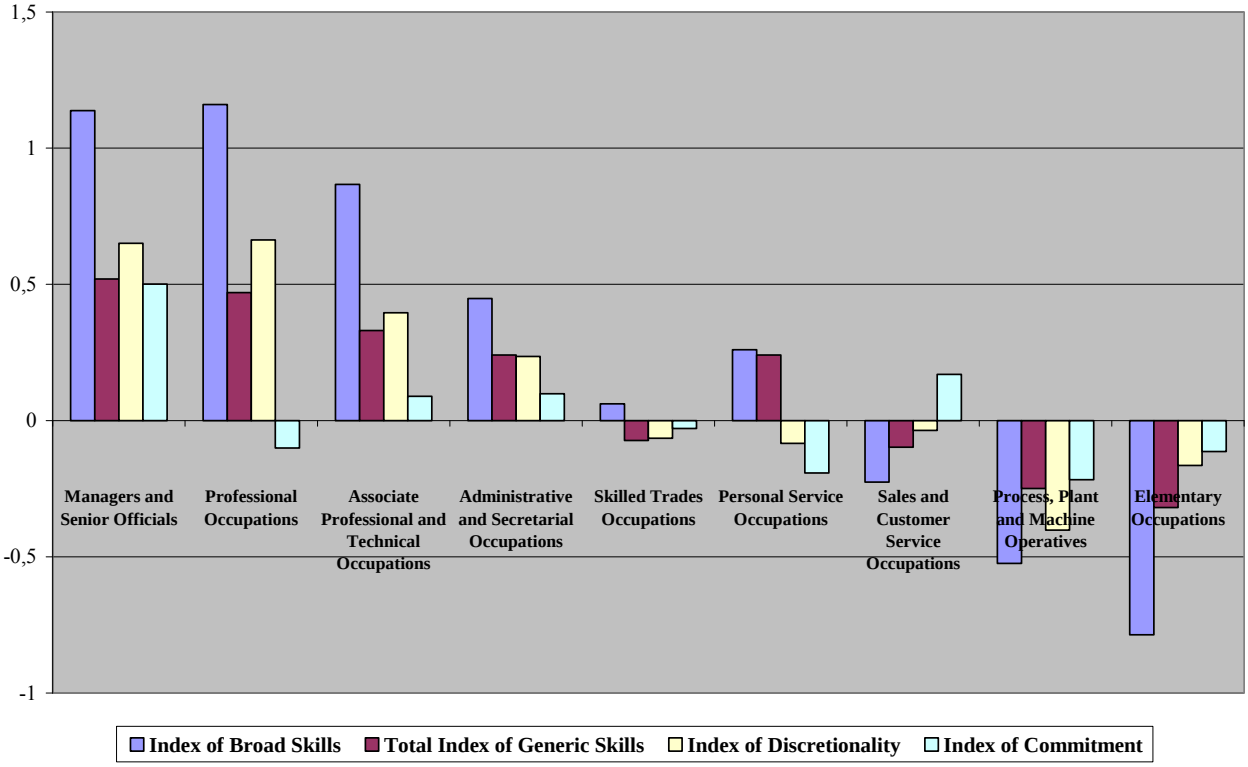
To answer this question, we compare the indices of skills dimensions, analysed above, and organisational commitment by personal and firm characteristics (**Table 8**). As we expected, there exists a correlation between skills, task discretion and organisational commitment. Male employees aged 30–44 with higher qualifications, holding more skilled jobs and enjoying more discretion, show an organisational commitment above average.

Graph 7 shows a positive correlation between occupational hierarchy, skills, task discretion and commitment. For example, managers have all positive indices, whilst elementary workers and assembly-line workers have negative indices. However, it is interesting to note that professionals show positive indices, above average, regarding the three professional dimensions (broad skills, generic skills and task discretion), even higher than managers and below average for commitment. In fact, most of the occupations in the professionals group require a high level of knowledge and experience, justifying the high scores on skills dimensions. Nevertheless, as we have seen before, they show an organisational commitment far below the average. This result confirms, first of all, the hypothesis expressed in the previous paragraph, that professionals are more job-committed than organisation-committed; and following on from that, the correlation between job and organisational commitment does not always exist (as classical sociology on work and organisation has always maintained), underlining the latent or explicit conflict between professionals and organisational structures.

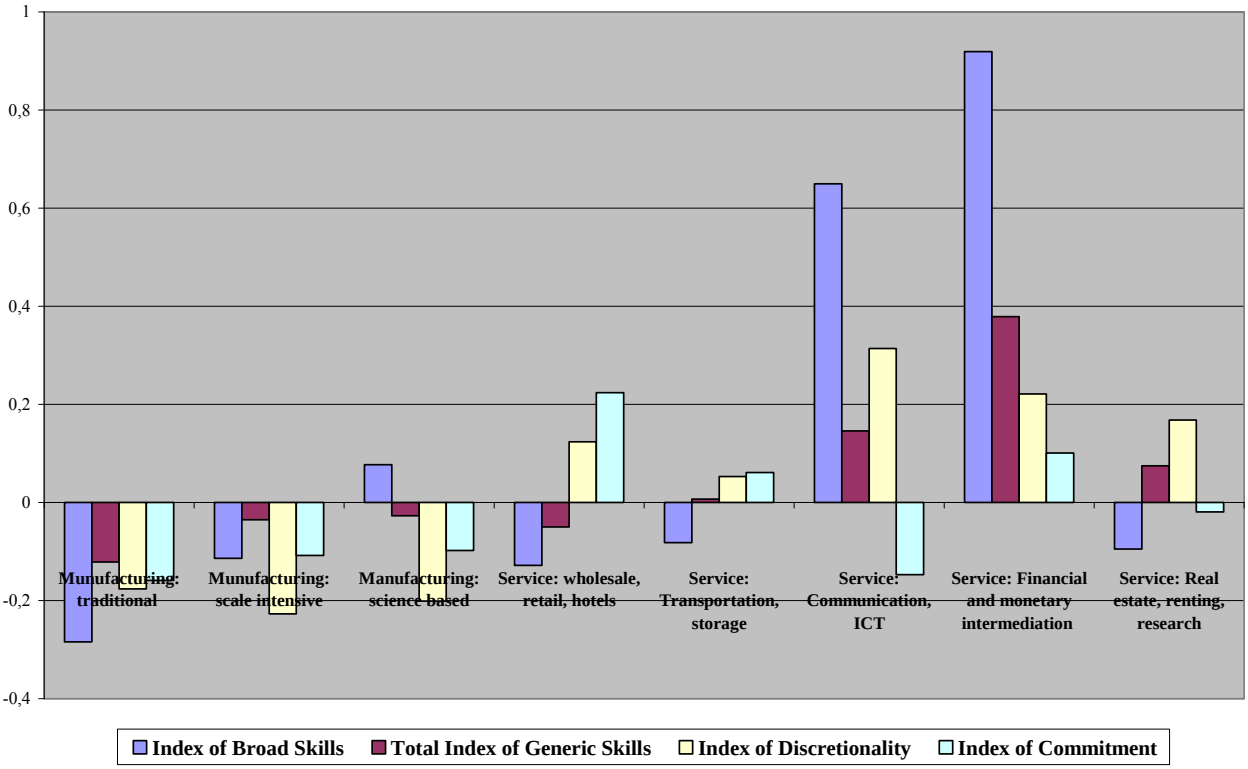
Table 8. Skills, task discretion and organisational commitment

	Index of Broad Skills	Total Index of Generic Skills	Index of Task Discretion	Index of Commitment
Gender				
Male	0,099	0,028	0,074	0,039
Female	-0,158	-0,044	-0,117	-0,062
Age				
15–29	-0,164	-0,074	-0,131	-0,056
30–44	0,077	0,038	0,016	0,010
45–64	0,014	0,000	0,101	0,036
Qualification held				
Compulsory School	-0,632	-0,252	-0,238	-0,116
Vocational Training	-0,067	-0,071	-0,030	-0,018
High School Certificate	0,348	0,153	0,131	0,079
Degree + post degree	0,811	0,354	0,320	0,067
Establishment dimension				
1 – 3	-0,174		0,170	0,170
4 – 9	0,043		0,154	0,191
10 – 15	-0,002		-0,040	-0,092
16 – 49	-0,092		-0,083	-0,184
50 – 99	-0,062		-0,117	-0,141
100 – 499	0,161		-0,157	-0,090
500 – w	0,431		-0,205	-0,069
Occupations				
Managers and Senior Officials	1,138	0,520	0,651	0,501
Professional Occupations	1,160	0,470	0,663	-0,101
Associate Professional and Technical Occupations	0,867	0,330	0,396	0,089
Administrative and Secretarial Occupations	0,448	0,241	0,235	0,099
Skilled Trades Occupations	0,061	-0,073	-0,065	-0,029
Personal Service Occupations	0,260	0,241	-0,084	-0,192
Sales and Customer Service Occupations	-0,226	-0,098	-0,036	0,170
Process, Plant and Machine Operatives	-0,524	-0,249	-0,402	-0,217
Elementary Occupations	-0,786	-0,319	-0,165	-0,113
Economic sector				
Manufacturing: traditional	-0,284	-0,121	-0,176	-0,159
Manufacturing: scale intensive	-0,114	-0,035	-0,227	-0,108
Manufacturing: science based	0,077	-0,027	-0,201	-0,098
Services: wholesale, retail, hotels	-0,128	-0,050	0,124	0,224
Services: Transport, storage	-0,082	0,007	0,053	0,061
Services: Communication, ICT	0,650	0,146	0,314	-0,147
Services: Financial and monetary intermediation	0,919	0,379	0,221	0,101
Services: Real estate, renting, research	-0,095	0,075	0,168	-0,019

Graph 7. Skills and commitment by occupations



Graph 8. Skills and commitment by economic sectors



Analysing the indices of semi-professionals (personal services occupations), they have positive indices of broad skills and generic skills and negative indices of discretion and organisational commitment. Personal services employees, as we have already underlined, are highly involved in their work and enjoy more complex work and exercise responsibility. But as we can see from the graph, Italian employees in this role show a low control over their work. Thus, the combination of high job involvement and low task discretion, we believe, could explain the very low organisational commitment of personal services employees, confirming our previous hypothesis.

Graph 8 shows skills and organisational commitment by economic sector. As we expected, manufacturing industries show a 'Fordist' situation: a low level of broad skills and generic skills corresponds to a low level of task discretion and organisational commitment. The science based manufacturing industry represents a slight exception; the index of broad skills is a little above the average.

Service sectors present a more heterogeneous situation. The 'financial and monetary intermediation' sector shows a virtuous cycle between professional qualification and organisational commitment. As we expected in a 'post-Fordist' industry, a high level of skills and discretion corresponds to high organisational commitment. However, 'wholesale, retail, hotels' and 'real estate, renting, research' present a more intricate situation. The former sector shows a low degree of skills and a high degree of discretion and organisational commitment, underlining a situation where experience on the job is more important (see **Graph A2 – Annexe 2**) than qualification. The real estate sector shows broad skills and organisational commitment below average, with generic skills and discretion above average. Also in this case, experience seems to be important (see **Graph A2 – Annexe 2**) for the job, but in contrast to the previous sector, the competences involved in daily work are more complex. This could raise the expectations of employees and explain their negative organisational commitment. Finally, we have the 'Communication/ICT' sector. It presents all indices above the average, except for the organisational commitment index which is far below average. It means that employees with high qualifications who enjoy some job autonomy show a low degree of attachment to the organisation, in contrast with the theory of a virtuous cycle between professional qualification, task discretion and organisational commitment. We could explain this result on the basis of the new trends in the labour market. 'Communication/ICT' is the sector where it is

more diffuse: the atypical work (Passarelli, 2004)[20] on one side; and on the other, high levels of education held by the employee, and the complex competences involved in their daily work (see **Graph A2 – Annexe 2**) which raise work expectations. So, a mix of precarious work, high professional qualification and high work expectations could explain the very low organisational commitment in this sector.

Therefore, the hypothesis that higher commitment and fidelity to the organisation is linked to the development of skills has not been confirmed in either of the cases we analysed, particularly for professional occupations and advanced economic sectors. Other factors, often present in personnel policy, contribute to the higher involvement of employees, and this is particularly so for skilled workers who are of paramount importance to enterprise performance.

Conclusion

The main objectives of this paper were to analyse the distribution of skills between occupations and economic sectors and the relationship between skills development and organisational commitment. Unfortunately, the survey allows us an examination of these aspects in Italy at only one point in time, because we have no comparable data for previous years. According to several measures of job requirement (broad skills) – qualifications, on-the-job training time and learning time – women, on average, hold less skilled jobs than men. Moreover, it comes as no surprise that there is a positive correlation between job requirements and skilled occupational roles or advanced sectors. Managerial and professional jobs, in general, require a higher qualification and longer training or learning time. 'Financial and monetary intermediation' and 'Communication/ICT' are the economic sectors with the highest job requirements.

Women and men differ greatly in terms of the skills used in their job (generic skills). Women deploy above average customer communication and 'numeracy', while men do better at all the others: generic skills (literacy, reliability, problem solving, instructing, training and teaching people, planning and work organisation, teamwork, dexterity and job autonomy). We believe that this difference is due to the different jobs held by women and men: usually men hold more complex jobs than

[20] Atypical work refers to employment relationships not conforming to the standard or 'typical' model of full-time, regular, open-ended employment with a single employer over a long time span.

women. There is a positive correlation between skilled occupational roles and generic skills. Managers and professionals deploy all generic skills above the average, except for dexterity. Looking at the less skilled roles, all generic skills are below the average, except for some job related skills. For example, manual workers and assembly-line workers deploy above the average dexterity, 'personal services' and 'sales and customers services' workers deploy above the average customer communication, while administrative and secretarial workers deploy far above the average literacy and numeracy. Regarding the economic sectors, 'financial and monetary intermediation' and 'communication/ICT' show all scores above the average, except for dexterity. Manufacturing sectors, on the contrary, show all scores below the average, except for dexterity, teamwork and reliability.

Men and women differ markedly in their degree of job autonomy, and men usually enjoy more autonomy than women. Moreover, there is a positive correlation between task discretion and qualifications, so employees who hold higher qualifications enjoy more control over the job. As we expected, the degree of autonomy is positively correlated to higher occupational roles and advanced services sectors. Managers and professionals, generally, show a degree of autonomy far above average, as well as employees in the 'communication/ICT', 'financial and monetary intermediation' and 'real estate, renting, research' sectors.

Finally, there is an imperfect correlation between skills development and organisational commitment. Therefore, the hypothesis of a virtuous cycle between new technological and organisational systems, high quality productive process and products, and development of skills and organisational commitment, is not confirmed in our analysis. Particularly, this cycle is not confirmed for professionals and personal services workers and advanced sectors. Professionals show high levels of skills and autonomy; nevertheless their organisational commitment is below the average. According to our hypothesis they are more attached to their jobs than to their organisations, confirming that job commitment does not always mean organisational commitment. Personal services occupations show broad skills and generic skills far above average and task discretion and organisational commitment below average. Those are jobs with a high level of involvement. In general, we would have expected a positive correlation between high skills, job autonomy and job involvement. The low level of organisational commitment of the personal services employees could be explained by a lack of opportunity for them to use their ability, and with their ability a

certain degree of control on the job, as underlined by the low level of task discretion. Our analysis shows that there is an imperfect correlation between professional qualification and organisational commitment. In this case, it could be dependent on other factors such as job security, lifelong employment, or a friendly work environment.

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Annexe 1 – Standard Occupations Classification – 1 digit

1. *Managers and Senior officials* – This major group covers occupations whose main tasks consist of the direction and coordination of the functioning of organisations and businesses, including internal departments and sections, often with the help of subordinate managers and supervisors. Working proprietors in small businesses are included, although allocated to separate minor groups within the major group. Most occupations in this major group will require a significant amount of knowledge and experience of the production processes, administrative procedures or service requirements associated with the efficient functioning of organisations and businesses.

2. *Professionals* – This major group covers occupations whose main tasks require a high level of knowledge and experience in the natural sciences, engineering, life sciences, social sciences, humanities and related fields. The main tasks consist of the practical application of an extensive body of theoretical knowledge, increasing the stock of knowledge by means of research and communicating such knowledge by teaching methods and other means. Most occupations in this major group will require a degree or equivalent qualification, with some occupations requiring postgraduate qualifications and/or a formal period of experience-related training.

3. *Associate Professional and Technical Occupations* – This major group covers occupations whose main tasks require experience and knowledge of principles and practices necessary to assume operational responsibility and to give technical support to Professionals in the natural sciences, engineering, life sciences, social sciences, humanities and related fields and to Managers and Senior Officials. The main tasks involve the operation and maintenance of complex equipment; legal, financial and design services; the provision of information technology services; providing skilled support to health and social care professionals; and serving in protective service occupations. Culture, media and sports occupations are also included in this major group. Most occupations in this major group will have an associated high-level vocational qualification, often involving a substantial period of full-time training or further study. Some additional task-related training is usually provided through a formal period of induction.

4. *Administrative and Secretarial Occupations* – Occupations within this major group undertake general administrative, clerical and secretarial work, and perform a variety of specialist client-orientated clerical duties. The main tasks involve retrieving, updating, classifying and distributing documents, correspondence and other records held electronically and in storage files; typing, word-processing and otherwise preparing documents; operating other office and business machinery; receiving and directing telephone calls to an organisation; and routing information through

organisations. Most occupations in this major group will require a good standard of general education. Certain occupations will require further additional vocational training or professional occupations to a well-defined standard.

5. *Skilled Trades Occupations* – This major group covers occupations whose tasks involve the performance of complex physical duties that normally require a degree of initiative, manual dexterity and other practical skills. The main tasks of these occupations require experience with, and understanding of, the work situation, the materials worked with and the requirements of the structures, machinery and other items produced. Most occupations in this major group have a level of skill commensurate with a substantial period of training, often provided by means of work-based training programme.

6. *Personal Service Occupations* – This major group covers occupations whose tasks involve the provision of a service to customers, whether in a public protective or personal care capacity. The main tasks associated with these occupations involve the care of the sick and the elderly; the supervision of children; the care of animals; and the provision of travel, personal care and hygiene services. Most occupations in this major group require a good standard of general education and vocational training. To ensure high levels of integrity, some occupations require professional qualifications or registration with professional bodies.

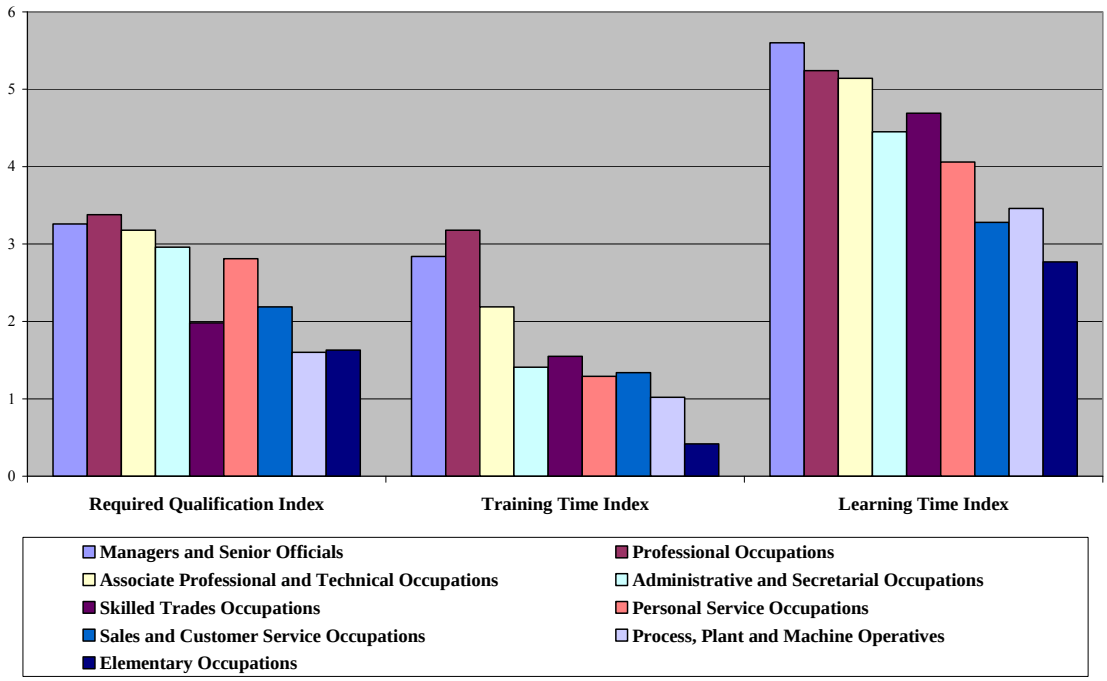
7. *Sales and Customer Service Occupations* – This major group covers occupations whose tasks require the knowledge and experience necessary to sell goods and services, accept payment in respect of sales, replenish stocks of goods in stores, provide information to potential clients and additional services to customers after the point of sale. The main tasks involve knowledge of sales techniques, a degree of knowledge regarding the product or service being sold, familiarity with cash and credit handling procedures and a certain amount of record keeping associated with those tasks. Most occupations in this major group require a general education and skills in interpersonal communication. Some occupations will require a degree of specific knowledge regarding the product or service being sold, but are included in this major group because the primary task involves selling.

8. *Process, Plant and Machine Operatives* – This major group covers occupations whose main tasks require the knowledge and experience necessary to operate and monitor industrial plant and equipment; to assemble products from component parts according to strict rules and procedures and to subject assembled parts to routine tests; and to drive and assist in the operation of various transport vehicles and other mobile machinery. Most occupations in this major group do not specify that a particular standard of education should have been achieved but will usually have an associated period of formal experience related training. Some occupations require licences issued by statutory or professional bodies.

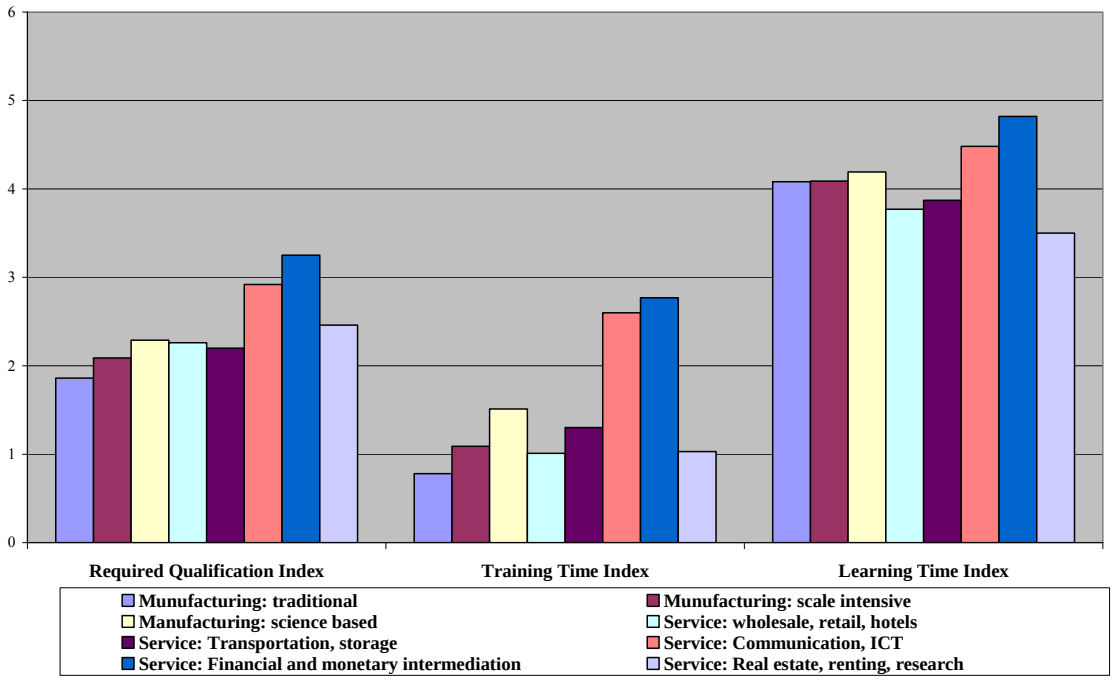
9. *Elementary occupations* **–** This major group covers occupations which require the knowledge and experience necessary to perform mostly routine tasks, often involving the use of simple hand-held tools and, in some cases, requiring a degree of physical effort. Most occupations in this major group do not require formal educational qualifications but will usually have an associated short period of formal experience-related training.

Annexe 2 – Tables and Graphs

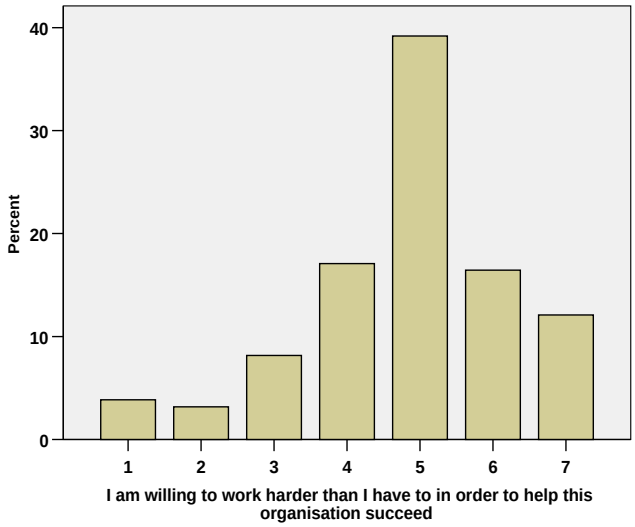
Graph A1. Broad skills by occupations

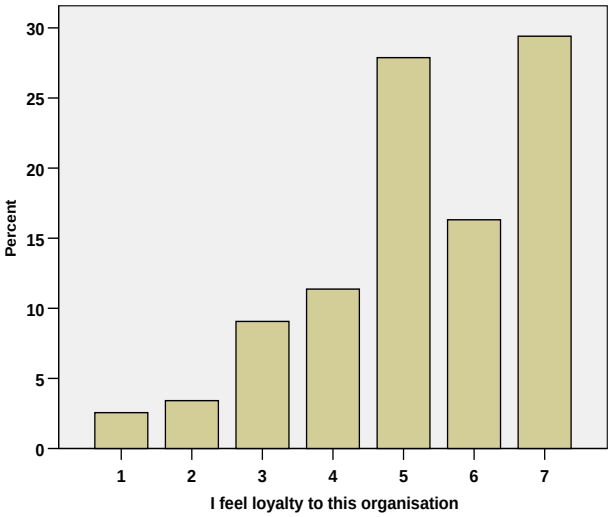


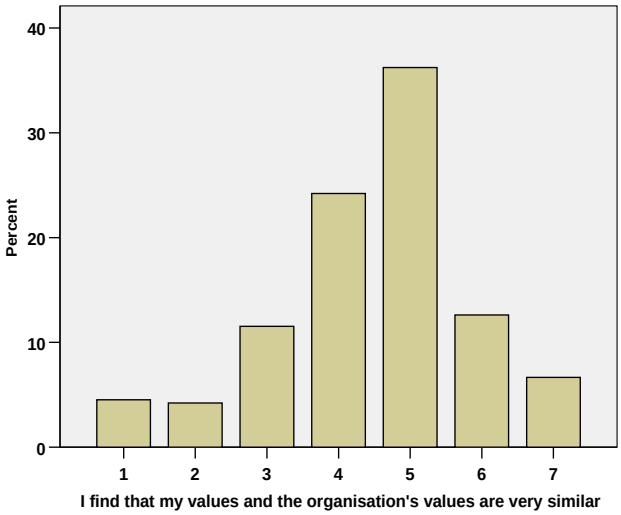
Graph A2. Broad skills by economic sectors

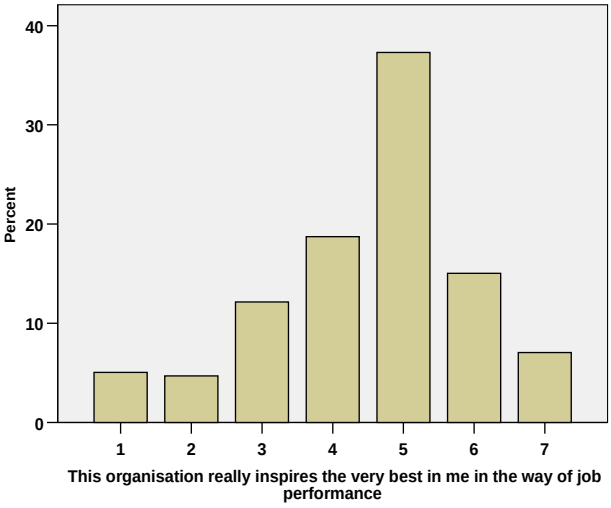


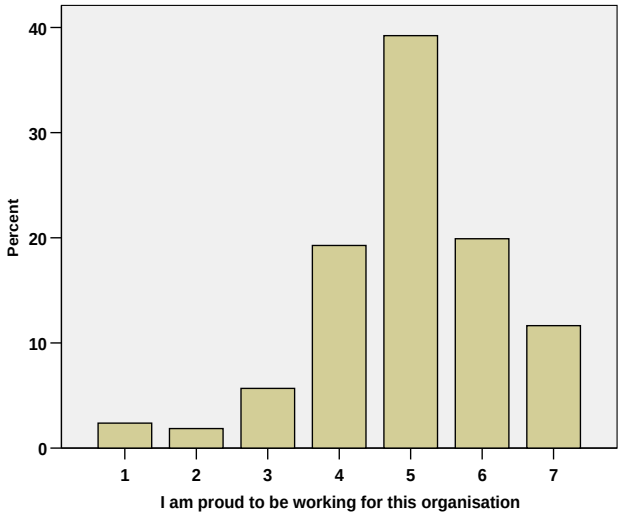
Graph A3. Distribution of the statements on 'organisational commitment'

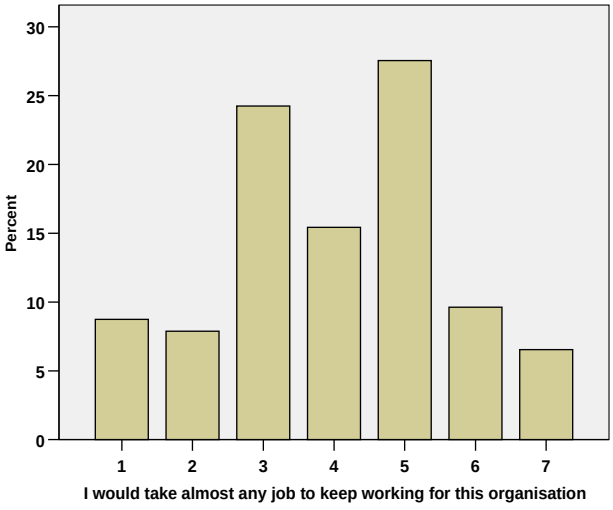


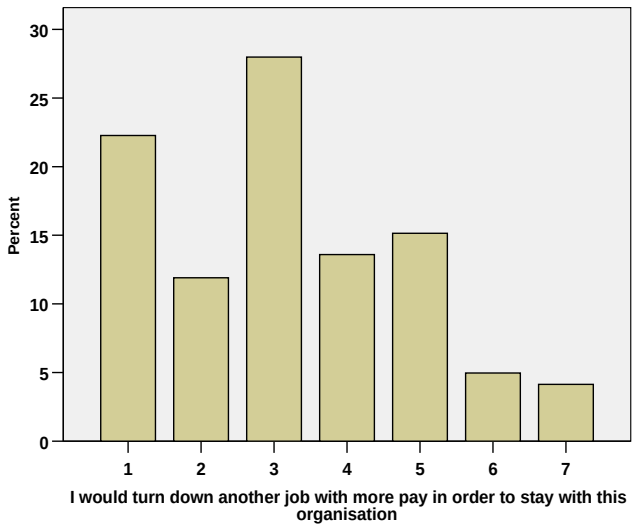












1. Completely disagree 2. Strongly disagree 3. Disagree 4. Indifferent 5. Fairly agree 6. Mostly agree 7. Completely agree

Table A1. Task discretion by occupations (%)

	Managers and Senior Officials	Professional Occupations	Associate Professional and Technical Occupations	Administrative and Secretarial Occupations	Skilled Trades Occupations	Personal Service Occupations	Sales and Customer Service Occupations	Process, Plant and Machine Operatives	Elementary Occupations	All
How much choice do you have over the way in which you do your job?										
Not much	8,6	21,1	10,5	23,3	36,2	27,3	31,2	46,4	34,1	31,2
On the average	30,7	37,3	35,8	44,4	38,2	51,1	38,1	34,5	47,4	40,6
A great deal	60,7	41,7	53,7	32,3	25,6	21,6	30,7	19,1	18,5	28,2
How much influence do you personally have on time and work effort										
Not much	6,9	8,2	15,8	17,8	28,0	36,7	22,2	37,7	30,4	25,2
On the average	39,4	31,3	34,7	44,0	42,9	35,7	47,3	37,1	43,3	42,0
A great deal	53,7	60,5	49,5	38,2	29,1	27,6	30,6	25,2	26,3	32,8
How much influence do you personally have on deciding what tasks you are to do?										
Not much	4,8	7,4	16,1	19,4	28,6	39,3	32,6	46,3	39,4	29,7
On the average	25,8	34,3	32,2	39,1	39,2	15,3	37,2	32,3	32,6	35,7
A great deal	69,4	58,2	51,7	41,5	32,2	45,4	30,1	21,3	28,1	34,6
How much influence do you personally have on deciding how you are to do the task?										
Not much	4,9	7,8	14,3	13,9	25,6	23,1	22,9	37,7	30,8	23,4
On the average	24,2	26,1	28,1	37,1	29,2	28,9	41,8	33,5	36,4	34,5
A great deal	70,9	66,1	57,6	49,0	45,2	48,0	35,3	28,8	32,8	42,1

Table A2. Task discretion by economic sectors (%)

	Manufacturing: traditional	Manufacturing: scale intensive	Manufacturing: science based	Service: wholesale, retail, hotels	Service: Transport, storage	Service: Communication, ICT	Service: Financial and monetary intermediation	Service: Real estate, renting, research	All
How much choice do you have over the way in which you do your job?...									
Not much	35.9	40.7	33.7	27.0	37.0	26.6	21.1	22.6	31.3
On the average	42.6	38.9	39.5	44.1	34.3	36.9	45.6	36.9	40.6
A great deal	21.5	20.4	26.8	28.9	28.8	36.5	33.3	40.6	28.1
How much influence do you personally have on time and work effort									
Not much	29.4	32.7	30.3	22.2	22.9	15.5	18.3	21.2	25.2
On the average	39.4	44.7	39.8	45.5	43.9	38.4	40.7	37.6	42.0
A great deal	31.2	22.7	29.9	32.3	33.2	46.1	40.9	41.2	32.8
How much influence do you personally have on deciding what tasks you are to do?									
Not much	33.7	37.4	34.3	25.9	33.0	22.1	23.3	22.2	29.7
On the average	36.6	35.7	37.8	38.4	32.8	32.4	33.3	31.0	35.7
A great deal	29.7	27.0	28.0	35.7	34.2	45.5	43.3	46.9	34.6
How much influence do you personally have on deciding how you are to do the task?									
Not much	27.7	31.6	29.4	19.9	23.8	12.9	18.1	16.3	23.4
On the average	35.0	31.4	38.9	36.1	33.9	31.6	32.6	33.8	34.5
A great deal	37.3	37.0	31.7	44.1	42.3	55.5	49.3	49.9	42.0

Table A3. Organisational commitment by occupations (%)

	Managers and Senior Officials	Professional Occupations	Associate Professional and Technical Occupations	Administrative and Secretarial Occupations	Skilled Trades Occupations	Personal Service	Sales and Customer	Process, Plant and Machine	Elementary Occupations	All
I am willing to work harder than I have to in order to help this organisation succeed										
Agree	61.3	64.1	56.7	59.1	58.8	48.0	48.6	48.4	53.8	55.2
Completely agree	22.9	15.6	8.8	12.0	7.6	12.3	14.1	6.5	4.5	9.7
I feel loyalty to this organisation										
Agree	41.2	50.2	47.1	44.8	41.5	69.1	44.2	40.6	44.6	43.5
Completely agree	44.5	21.4	27.5	28.8	26.2	19.0	31.0	22.5	21.5	26.6
I find that my values and the organisation's values are very similar										
Agree	61.4	37.3	53.1	49.0	45.9	32.4	46.9	38.7	43.7	45.8
Completely agree	6.0	10.2	3.4	6.3	4.8	0.7	8.0	3.1	1.6	4.8
This organisation really inspires the very best in me in the way of job performance										
Agree	61.2	40.8	60.7	55.4	51.6	39.8	48.0	44.5	48.2	51.1
Completely agree	11.2	7.2	4.2	4.4	6.2	0.7	11.2	3.0	2.6	4.9
I am proud to be working for this organisation										
Agree	67.7	44.6	63.2	62.7	60.8	46.5	58.0	51.0	56.5	58.7
Completely agree	18.9	12.8	10.0	8.8	5.9	4.8	12.7	7.3	7.0	8.5
I would take almost any job to keep working for this organisation										
Agree	34.2	18.9	28.1	35.4	39.1	26.0	45.6	41.2	46.4	39.1
Completely agree	5.6	8.9	7.1	4.5	4.1	2.8	6.1	8.3	7.8	6.0
I would turn down another job with more pay in order to stay with this organisation										
Agree	36.5	21.6	23.9	22.2	18.8	13.8	12.8	14.1	16.5	19.0
Completely agree	2.4	4.6	3.7	3.1	2.9	2.8	6.9	4.8	0.9	3.4

Table A 4. Organisational commitment by economic sectors

	Manufacturing: traditional	Manufacturing: scale intensive	Manufacturing: science based	Services: wholesale, retail, hotels	Services: Transport storage	Services: Communication, ICT	Services: Financial and monetary intermediation	Services: Real estate, renting, research	All
I am willing to work harder than I have to in order to help this organisation succeed									
Agree	57,6	58,0	55,2	53,4	53,0	54,0	53,0	55,6	55,2
Completely agree	6,4	6,7	7,6	13,8	12,5	12,8	7,6	8,4	9,7
I feel loyalty to this organisation									
Agree	44,2	43,4	41,4	42,0	41,5	39,0	54,4	47,1	43,5
Completely agree	17,7	27,3	26,4	32,8	35,2	23,5	25,0	22,0	26,6
I find that my values and the organisation's values are very similar									
Agree	43,9	44,1	42,9	51,8	51,8	30,1	47,2	46,7	45,8
Completely agree	2,2	4,3	4,4	7,5	4,8	6,0	1,0	4,8	4,8
This organisation really inspires the very best in me in the way of job performance									
Agree	48,3	52,2	45,0	55,7	47,5	42,8	54,1	55,9	51,1
Completely agree	2,9	3,6	4,1	7,5	6,6	5,5	3,7	3,5	4,9
I am proud to be working for this organisation									
Agree	59,8	64,0	57,8	60,1	51,4	47,4	65,7	54,8	58,7
Completely agree	4,9	4,9	6,2	11,4	17,7	8,6	10,1	8,0	8,5
I would take almost any job to keep working for this organisation									
Agree	44,8	32,6	32,7	44,4	35,2	35,7	33,3	42,7	39,1
Completely agree	3,5	4,2	4,5	7,3	9,6	9,0	9,2	4,5	6,0
I would turn down another job with more pay in order to stay with this organisation									
Agree	19,0	16,4	17,0	20,8	13,7	15,3	23,2	24,8	19,0
Completely agree	1,9	1,3	3,2	4,8	8,1	4,3	3,2	1,9	3,4