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DO MALE BOSSES UNDERESTIMATE THEIR FEMALE SUBORDINATES' SKILLS?

A COMPARISON OF EMPLOYEES' AND LINE MANAGERS' PERCEPTIONS OF JOB SKILLS

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Abstract

Employees and their line managers may have different perceptions of the skills used in jobs. We carried out a survey aimed at explaining such differences, in respect of verbal, physical, problem-solving and planning skills, the qualifications required to get the job, and indicators of the autonomy involved in the job. First, for most of our skills indices, there is a reasonably good match between the perceptions of the line manager and those of the employee. But in the case of the contested skills associated with autonomy there is little agreement. Second, for most skills, there is a small 'perceptions bias', in the sense that employees rate the skills needed for the job at a slightly higher level, on average, than their line managers. Third, the gender relation of the employee and line manager plays a significant role in determining the skills bias. Consistent with the hypothesis that skills are socially constructed, when the boss is male and the worker female there is a tendency for the boss to underestimate and/or the worker to over-estimate their skill level, by comparison with other gender combinations.

JEL Classification: J5, J7, J24

Keywords: skills, qualifications, workplace autonomy, gender relations.

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1. Introduction

Across the social sciences, skill is a fundamental yet problematic concept. Differences in conceptions of skill have often proved a barrier to progress in understanding its empirical function (Ashton *et al*, 1999). Difficulties of measurement have either proved insurmountable or been ignored. These difficulties arise in part because of the common requirement for a subjective element in the reporting of job skills, which has meant that the perception of skills plays a crucial role in research, a role that mirrors its real function in the labour market. Thus, the social construction of skill has come to be seen as important in the determination of, for example, male/female pay differentials (Cockburn, 1983; Steinberg, 1990). Contested perceptions of skill are indeed an element of the broader, contested, nature of labour markets. Differences between managers and workers in their perceptions of skill have been found in respect, not only of organisational skills (Burchell *et al*, 1994), but also in respect of problem-solving skills (Stasz *et al*, 1996).

Such differences also raise questions about the ideal sources of data about job skills – whether jobholders know best and can be expected to tell all or whether a putatively more objective account is obtainable from managers. Both sources are being called upon with increasing frequency, given the ongoing interest in skills issues. Yet there is little understanding about the extent and origin of differences in perceptions between managers and their workers.

In this paper we present findings from a survey aimed at explaining differences in perceptions. Our intention is, in part, to contribute to understanding appropriate

methodologies for measuring skills. We also aim to examine how far it is possible to account for differences in perceptions in terms of observable variables. In particular, we examine whether the interaction of gender with the manager-employee relationship is a significant factor. Do male managers significantly underestimate their female employees' job skills? Is there a converse process also, with female bosses either downplaying or overstating male employees' skills?

Our method allows us to explore perception differences in respect of a range of skills, both academic and non-academic. The following section briefly elaborates why differences in perceptions of skill may occur. Section 3 describes our sample, the measures of job skills, and the method of analysis. Section 4 presents our findings.

2. Knowledge and Contest in the Formation of Skill Perceptions

The measurement of job skills entails both complexity and sensitivity to context. Even with an ideal understanding of employees' and employers' perceptions of jobs in detailed settings, and with the benefit of expert opinion, there would be difficulties involved in evaluating jobs. There are virtually no objective universal standards against which to measure jobs and, in any case, many jobs comprise changing sets of tasks.[1] Moreover, each job is not only a set of technical functions or tasks. It is also a complex social environment, which conditions the perceptions of the incumbents of jobs and their managers. Sociologists have long recognised

[1] Large organisations such as the Civil Service have job grades for a narrow range of occupations which may aspire to objective determination, though even these restricted standards may be contested.

that there is an intrinsic element of social determination involved in jobs, which carries over to the value of certain inputs being influenced by social, rather than strictly economic, factors.

An obvious instance is gender. If a certain kind of work is undertaken primarily by women it may come to be thought of as *ipso facto* unskilled, simply because certain kinds of women's work has historically been seen in this way, without any cognisance being taken of the actual functions being undertaken in the job. Moreover, gender-based discrimination does not stop with perceptions of "skilled" and "unskilled" – it potentially extends to questions of patriarchal influence over access to and even design of technology (Cockburn, 1983; Wajcman, 1991). Nevertheless, our concern in this paper is not with the wider issues of technology itself; nor is it with the ideological concept of "skilled worker". Rather, our interest lies in the perceptions of job functions (and hence with their associated skills), and whether they are associated with patriarchy. There is, already, suggestive evidence that increasing use of competency-based payment systems carries the danger of reinforcing discriminatory practices. This arises because there are potential gender biases in the various means of assessing competencies (Strebler *et al*, 1997).

An additional complicating factor in the measurement of job skill is that job specifications, where they exist, are often quite imprecise. The set of tasks involved can vary both in practice, from job to job, and in the minds of different observers. This imprecision is not accidental. Job descriptions may be deliberately vague because it is costly to delineate all the tasks involved, and because vagueness gives scope for jobholders or line managers to fashion new tasks that are productive for the organisation.

It is therefore to be expected that workers and their managers can have different perceptions about what their jobs entail. These perceptions could differ systematically in that employees rate the level of job skill consistently higher than their managers, or vice versa. We refer to this as 'perception bias'. They could also differ randomly, in that there could be little connection between what the employee thinks the job entails and what the manager thinks. We refer to this as 'perception mismatch'. We conjecture that both perception bias and perception mismatch are likely to be affected by the extent to which there are differences in detailed knowledge about jobs, and by the extent to which those details are likely to be contested.

Knowledge of what a job entails is likely to improve with longer acquaintance.[2] It is also to be expected that employees who actually do the jobs have better knowledge of the job than their line managers do. However, when articulating and reporting their perceptions, employees may display a social desirability bias in their assertions about the importance of job skills. There is arguably less or no reason to expect a manager to over-state the skill level of workers' jobs. Indeed, a line manager who wants to emphasise the distance between his or her job and that of the employee might even diminish the scope of the employee's job. Hence a perception bias, with employees rating higher job skills than managers, may emerge.

Perceptions bias and perceptions mismatch are also both likely to be greater in cases where it is expected that job skill levels are most contested. Thus, because skill is linked both to control and effort, those skills associated with discretion and the planning of the job itself are

[2] In the manager's case, the value of longer acquaintance is likely to depend also on management style.

especially subject to perception bias and mismatch. More broadly, skill perceptions are likely to be influenced by differing gender-associated norms.

Previous research on differences between employees' and managers' perceptions of skills is scarce, but three extant studies are broadly consistent with the above conjectures. According to the work of Stasz *et al* (1996), many U.S. managers do not necessarily understand the requirements for a number of generic skills in jobs, although they appear to be better informed about academic skills requirements (Stasz, 1997). In Britain, Burchell *et al* (1994) found that managers tended to attribute to jobs substantially lower levels of organisational skills and of discretion than the jobholders did. The discrepancy was larger, the lower the employees' occupational rank. Perceptions of other types of skills were more closely matched. They do not report on whether the differences are affected by gender or race. Unfortunately, the comparisons were made in respect of specific occupations within firms, rather than in respect of particular jobs. Thus at least some of the discrepancy might be arising because within even quite specific occupations there is still a range of jobs of varying types. Moreover, the managers interviewed were not necessarily those closest to the employees' jobs.

In this study, we are able to carry out a more precise comparison of differing perceptions of the skills used in the same specific job. Moreover, in contrast to Burchell *et al* (1984), the comparison is between the employee's and his/her immediate line manager's perceptions. Among those up the hierarchy, the line manager would in normal circumstances be expected to be best acquainted with the job. Our aim, in the light of the above considerations, is to investigate the following questions:

(a) Is there evidence of a systematic skills perceptions bias between employees and their line managers? If so, how large is this bias?

(b) Independent of any bias, are employees and line managers' perceptions matched, in the sense that their rankings of job skill levels are similar?

(c) What factors determine the extent of any perceptions bias? Is the bias linked to differences in knowledge of the job? Are gender or race significant? Do lower-ranked occupations display greater perceptions bias?

(d) What factors determine any perceptions mismatch? Is mismatch especially high for contested job skills? Does longer acquaintance with the job improve the match of perceptions?

3. Data and Method

The research was designed to enable direct comparisons to be made of separate perceptions about the same job. The essential idea was quite straightforward. A sample of employees was interviewed face to face about the skills used in their job, using a structured questionnaire. A similar questionnaire was administered by the same interviewer to each employee's line manager, with respect to the employee's job. Analysis then proceeds by directly comparing the responses.

3.1 Sampling and Questionnaire

With limited survey resources, the objective of the sampling was to obtain at least 100 pairs of employee and line manager, to cover a broad range of industries and occupations. There was no intention to obtain a representative sample of skills in the British workforce. Companies were therefore approached in a number of ways, including cold telephone calls, letters, emails and following up of already-established contacts. About 200 companies were approached, of which 50 participated. Individuals in these companies were approached, and

asked to participate and name one or more employees of whom they were the line-manager. Where the line manager agreed, the relevant employees were then also approached. Interviews only took place if both parties agreed. Little prior information was given as to the nature of the survey, so it is unlikely that it especially attracted individuals who were interested in "skills" in general. Interviews were distributed among the following areas: County Durham (42), North Yorkshire (24), Leeds/Bradford (22), Other (22).

The final sample consisted of 110 employees (68 of whom were male), and 50 line managers (30 of them male). All single-digit industries were represented. The largest representation was for Retail/Wholesale industries (22%), followed by Manufacturing (16%), Public Administration (14%), Health & Social Services (13%), Education (12%), Other Community (8%), Financial Services (7%), and other industries (10%). The largest occupational representation of the employees was Clerical and Secretarial, but all occupations below managerial level were represented. The maximum number of employees for any one line manager interviewed was seven, which occurred in one case; however, the majority (70%) of line managers reported on the jobs of either one or two employees.

For each of the 110 jobs investigated, the two interviews were carried out independently, with assurances of confidentiality to both parties, employee and line manager. Interviews were carried out at the employee's place of work excepting one case where no private office was available. In this case the interviews with both employee and the manager were conducted separately elsewhere. Interviews with the manager lasted anywhere from 20 to 45 minutes, and with the employee from 15 to 30 minutes.

The questionnaire was derived from that used in the conduct of the Skills Survey, carried out in 1997 (see Ashton *et al*, 1999). As part of that survey, a large range of detailed job skills were measured by adapting the practices of occupational psychology to the purposes of a workforce-wide, large-scale, survey. In addition, respondents were asked questions concerning the qualifications requirements for their jobs, and the extent of discretion and autonomy available to them in their work. These two elements were used for the questionnaire administered to employees in this study. The questionnaire for the line manager differed in just two ways. First, the questions were rephrased to refer to the employee's job, by replacing the words "you" and "your" with the name of the employee involved. Second, questions about the employee's personal characteristics, such as marital status, were omitted from the line manager questionnaire, and information was collected about some personal characteristics of the line manager (age, sex and race) and on how long he/she had been the line manager for that particular job. A small amount of qualitative information was also collected from some interviews, in addition to the quantitative data that was formally coded. Copies of the questionnaire instruments are available on request from the authors.

3.2 Skills Indices

In this paper we focus on perceptions of three aspects of skill. First, we examine a range of detailed job skills – verbal, physical, problem-solving and planning skills. These particular skills are chosen to give a mix of the academic, non-academic and organisational elements of skill. To illustrate how job skills are measured, one of the elements of verbal skills is based on the question "In your job, how important is reading short documents such as short reports, letters or memos?". Respondents could answer "essential", "very important", "fairly important", "not very important" or "not at all important/does not apply". The questionnaire asked 36 such questions in this detailed form, 22 of which are utilised in this study to derive

the four above-mentioned job skill indices. The method used for generating the indices is based on Ashton *et al* (1999), and described in the Appendix to this paper, along with the full list of detailed questions. Second, we examine a single broad indicator of skill, namely the level of qualification required. Respondents were asked, "If they were applying today, what qualifications, if any, would someone need to get the type of job you have now?" The highest reported qualifications were ranked into six levels ranging from none (indexed by 0) to degree level (indexed by 5). In previous analysis comparing this indicator with earlier years, it emerged that this was one dimension in which the skills of the British workforce as a whole had risen between 1986 and 1997. Most of the increase had occurred during the period between 1986 and 1992 (Green *et al*, 2001).

Third, we aimed to capture important elements of autonomy or discretion, as a broad indicator of skill. The concept of autonomy, as a major aspect of skill, has a long tradition in sociology (Friedman, 1977; Spenner 1990). There have, however, been comparatively few attempts to quantify the extent of autonomy in survey analysis. We utilised three questions that have been used both in the Skills Survey and earlier, that capture different elements of autonomy. One question focuses on task choice, asking "How much choice do you have over the way in which you do your job?", with a 4-point answer scale ranging from "no choice at all" to "a great deal of choice". Another question asks "How closely are you supervised in your job?", with possible responses ranging over a 4-point scale from "very closely" to "not at all closely". Finally, we asked a question about the extent of discretion over work effort: "How much influence do you personally have on how hard you work?", with the 4-point scale ranging from "none at all" to "a great deal". Although responses to these questions are correlated, they capture substantively different aspects of autonomy; hence we subject each to

a separate analysis. In each case we coded the scale from 1 to 4, with 4 indicating the highest level of autonomy.

3.3 Methods of Analysis

The analysis, designed to address the specific research questions above, involves three stages. Initially, to examine perceptions bias we compare employees' and line managers' average skill indices, S_e and S_m respectively. We also investigate the correlations between the two sets of perceptions, in order to examine perceptions mismatch. In the next stage we attempt to account for the incidence of perceptions bias by means of other variables, using multivariate analysis. The equation we estimate is:

$$S_e - S_m = \beta_1 MF + \beta_2 WB + \beta_3 TENDIF + \beta_4 OTHER + u \quad (1)$$

MF is a dummy variable, equal to 1 if there is a male line manager and female employee, and otherwise 0. This variable was designed to capture any patriarchy effects whereby male line-managers could be systematically under-estimating or over-estimating the job skills compared to the female employees.[3] While logically an opposite dummy variable, *FM*, might also be included, when added to the regressions shown below this variable was always insignificant. It is omitted in aid of parsimony.

In a similar way, to try to capture any effects of race relations on skill perceptions, we include *WB*, which is a dummy variable indicating a white line-manager and a non-white employee. *TENDIF* is the difference between the employee's tenure in the job and the line-manager's

[3] We do not imply the male bosses and female employees necessarily have a patriarchal or exploitative relationship. Rather, if patriarchy does affect skill perceptions, it would be observable through differences between this and other gender combinations.

tenure as line-manager for that job. This variable is included to examine whether longer acquaintance with the job raises or lowers the perception of the skill required. A negative coefficient would imply that if, say, the line manager's tenure in charge of the job were greater than the employee's tenure in the job, this contributes to the line manager under-rating the skills needed relative to the employee's perception. Finally *OTHER* refers to three further control variables, entered to check that the perceptions bias is not somehow linked to them and affecting the previous coefficients of interest. These are the age difference between the employee and line manager, whether the job is from a lower-status occupation, and whether the jobholder has a temporary contract.

The final stage of the analysis is to investigate whether longer acquaintance with the job reduces the potential for perceptions mismatch after allowing for any systematic perceptions bias. To accomplish this, we examine the absolute value of the error term resulting from the estimations of equation (1), using this as our indicator of perceptions mismatch.[4] We regress the mismatch against the tenure of both the employee and the line manager. Descriptive statistics for all the independent variables are given in the Appendix, Table A2.

4. Results

(a) Perceptions Bias?

The results shown in Table 1 address, first of all, the question of the existence of a perceptions bias. When considering the detailed job skills derived from job analysis, in every case there is a small positive difference between the employee's and line manager's average

[4] An alternative indicator could be the square of the error term; we found that using this alternative gives a similar pattern of results to those shown below in Table 3.

perceptions. The difference is insignificantly different from zero in the case of verbal and planning skills[5], but is significant for problem-solving and physical skills.

There is, also, a positive perceptions bias in respect of the required qualification level for the job. The employees perceive a higher level of qualification requirement than do their line managers. The difference is equivalent to roughly one quarter of a qualification level (on average). In the case of our autonomy indicators, two of these also have a positive perceptions bias. Employees perceive significantly greater personal influence over how hard they work, and less close supervision, than their line managers. Interestingly, however, employees perceive somewhat lower levels of task choice than their managers.

(b) Perceptions Mismatch?

Whether and how well the two sets of perceptions are matched is addressed by the results shown in column (4) of Table 1, which reports the correlation coefficients. With respect to all the detailed job skills indices, and to the required qualification, the perceptions are indeed matched, in that the correlation coefficients are positive and highly significant. Essentially, this means that where the line manager thinks a job requires high/low skills, the jobholder on the whole concurs.[6]

Notably, the coefficient is lowest in the case of problem-solving skills, indicating that there remain many cases where employee and line-manager disagree in their perception of the

[5] This conclusion also held for each of the individual elements of these job skills indices taken separately.

[6] The Spearman rank correlation coefficient between manager and employee for each of the individual constituent elements of the skills indices is also positive, and with just a few exceptions significantly different from zero.

importance of problem-solving in the job. In the light of the detailed casework study of problem-solving in a range of contexts in the United States by Stasz *et al* (1996), we find this not too surprising. Next lowest amongst the detailed skills is the extent of agreement on planning skills. But by far the worst match occurs in the case of perceptions of autonomy. Both in respect of task choice and effort autonomy, the two parties' perceptions about the same job bear no significant relation to each other. Only in the perception of supervision is there evidence of some agreement. These results are thus consistent with the expectation that the perceptions mismatch will be greatest in respect of contested elements of skill.

(c) Sources of Perceptions Bias

Table 2 presents our findings from the estimation of our skills equations. The aim is to ascertain the proximate sources of perceptions bias. Columns (1) and (4) cover the job analysis skills indices, column (5) the required qualifications index, and columns (6) to (8) our indicators of autonomy.

We find that gender is associated with perceptions bias, in respect of verbal skills, physical skills and qualifications required. Looking across the first row, where the employee is female and the line manager is male, the perceptions bias for these skills is significantly higher (more positive or less negative) than in all other gender combinations. In the case of the required qualifications index, for example, the impact is such as to alter the perceptions bias by as much as one half of a qualification level on average. In the case of the verbal and physical skills indices, the marginal effect of the male manager/female employee combination is, respectively, 6.4 and 6.1 times the sample standard error of the perceptions bias.

We can thus conclude that in this incidence the patriarchal relation of male boss and female employee has a substantial impact on perceptions of skill. Nevertheless, in respect of all other skill indicators no significant role for gender is detectable here.

The second row of Table 2 focuses on the conditional association with race. It is found that the perceptions bias is significantly less positive, or more negative, for physical skills and for the task choice element of autonomy. In other words, in these cases relative to others either the non-white employee is lowering the perceived skill level or the white line-manager is raising it. This finding is sufficient to hint that ethnicity may have a bearing on skill perceptions. However, although the coefficients are statistically significant there are only five cases in our sample where the manager is white and the employee non-white. In these cases the differences of perception are large but there are too few to be confident of this conclusion, let alone to look in detail at different ethnic groups.

The third row shows the impact of differences in tenure. For most skills the impact is negative, but it is significant only for verbal skills and problem-solving skills. In these areas, this finding would be consistent with the idea that the longer either party is acquainted with the job the lower they rate the level of the verbal and problem-solving skills required. One might call this a learning effect. Nevertheless the impact is quite small. For example, for verbal skills a one year increase in the employee's tenure would reduce the perceptions bias by just one fifth of the standard error of the bias.

In the fourth row, a variable is included for the required qualifications estimation which indicates that the qualification level was judged (by the employee) to be essential for actually

doing the job.[7] The idea of including this variable is that it was likely that where the qualification was essential the line manager would also be likely to see it as a requirement for recruitment to the job. Where, by contrast, the qualification was seen by the employee as not essential for doing the job, there could be instances where the employee perceived the qualification was needed to get the job but the line-manager perceived it was unnecessary. In the event, the variable coefficient was negative as expected, and significant.

The final three rows contain control variables. Age difference, included because of a possible link between age and skill norms, had no significant association with perceptions bias. Temporary job contracts lowered the bias in verbal and physical skills. Being in a low-status occupation raised the bias for physical, problem-solving and planning skills. This latter finding is consistent with that of Burchell *et al* (1994).

Taken together, it may be noted that there are substantial amounts of perception bias that are not associated with any of our observed variables and hence remain unaccounted for. For closeness of supervision and effort autonomy (column (7) and (8)), none of the explanatory variables are significant. It is likely that the perceptions bias reflects elements of the contested labour relationship that are unobserved in this set of data.

(d) Sources of Mismatch

Finally, what are the sources of perceptions mismatch? We have already noted that mismatch is found most clearly in respect of the more contested areas of skill. Table 3 investigates the

[7] See notes to Appendix, Table A2.

simple hypothesis that longer acquaintance with the job can raise the accuracy of the participants' perceptions.

The results give qualified support to this expectation. In the first row, it can be seen that longer line manager tenure in charge of a job does significantly lower the perceptions mismatch for verbal, physical, problem-solving skills and for perceptions of closeness of supervision. The second row shows that longer employee tenure significantly reduces the perceptions mismatch in the case of qualification required, but raises it in the case of problem-solving. Thus, in five out of six instances where the coefficient is significant the mismatch appears to be reduced by longer acquaintance with the job; but the effect is far from universal.

5. Conclusion

In this small-scale study, our aim has been to look for evidence of, and proximate explanations for, differences in perceptions about skills. For the first time in studies of skills perceptions, the research ensured, by design, that the perceptions being compared were about the same job. This meant that any differences in perceptions could not be put down to real differences, as can happen when similar but not identical jobs are compared. This principle could be the basis for larger-scale, more detailed studies in future research.

We have come to three broad conclusions. First, for most of our skills indices there is a reasonably good match between the perceptions of the line-manager and those of the employee. But in the case of the contested skills associated with autonomy there is very little agreement. Second, for most of our skills there is a small 'perceptions bias', in the sense that employees rate the skills needed for the job at a slightly higher level on average than their line

managers. One possible explanation for this average bias could be that employees prefer to talk up their jobs when interviewed – an instance of social desirability bias. In earlier studies it has been tentatively claimed that social desirability bias might be less when respondents discuss the skills associated with their job, than when they report their own skills or competences (Ashton *et al*, 1999). While this claim cannot be investigated here, it is somewhat re-assuring that the perception biases reported here are all comparatively small in relation to the skills indices themselves.

The third main result is that the gender relation of the employee and line manager plays a significant role in determining the skills bias. Consistent with the hypothesis that skills are socially constructed, when the boss is male and the worker female there is a tendency for the boss to underestimate and/or the worker to over-estimate their skill level, by comparison with other gender combinations. Note that it is not the gender as such that generates this effect – there are no significant differences between the cases of both parties being male, both female, and the line-manager female while the employee is male. It is only the patriarchal couplet of male manager/female employee which stands out as influencing the perceptions bias.

The scope of our study does not extend to investigating further the origins of these perception differences. If some male bosses understate the skills needed in their female employees' jobs, this appears unsurprising to ourselves, given continuing patriarchal relations in many workplaces. Nevertheless, the very existence of perception biases suggests a possible factor underlying continuing discriminatory practices in the workforce. Job analyses, in one form or another, continue to constitute a widespread method of pay determination. If job analyses are influenced by the gender of the participants (whether that of the 'experts', or of firms' employees) these may not succeed in eliminating discrimination.

Another important implication concerns future research into job skills. Nothing in our study has enabled us to state which perception is closer to some unobserved ‘true’ description of each job. Typically, in commercial job analyses there would be sufficient resources available to obtain multiple views about each job and to attempt to resolve perception differences through discussion. Even then, one could hardly conclude that the agreed description was necessarily the true one. It is also arguable that respondents might give different and less biased responses to academic researchers than to commercial analysts, when in the latter case their job rewards depend on the job description. Nevertheless, our results suggest that collecting data from either employees or line managers would provide reasonably good information about the perceptions of the other party, in respect of most skills. But, in respect of the various elements of autonomy that we have measured, this conclusion is not warranted. It would therefore be helpful in future research to explore further the sources of discrepancy between managers’ and workers’ views about autonomy. In the absence of that, any conclusions about the trends in, or correlates of, autonomy need to be prefaced by reference to the identity of the participants who are reporting it.

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Table 1

Job Skills Perceived by Employees and Line Managers:

Averages, Differences and Correlations

	Scale Range	(1) Perception of: Employee	(2) Perception of: Line manager	(3) Difference [(1)-(2)]	(4) Correlation Coefficient: (1) with (2)#
Skill Type:					
Verbal	0-1	0.552	0.536	0.016	0.59**
Physical	0-1	0.391	0.338	0.053*	0.74**
Problem-Solving	0-1	0.748	0.709	0.039*	0.28**
Planning	0-1	0.696	0.679	0.017	0.38**
Required Qualification Level	1-5	2.32	2.06	0.26*	0.86**
Autonomy:					
Task Choice	1-4	3.18	3.31	-0.12*	0.08
Lack of close supervision	1-4	2.58	2.27	0.31*	0.22*
Effort autonomy	1-4	3.44	3.18	0.25*	-0.06

Notes:

1. # in the case of the "autonomy" indicators, the Spearman rank correlation coefficient is shown.
2. * indicates significantly different from zero at the 5% level; ** at the 1% level.

Table 2

Determinants of Different Perceptions of Skills

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Verbal	Physical	Problem-Solving	Planning	Qualifications Required	Task Choice	Closeness of Supervision	Personal Influence
Male boss, female employee	0.104 (2.29)**	0.120 (2.05)**	0.036 (1.09)	0.066 (1.48)	0.491 (2.11)**	0.260 (0.82)	-0.350 (-1.09)	-0.082 (-0.21)
White line-manager, non-white employee	0.024 (0.51)	-0.155 (-2.92)**	-0.009 (-0.21)	0.084 (0.79)	1.05 (1.31)	-0.740 (-2.12)**	0.065 (0.21)	-0.427 (-0.57)
Tenure Difference (months) $\times 10^{-2}$	-0.037 (-2.69)**	-0.009 (-0.59)	-0.049 (-3.28)**	-0.029 (-1.03)	0.096 (1.15)	-0.047 (-0.41)	0.100 (0.90)	-0.140 (-1.15)
Qualification "essential"	na	na	na	na	-0.429 (-1.73)*	na	na	na
Age difference	-0.002 (-1.10)	0.003 (1.05)	-0.003 (-1.38)	-0.000 (-0.25)	-0.001 (-0.06)	0.012 (1.16)	-0.014 (-1.37)	-0.016 (-1.28)
Temporary job	-0.125 (-1.91)*	-0.106 (-1.85)*	-0.001 (-0.02)	-0.069 (-0.96)	-0.783 (-1.60)	-0.223 (-0.52)	-0.115 (-0.28)	0.570 (1.30)
Manual	0.097 (1.65)	0.093 (1.76)*	0.108 (2.11)**	0.141 (2.21)	-0.15 (-0.57)	0.082 (0.26)	-0.318 (-0.91)	-0.281 (-1.00)
Number of cases R^2/Pseudo-R^2	106 0.120	106 0.174	106 0.139	106 0.120	101 0.140	106 0.023	106 0.021	106 0.023

Notes:

1. Columns (1) to (5) are estimated using least squares regression. Columns (6) to (8) are estimated using ordinal probit. All equations include a constant term.
2. t-statistics, in parentheses, are calculated using robust standard errors, which allow for independence between line managers but dependence among different cases for each line manager.
3. * indicates significantly different from zero at the 10% level; ** at the 5% level.

Table 3

Determinants of Skills Perceptions Mismatch

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	Verbal	Physical	Problem-Solving	Planning	Qualifications Required	Task Choice	Closeness of Supervision	Personal Influence
Line manager tenure	-3.76 (-4.38)**	-1.56 (-1.75)*	-2.93 (-2.58)**	1.49 (0.92)	6.71 (0.86)	-6.14 (-1.05)	-10.3 (-1.97)*	-3.95 (-0.80)
Employee tenure	0.47 (0.34)	-0.12 (-0.09)	2.64 (1.85)*	2.23 (1.38)	-17.6 (-1.97)**	4.23 (0.63)	7.89 (1.27)	-0.99 (-0.14)
R^2	0.06	0.01	0.08	0.04	0.05	0.00	0.02	0.01

Notes:

1. The dependent variable, representing the perceptions mismatch, is the absolute value of the residual obtained from the regressions in Table 2. In the case of columns (6) to (8), to obtain continuous estimates of the residual, we re-estimated the Table 2 equations using least squares regression.
2. All equations included a constant term; n = 106 in all equations.
3. * indicates significantly different from zero at the 10% level; ** at the 5% level.

APPENDIX

Table A1

Elements of Detailed Job Skills

Skill Index	Detailed Activities
Verbal skills	Reading written information such as forms, notices or signs
	Reading short documents such as short reports, letters or memos
	Reading long documents such as long reports, manuals, articles or books
	Writing written information such as forms, notices or signs
	Writing short documents such as short reports, letters or memos
	Writing long documents such as long reports, manuals, articles or books
Physical skills	Physical strength
	Physical stamina
	Skill or accuracy in using hands or fingers
	How to use or operate tools/equipment/machinery
Planning skills	Planning your own activities
	Planning the activities of others
	Organising your own time
	Thinking ahead
Problem-solving skills	Spotting problems or faults
	Working out the causes of problems or faults
	Thinking of solutions of problems or faults
	Analysing complex problems in depth
	Checking things to ensure that there are no errors
	Noticing when there is a mistake
	How to use or operate tools/equipment/machinery
	Specialist knowledge or understanding

To generate suitable job skill indices, the questions in column (2) of Table A1 were grouped as shown in column (1). The rationale for these groupings is suggested in part for consistency with the components emerging from principal components analysis of the complete set of 36 detailed job skills carried out using the 1997 Skills Survey (see Green, 1998). The variables each had high loadings on the appropriate component in that data set. The variables in each group are also conceptually linked. In this current, much smaller, data set, we composed indices by summing the response scales (rated 0-4) across each group and dividing by four times the number of variables in the group. Thus the overall indices each ranged in principle from 0 to 1. For each index we carried out a test of reliability of the scale, for both parties' responses. For verbal, physical, problem-solving and planning skills, Cronbach's alpha was, respectively, 0.85, 0.74, 0.76 and 0.81 for the line-managers' responses, and 0.83, 0.77, 0.77 and 0.70 for the employees' responses.

Table A2

Independent Variables: Descriptive Statistics

	Average	**Range**
Male boss, female employee	0.291	0 or1
White line-manager, non-white employee	0.05	0 or1
Tenure Difference (months)	-16.1	-240 to 354
Qualification "Essential" †	0.34	0 or1
Age Difference (years)	-4.9	-26 to 29
Temporary Job	0.08	0 or1
Manual ‡	0.27	0 or1
Employee Tenure (months)	77.7	1 to 396
Line-manager tenure in charge of job (months)	58.7	2 to 360

Notes:

1. † 1 if respondent stated that the qualification requirement for recruitment was also "essential" for doing the job competently; 0 otherwise or if there was no qualification requirement.
2. ‡ 1 if in any of the following occupations: plant worker, other unskilled, craft and related, sales worker, personal services.