Centre d'études de l'emploi

DOCUMENT DE TRAVAIL

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Pratiques de travail et coopération entre collègues

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Novembre 2013

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DOCUMENT DE TRAVAIL

N° 167

novembre 2013

www.cee-recherche.fr

Directeur de publication : Jean-Louis Dayan

ISSN 1629-7997
ISBN 978-2-11-129841-5

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Abstract

This paper provides an empirical test of the relation between the use of some specific work practices and mutual help among colleagues. Information from a very detailed French matched employer/employee survey is used to construct a measure of cooperation among colleagues and to identify five work practices that, according to the predictions of the theoretical literature, promote cooperation: repeated job interactions, interdependencies in production, job autonomy, and peer monitoring and task variety.

The findings suggest a statistically significant, positive and important correlation between job autonomy and mutual help and between peer monitoring and mutual help. However, pairwise combinations of those work practices result to be more strongly associated to mutual help: in particular, interdependencies in production combined with job autonomy and task variety combined with job autonomy. Extrinsic incentives such as team pay and performance evaluation schemes that have actual consequences on salary and career are also positively associated to mutual help. Results on the interplay between explicit and implicit incentives are not statistically significant. Hence the prediction that explicit incentives may crowd out implicit incentives to cooperate is not supported.

Keywords: *Work Practices, Cooperation, Teamwork.*

PRATIQUES DE TRAVAIL
ET COOPÉRATION ENTRE COLLÈGUES

RÉSUMÉ

Ce document de travail fournit une analyse empirique de la relation entre l'utilisation de certaines pratiques de travail et la coopération entre collègues. En utilisant des données de l'enquête couplée *Changements organisationnels et informatisation*-COI 2006, on identifie cinq pratiques de travail qui, selon la littérature économique, favorisent la coopération entre collègues : les interactions répétées entre collègues, les interdépendances dans la production, l'autonomie décisionnelle au travail, le contrôle réciproque du travail entre collègues et l'accomplissement de tâches variées. On identifie une importante corrélation positive entre l'autonomie décisionnelle au travail et l'entraide et entre le contrôle réciproque du travail et l'entraide.

Quand on considère l'adoption de deux de ces pratiques de travail à la fois, ce sont deux combinaisons particulières qui sont les plus fortement corrélées à l'entraide : les inter-dépendances dans la production combinées à l'autonomie décisionnelle et la diversité des tâches également combinée à l'autonomie décisionnelle.

Les incitations extrinsèques telles que la rémunération basée sur la performance de l'équipe et les systèmes d'évaluation de la performance, qui ont des conséquences réelles sur le salaire et la carrière, sont aussi associées positivement à l'entraide. Mais l'interaction entre les incitations explicites et les incitations implicites n'est pas associée à l'entraide de manière significative.

Mots-clefs : pratiques de travail, coopération, travail d'équipe.

INTRODUCTION

Cooperation among colleagues has been widely recognized as a behaviour leading to enhanced individual productivity and also to greater firm's performance by authors from different disciplines, including psychology, management and economics.

Particular emphasis has been given to the importance of cooperation in teams. Recently, Raver et al. (2012) show that individual cooperation can help develop and sustain group helping norms. The authors consider what personal attributes can lead to help teammates and how this can affect the formation of team helping norms. Their findings suggest there is a strong link between early helping behaviors and the formation of team helping norms. Also, the person with the lowest helping-related attributes can undermine mean effort within the team and have a stronger effect on group helping norms than the person with the highest helping-related attitudes. The policy implication drawn is that managers should use rewards for helping teammates to sustain cooperation.

The economic literature on incentives to cooperate makes a distinction between explicit and implicit incentives. Explicit incentives are mediated by some formal (usually written in a contract) engagement by the firm, like in the case of individual or group performance evaluation schemes or performance related pay schemes. Implicit incentives instead work through interactions among colleagues, with no need for formal engagement by the managers or the firm. They have to do with the way the workload and tasks are organised and accomplished across colleagues. Che and Yoo (2001) show that *long-term interactions among colleagues* can act as implicit incentives to cooperate in contexts where the only available measure of performance is a joint outcome and hence where the free-rider problem is pervasive. Cooperation can also be enhanced if long-term interactions are combined to *technological interdependencies* among workers. Man and Lam (2003) provide empirical evidence on the role of *job autonomy* to enhance group performance. Kandel and Lazear (1992) and Encinosa et al. (2007) show that *peer monitoring* works as an implicit incentive to establish effort group-norms. Task assignment has also been considered as a means to deliver incentives to enhance cooperation among workers by Holmstrom and Milgrom (1991) and Itoh (1992).

This paper is motivated by these predictions on the role of implicit incentives to promote cooperation. The French COI 2006 survey gives information on how the work is organised and on whether and how mutual help occurs. This offers a rare opportunity to observe mutual help and to relate it to some specific work practices such as: repeated interactions among colleagues, job autonomy in the allocation of tasks and workload, interdependencies in production, peer monitoring and the accomplishment of a variety of tasks. The main research questions addressed are: how do the different work practices relate to mutual help among colleagues? Do these work practices enhance or hinder the association to mutual help once combined together? What is the interplay between explicit incentives (such as performance evaluation schemes or the use of performance related pay) and implicit incentives on mutual help?

The definition of cooperation I adopt is "mutual help", *i.e.* a situation where an employee helps his colleagues *and* receives help from them. In the economic theoretical literature, as we shall see, the definition of cooperation slightly differs across authors. In some cases cooperation is defined as the contribution to a joint output, like in the case of teamwork,

where the individual contribution to final output is not observable and only the team output is observable. In other cases it is more broadly defined as individual effort that increases the output or the productivity of the other workers. Hence the definition I adopt – being constraint on the available survey responses – is closer to this second broader approach. I create a dummy variable to identify a situation where an employee provides help to his colleagues in case of technical problems or difficulties within the team, or with clients or other people **and** when he receives help from his colleagues. Receiving help from the colleagues may occur in case of a temporary over-workload, or in case of a complex task to be accomplished, or in case of problems with the clients or technical difficulties with a certain job.

This paper offers an empirical test of the theoretical predictions on cooperation and it complements the existing empirical literature. It differs from the existing empirical literature on work practices in two ways. First, I consider how the work practices relate to cooperation. The existing empirical literature either considers the relation between work practices and firm performance[1], or the relation between work practices and some specific employees' outcomes, such as salary, wage inequality, employment changes and working environment – namely accidents, absenteeism, grievance procedures and health and safety[2]. I take the view of Kaufman and Miller (2011), who model the firm's demand for Human Resources Management (HRM) practices. The authors show that HRM practices influence the firm's performance through two channels. The first, the "*direct effect*", is the effect that an HRM practice has on output, holding constant the amount of labour and capital services (for example, greater investment in hiring tests or personal interviews and psychological assessment will increase output independent of any change in the quantity of labour). The second, the "*indirect effect*", is the influence that more HRM practices have on output as they indirectly change the effective amount of labour, through factors such as improved motivation, greater work effort, better citizenship behaviour and skills upgrading. In line with these results, I consider mutual help as a possible indirect channel through which work practices can act to improve firm performance.

Second, I consider different work practices than those taken into account by the empirical literature on firm performance. It should be noted that, in general, different authors consider different work practices and these are usually aggregated in a single measure. For example, Bloom and Van Reenen (2007) construct a measure of managerial practices based on eighteen managerial practices, by using a practice evaluation tool developed by a leading international consultancy firm. The evaluation tool scores these practices from one (worst practice) to five (best practice). The authors take z-scores of each of the 18 individual management practices and then average over the variables to get one variable as a proxy for managerial practices. Cristini et al (2011) consider the intensity of innovative work practices, such as employee's involvement in self-managed teams, job rotation, quality circles, total quality management, benchmarking, project organisation, financial participation schemes and on the job training. The intensity of innovative work practices is measured as the sum of all innovative work practices implemented by the firm. Black and Lynch (2001), examine various aspects of *high-performance work practices*: profit-related pay, Total Quality Management (TQM) systems, benchmarking, self-managed teams, recruitment strategies and the diffusion of computer usage among non-managerial employees. In this paper, the choice

[1] See Bloom and Van Reenen (2010) for an overview.

[2] See Handel and Gittleman (2004), Forth and Millward (2004), Brenner et al. (2004).

of the work practices considered is motivated by the economic theoretical and empirical literature on cooperation. Moreover, each work practice is considered separately.

1. WORK PRACTICES AND COOPERATION: THEORETICAL AND EMPIRICAL BACKGROUNDS

Work organisation and task assignment are means to deliver incentives to promote individual and collective effort. Che and Yoo (2001) consider cooperation as exerting effort towards a joint outcome and show that **long-term interactions among colleagues** can provide implicit incentives to cooperate, especially when the only available measure of performance is the joint outcome. The authors also show that task assignment is a powerful and complement incentive device. In long-term repeated interactions contexts, creating **technological interdependencies** among workers can improve incentives to effort, in that by making tasks more interdependent for employees, peer sanctions become more effective.

In the light of these predictions, I use three questions of the COI survey to identify the presence of stable and repeated interactions and create a dummy variable equal to 1 if the people whom the employee regularly works with are based in the same location (building), the employee works with them for at least ¼ of his time (the maximum allowed by the question), and if the employee has been working with the same colleagues for at least one year[3].

For interdependencies in production, I create a dummy variable which is equal to 1 if the employee's work rhythm is imposed by the immediate dependence of his/her work upon the work of other colleagues. As already noted, the definition of cooperation as in Che and Yoo (2001) differs from the definition of cooperation I adopt, which is broader. Mutual help could be conceived as cooperation in the sense of Che and Yoo when individuals work on the same joint outcome and so mutual effort could be considered as individual effort towards the joint outcome. However, in dataset I use I do not have information on whether workers contribute to a joint outcome or they work on an individual outcome. So I cannot test directly the predictions of Che and Yoo (2001). However, I think it is interesting to test any association between these two work practices and a broader definition of cooperation.

Man and Lam (2003) empirical study provides support to the hypothesis that **job autonomy** increases group cohesion and, through this, it leads to enhanced group performance. Their argument is that being granted independence and discretion in scheduling the work and in deciding how to do it, workers may increase their commitment to the team, and this can lead to better group performance. Mutual help, as I define it in this paper, may be one possible channel to create cohesion among colleagues, hence my interest in testing any relation between job autonomy and mutual help.

A specific question in the COI survey questionnaire asks how often an employee decides or intervenes in the decision of how to divide the tasks/workload among colleagues. I create a dummy variable which is equal to 1 if an employee is in a position to decide or participate in the decision of tasks assignment among colleagues at least two or three times per month (the maximum allowed by the question).

[3] Details of the survey questions are available from the author upon request.

The importance of **peer monitoring** as an implicit incentive to establish effort group-norms has been identified by Kandel and Lazear (1992) and by Encinosa et al. (2007). The empirical evidence on team performance is rather scant. However, the few empirical studies seem to confirm the importance of peer monitoring, group norms and the use of team-based rewards in promoting cooperation in teams. For example, Knez and Simester (2001) analyse the effects of the introduction of bonuses based on firm-level production and show that even if the team was defined at the level of the whole organisation, the scheme was successful in increasing performance. The main reason identified by the authors is that employees worked in relatively small and autonomous groups, which made peer monitoring very effective. Hamilton et al. (2003) evaluate the introduction of team work and group piece rates in a garment factory in California and find evidence of the presence of group norms and mutual learning in newly formed teams, which explained the success of the scheme (14% increase in productivity on average). The COI survey provides information on the typology of work monitoring, distinguishing among peer monitoring, hierarchical monitoring (by the superiors), external monitoring (by individuals/firms outside the organisation of the employee) and monitoring by automatic devices (e.g. video surveillance systems). For peer-monitoring, I use three questions of the survey asking if an employee is in a position to monitor the work of his/her colleagues and to be monitored by colleagues other than the superiors. I create a dummy variable, which is equal to 1 if the employee can monitor the work of his colleagues at least two or three times per month (the maximum allowed by the question) and if he is monitored by his colleagues (other than his superiors) at least once per month (once again the maximum allowed by the question).

Task variety has also been considered as a means to deliver incentives to increase effort. Holmstrom and Milgrom (1991) and Itoh (1992) show how task assignment and job design can be powerful means to deliver incentives when performance at different tasks can be measured with varying degrees of precision or when the principal aims at enhancing cooperation among workers. Itoh (1992) argues that narrow task assignment reduces the cost of helping effort. In fact, if the task accomplished by an employee is very monotonous, helping one's colleague could be a very welcomed alternative and the decrease in own effort to help one's colleague would actually decrease the cost of inducing own effort for the principal. According to this view, helping effort would be less costly to induce if the individual tasks are monotonous. On the other hand, as argued by organizational researchers such as Lincoln and Kalleberg (1990) and Hackman and Oldhan (1980), narrow task assignment generally reduces worker motivation, suggesting that task variety will positively affect helping efforts. Drago and Garvey (1998), using a survey of Australian employees, find that task variety has a positive effect on helping effort, supporting the view that a broader range of tasks may increase workers' willingness to help to each other.

I define tasks variety in terms of having to perform different tasks and being assigned to a job which is not monotonous. I create a dummy variable equal to 1 if the employee is in a position to accomplish very different tasks each week and if his job allows him to learn new things.

Note that the work practices I defined are not mutually exclusive in that an employee usually replies to be involved with more than one practice. As shown in table A2, in the sample considered, 37.92% of employees declared to regularly work with their colleagues for at least ¼ of their time, in the same location (building) and have been working with the same colleagues for at least one year, 30.65% declared to have the autonomy over the task allocation decision, 36.7% declared to have interdependencies in production with the

colleagues they regularly work with; 49.34% of employees declared to accomplish a variety of tasks; whereas only 6.57% declared to be in a position to monitor the work of their colleagues and to be monitored by their colleagues. Table A3 shows the frequencies of pairs of work practices. Out of the 37.92% of employees who declared to regularly interact with colleagues, 10.62% also declared to have job autonomy, 13.49% also declared to have interdependencies in production and 17.1% also declared to accomplish a variety of tasks. There is also a substantial overlapping between interdependencies in production and job autonomy, between job autonomy and task variety and between interdependencies in production and task variety. So, in the analysis that follows I first consider the single work practices in isolation and then I consider their combined effect on mutual help, by crossing one work practice with one another.

Correlation between pairs of these work practices is shown in table A4. Correlations are quite weak. They are positive for all work practices considered but for repeated job interactions, which is negatively correlated to the other four work practices, although coefficients are very small. This suggests that the work practice "repeated job interactions", as I defined it, does not complement the other work practices.

2. DATA AND METHODOLOGY

The main dataset I use is the French survey COI *(Changement Organisationnel et Informatisation*) 2006, a cross-section stratified random survey aimed at identifying the organisational changes and Information Technology (IT) developments undertaken by private firms (with more than twenty employees) in the manufacturing and commercial sectors. It consists of two combined surveys, one conducted with the managers of the firm, who were sent a six-pages questionnaire, and one with randomly selected employees (on average three per firm[4]), who were interviewed by phone or in person if the telephone interview could not be done. The survey for employers is aimed at collecting information on the firm recent changes of internal organisation and IT tools. The interview with employees, lasting on average forty minutes, allows to analyse the actual work organisation (timetables, job location, hierarchical job organisation/job autonomy, teamwork, human capital formation, communication strategies, job interdependencies), the usage of technical tools by employees, the presence of performance appraisal programs, the pay schemes in use and the employees' perceptions about changes in working practices and working environment and about personal involvement in the job.

The response rate for the survey in 2006 was 70%. The final database consists of 14,369 units of observations (the unit of observation being an employee). I matched this dataset with the Annual Declaration of Social Data on employees (DADS), containing data on salary and the number of hours worked in 2006 by employees[5] and with the Annual Firms Survey (EAE), containing data on firm's accounts. After matching these three databases the sample consists of 10,787 observations. My analysis focuses on teamwork, which is very broadly defined as working regularly with colleagues of the same firm. Out of the total 10,787 observations, 9,765 employees replied to work regularly with colleagues of the same

[4] In firms with more than 500 employees, 3 to 15 employees were interviewed, whereas in firms employing from 20 to 500 employees, 2 employees were interviewed.

[5] I could use the worker ID number to match the two datasets.

unit or of the same firm. Hence I restrict my analysis to these 9,765 employees, working in 4,794 firms. I use data on firms' characteristics (economic sector, size), on employees' characteristics (age, gender, education, socio-professional condition, main job activity, job experience, tenure in the firm), information on the employee's work organisation and tasks accomplishment and on the pay and performance appraisal schemes that each worker declares to be subject to. Descriptive statistics and regressions are weighted to keep the same representativeness of the survey stratified random sample of firms[6].

2.1 Empirical Specification: Probit Analysis

I do not aim at identifying a causal relationship between the five work practices and mutual help. Endogeneity issues might be at work, in that the adoption of work practices may depend on some unobservable firm's or employee's characteristics that could also affect the degree of engagement of employees in mutual help. Disposing only of a cross-section survey, I have little opportunity to instrument variables and hence to tackle the endogeneity issue. It is nevertheless interesting to test for any empirical correlation between the five work practices and mutual help, controlling for any observable firm and employee's characteristics that may affect mutual help. I adopt the following specification:

$$\begin{aligned}\text{mutual\_help} = {} & \alpha_0 + \alpha_1 \text{WorkPractice} + \alpha_2 \textit{Industry} + \alpha_3 \text{Firm Size} + \alpha_4 \text{Employee's age} + \\ & \alpha_5 \text{Employee's gender} + \alpha_6 \text{Employees education} + \alpha_7 \text{Employee's main job activity} + \\ & + \alpha_8 \text{Employee's socio/professional condition} + \alpha_9 \text{Employee's Job tenure} + \alpha_{10} \text{InterSize} + \\ & + \alpha_{11} \text{TeamPay} + \alpha_{12} \text{Individual Pay} + \alpha_{13} \text{Perf Eval} + \alpha_{14} \text{Monitoring} + \alpha_{15} \%\text{VarPay}\end{aligned}$$

A description of the variables on the right hand side follows.

- the firm's industry: I created thirteen dummies for each economic sector[7], as in the formal definition of economic activity of the firm (NAFEN_G16). In the regressions the omitted sector is "financial activities",
- the firm size: defined as the number of employees of the firm,
- the employee's age,
- the employee's gender (the dummy variable equals 1 if female),
- the employee's education: following a widely used categorisation, I created five dummy variables. The first one includes "Primary and lower secondary education". The second one represents "Vocational upper secondary education". The third dummy variable corresponds to "General upper secondary education". The fourth dummy variable represents "Higher education (Bachelor)". Finally, the last dummy variable is for "Higher education (Masters and PhD)". The reference category in the regressions is "Primary and lower secondary education",
- the employee's main job activity. The survey questionnaire allowed for eleven categories to identify the main job activity, for example "manufacturing, building sites, exploitation", "Secretarial work, reception" or "caring of people" (see table A1 in the Appendix for all detailed categories). In the regressions, the reference category is "Other activity",

[6] Strata were created on the basis of firm sector and size, as in the survey design.

[7] See Table A1, in the Appendix.

- the employee's socio-professional condition. There are four categories: Managers, Supervisors and technicians, Employees and Blue-collars. In the regressions the reference category is Blue-collars,
- the employee's job tenure,
- the size of the interactions among colleagues. The survey distinguishes four cases: 1) working on a regular basis with one colleague, 2) working on a regular basis with two or up to five colleagues, 3) working on a regular basis with six or up to ten colleagues, 4) working on a regular basis with more than ten colleagues. Consequently I construct four dummy variables. The reference category is working with only one colleague.

I also consider the following explicit incentives:

- TeamPay: a dummy variable equal to 1 if the salary or the career path (unfortunately the survey question does not distinguish the two cases) also depend on teamwork,
- Individual Pay: a dummy variable equal to 1 if salary depends essentially on individual work,
- the existence of (individual) performance evaluation schemes. There are four questions in the survey that provide information on (individual) performance appraisal schemes. This allows me not only to determine the existence of performance evaluation schemes, but also the importance of such schemes in terms of their consequences on salary or career progression. Hence I construct two dummies: *StrongPerfEval*, which is equal to 1 if the employee declares to have an evaluation appraisal interview at least once a year and if the interview relies on clear and precise criteria of evaluation (objectives, acquisition of competences…) and if the evaluation of last year performance had actual consequences on either the employee's salary or career. A second dummy *WeakPerfEval* is created to identify situations where an employee has an annual performance appraisal interview, but the interview has no actual consequences on salary or career,
- the type of monitoring. In the economic theoretical literature, monitoring is considered as an incentive device that the firm can implement to foster individual or collective effort. If monitoring is imposed by the firm to the employees, like in the case of monitoring by superiors, by automatic devices or by people external to the firm, it can be considered as an explicit incentive to effort. Informal peer monitoring, may result from the work arrangements adopted (employees work close to each other and hence are able to observe each other) and hence may act more as an implicit incentive to effort. So it is interesting to consider the methods of monitoring employees a firm adopts to monitor performance. I create four dummies. The variable CollMonit is a dummy variable for being monitored by colleagues. The variable HiercMonit is a dummy variable for hierarchical monitoring, undertaken by the superior. The variable OutsideMonit is a dummy variable which identifies monitoring undertaken by people or organisations outside the firm. Finally, the variable AutomMonit is a dummy variable for monitoring the employee's work by use of automatic devices. The reference category is those who are not monitored,
- the percentage of variable pay. Employees were also asked if part of their salary was variable, and, if so, the amount of the variable pay (classified in four categories: up to 500 euros, from 500 euros to up to 1,000 euros, from 1,000 euros to up to 5,000 euros and above 5,000 euros). In order to have a measure of the importance of variable pay I

divide the mid-point of each range by the worker's annual salary[8]. In this way I get a proxy for the percentage of variable pay.

Descriptive statistics for all these variables are available in the Appendix.

I control for industry and firm size as I think these two firm characteristics may affect mutual help in the firm. A smaller firm size could make it easier to interact with colleagues and hence facilitate mutual help. As far as employees characteristics are concerned, I control for age, gender, education, main job activity, the socio/economic condition and job tenure. I also control for the size of interactions, as the bigger the size of interactions the greater the opportunity to help and receive help from one's colleagues.

Mutual help could also be affected by the system of explicit incentives in place within the firm. Hence, I also control for the type of pay (individual pay and team pay), the performance evaluation schemes, the monitoring schemes[9] and the percentage of variable pay. Here my priors are that having a compensation scheme related to group performance can positively affect mutual help. This may not be the case for individual pay. It is difficult to anticipate the sign of the relation between cooperation and individual performance appraisal schemes. Mutual help could be positively related to the use of performance evaluation schemes, in that knowing that one's career or salary depends on individual performance may lead workers to look more often for help in case of difficulties. On the other hand, if helping effort and own effort are substitute (the amount of time devoted to helping colleagues decreases the time available for own effort and there is no synergy between the two) individual performance evaluation schemes may discourage providing help to colleagues. Performance monitoring could also affect mutual help. The intuition for this is similar to the case of performance appraisal schemes: if performance is monitored (and helping and own efforts are not substitute), workers may be more inclined to look for help in difficulties. I do not have any priors, however, on how different types of monitoring could affect mutual help in different ways. The percentage of variable pay could be interpreted as a proxy for the power of individual incentives schemes – a greater percentage could imply more powerful incentives – and hence could be positively related to mutual help, if helping and own effort are not substitute. I also interact each work practice with TeamPay, with the dummy StrongPerfEval and with the size of interactions. This is to test whether explicit incentives and opportunities to help may reinforce/hinder the correlation between work practices and mutual help. Finally, I interact each work practice with the other work practices to test whether their combined effect is more important. I run separate regressions for each of the five work practices.

3. ESTIMATION RESULTS

Results are provided in Tables 1-5. Note that for space constraint I could not show all the explanatory variables I control for. The variables which do not appear in the tables but are controlled for in each specification, as described in the previous section, were not statistically significant.

[8] For the last range I consider 15,000 euros as the midpoint.

[9] In the regression concerning the work practice " peer monitoring" I omit the category being monitored by colleagues, as one of the three survey questions used to define peer monitoring is the same as the question used to define "being monitored by colleagues other than superiors".

In the tables, specification (1) controls for all the variables representing firm and employees' observable characteristics, pay and performance appraisal systems and monitoring procedures adopted by the firm. Specifications (2)-(5) also control for the interactions between pairs of work practices.

Interactions between each work practice and explicit incentives (team pay, strong performance evaluation and size of interactions) were not statistically significant and those results are not shown in the tables. Hence I am not able to draw any conclusion on the interplay between implicit and explicit incentives on mutual help. These results could simply support recent theories of work motivation that cast some doubts on the previous results of cognitive evaluation theory according to which extrinsic incentives tend to crowd out intrinsic incentives[10].

I first comment the results on the relation between each work practice and mutual help and on the interplay of combinations of practices on mutual help. I then comment the results for the other variables, which are fairly consistent through the regressions.

Table 1 shows the results for repeated job interactions. This work practice, on its own, does not have a statistically significant relation to mutual help. Once combined with other work practices (especially peer monitoring and job autonomy), its correlation with mutual help is statistically significant and positive. To give an idea of the magnitude of the correlation I calculate the marginal effects at means. The mean predicted probability of being involved in mutual help when both repeated job interactions and peer monitoring are present is 13%, while the mean predicted probability of being involved in mutual help when both repeated job interactions and job autonomy are present is 37.7%.

Table 2 shows that job autonomy is positively related to mutual help and its net effect is slightly reinforced if combined with interdependencies in production and with task variety. The mean predicted probability of engaging in mutual help when only job autonomy is present is 40.96%. Combining job autonomy with either interdependencies in production or task variety increases the mean predicted probability of engaging in mutual help by 4%. Results for interdependencies in production are shown in table 3. There is a positive and statistically significant relation to mutual help and this is substantially reinforced if this work practice is combined to job autonomy, peer monitoring and to task variety. The mean predicted probability of being engaged in mutual help if I only consider interdependencies in production is 6.27%. Once combined to job autonomy the mean predicted probability becomes 40.08%. If combined to peer monitoring the mean predicted probability is 16.47%, while the mean predicted probability of combining interdependencies in production with task variety is 6.92%. Table 4 shows the results for peer monitoring. Peer monitoring is positively related to mutual help (the mean predicted probability is 24.29%), but the relation is weakened if combined with repeated job interactions, whereas it is reinforced if combined with job autonomy (the mean predicted probability is 30.61%). Task variety (table 5) is positively related to mutual help (the mean predicted probability is 10.86%) and the relation becomes stronger if combined with job autonomy (the mean predicted probability is 38.35%), with interdependencies in production (the mean predicted probability is 3.51%) and with peer monitoring (the mean predicted probability is 14.99%).

Results for the other variables are consistent throughout the regressions. Firm activity sector does not have any statistically significant relation to mutual help. Firm size, when significant, has a negative but very weak effect. Women tend to be less involved in mutual help. There

[10] See Kehr (2004) and Gagné and Deci (2005).

are some job activities, like “Installation, repair, maintenance”, and “Caring of people” which are statistically significant and positively related to mutual help. Managers and supervisors and technicians are more likely to engage in mutual help than blue-collars. The size of interactions, as expected, has a positive and statistically significant impact on mutual help. Team pay and performance evaluation schemes that have actual consequences on salary and career are positively related to mutual help. The results for team pay are in line with what expected, whereas the results for individual performance evaluation scheme seem to suggest that helping effort and own effort are not considered as substitutes by employees. Performance evaluation scheme that do not have any consequences on salary or on the career path are not statistically significant. The percentage of variable pay is not statistically significant, but this could be due to the fact that more than half of the employees declared not to have a variable pay. An interesting result concerns the monitoring schemes. Only two categories of monitoring are statistically significant and positively related to mutual help: outside monitoring and autonomous monitoring. Hence when monitoring is performed by either colleagues or superiors of the firm, it does not have a statistically significant relation to mutual help. Instead peer monitoring (as defined by being monitored by colleagues other than superiors *and* being able to monitor the work of other colleagues) is statistically significant and positively related to mutual help. These results imply that it is only when monitoring colleagues is reciprocal that we find a positive relation to cooperation.

CONCLUSION

I have considered five work practices, which, according to the theoretical literature, facilitate cooperation: repeated interactions with colleagues, job autonomy in the allocation of tasks and workload, interdependencies in production, peer monitoring and the accomplishment of a variety of tasks. Using a very detailed French survey on work organisation and practices in firms operating in the manufacturing and commercial sectors, I analyse the relationship of these work practices with mutual help.

Results suggest that, if each work practice is considered in isolation, repeated job interactions are not statistically significant, whereas job autonomy and peer monitoring have the strongest association to mutual help. The mean predicted probability for job autonomy is 40.96% and the mean predicted probability for peer monitoring is 24.29%. However, a stronger correlation to mutual help is found once I consider combinations of work practices. In particular, two combinations result to have the strongest relation to mutual help: interdependencies in production combined with job autonomy and task variety combined with job autonomy. Job autonomy results as being a crucial work practice for mutual help: not only it has the strongest association to mutual help, but it is also the only work practice that, once combined to the other four practices, always increases the mean predicted probability of mutual help. These results suggest that there is a synergy among the work practices considered and a policy implication is that the organization of work should consider the potential synergies of work practices in promoting cooperation among colleagues.

The use of team pay, as expected, is positively related to mutual help. Performance evaluation schemes that have an impact on salary or career also play a positive role. This result suggests that helping effort and own effort are not considered as substitutes by employees. Results on the interaction between explicit and implicit incentives are not significant. The view that explicit incentives may crowd out implicit incentives to cooperate is not supported.

Regression Results

Table 1. Probit Analysis: Repeated job interactions and mutual help (Probit coefficients)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	mutual_help	mutual_help	mutual_help	mutual_help	mutual_help
Repeated job interactions	-0.0552	-0.124***	-0.0763**	-0.207***	-0.411***
	(0.0392)	(0.0418)	(0.0376)	(0.0414)	(0.0453)
Firm Size	-4.20e-06**	-4.10e-06*	-4.28e-06**	-4.40e-06**	-4.28e-06*
	(2.13e-06)	(2.11e-06)	(2.10e-06)	(2.12e-06)	(2.24e-06)
Gender (1 if female)	-0.134***	-0.136***	-0.138***	-0.128***	-0.100**
	(0.0443)	(0.0441)	(0.0447)	(0.0437)	(0.0465)
Age	-0.00293	-0.00269	-0.00301	-0.00282	-0.00476
Education (Ref.: primary and lower secondary education)	(0.00284)	(0.00282)	(0.00289)	(0.00292)	(0.00290)
Vocational upper secondary	0.105*	0.107*	0.102	0.0927	0.0798
	(0.0629)	(0.0628)	(0.0639)	(0.0638)	(0.0660)
General upper secondary	0.186**	0.188**	0.189**	0.172*	0.180*
	(0.0911)	(0.0908)	(0.0913)	(0.0936)	(0.0986)
Higher education (Bachelor)	0.118	0.118	0.117	0.103	0.118
	(0.0870)	(0.0868)	(0.0876)	(0.0884)	(0.0914)
Higher education (Masters, PhD)	0.127	0.128	0.129	0.114	0.148
Employee's main job activity (Ref.: other activity)	(0.0909)	(0.0909)	(0.0911)	(0.0923)	(0.0939)
Manifacturing, building sites, exploitation	0.146*	0.146*	0.150*	0.162**	0.0990
	(0.0820)	(0.0813)	(0.0803)	(0.0815)	(0.0795)
Installation, repair, maintenance	0.346***	0.348***	0.350***	0.332***	0.309***
	(0.123)	(0.123)	(0.123)	(0.124)	(0.110)
Caring of people	1.438**	1.468**	1.440**	1.374**	1.046**
Socio-professional condition (Ref.: Blue-collars)	(0.622)	(0.624)	(0.617)	(0.610)	(0.484)
Managers	0.491***	0.492***	0.490***	0.461***	0.388***
	(0.0850)	(0.0855)	(0.0838)	(0.0828)	(0.0870)
Supervisors and technicians	0.369***	0.369***	0.367***	0.343***	0.293***
	(0.0662)	(0.0669)	(0.0646)	(0.0634)	(0.0647)
Employee	0.252***	0.256***	0.252***	0.242***	0.204**
	(0.0757)	(0.0760)	(0.0749)	(0.0749)	(0.0807)
Job tenure	0.00406	0.00391	0.00406	0.00421*	0.00623**
Size of Interactions	(0.00253)	(0.00253)	(0.00254)	(0.00253)	(0.00264)
Team2up5	0.264***	0.266***	0.266***	0.268***	0.212**
	(0.0955)	(0.0972)	(0.0969)	(0.0986)	(0.0955)
Team6up10	0.336***	0.338***	0.337***	0.335***	0.268***
	(0.102)	(0.104)	(0.103)	(0.104)	(0.100)
TeamMore10	0.461***	0.460***	0.462***	0.463***	0.381***
	(0.105)	(0.107)	(0.107)	(0.109)	(0.104)
TeamPay	0.282***	0.281***	0.275***	0.273***	0.250***
	(0.0679)	(0.0674)	(0.0682)	(0.0682)	(0.0688)
IndivPay	0.106*	0.107*	0.102*	0.101*	0.0897
	(0.0594)	(0.0591)	(0.0592)	(0.0588)	(0.0566)
StrongPerfEval	0.197***	0.198***	0.197***	0.192***	0.192***
Monitoring (Ref.: no monitoring)	(0.0461)	(0.0461)	(0.0460)	(0.0465)	(0.0462)
Outside Monitoring	0.200***	0.199***	0.201***	0.201***	0.191***
	(0.0493)	(0.0499)	(0.0462)	(0.0446)	(0.0428)
Autonomous Monitoring	0.0743*	0.0700	0.0717*	0.0810*	0.0739
	(0.0432)	(0.0433)	(0.0434)	(0.0425)	(0.0470)
PercVarPay	0.221	0.209	0.225	0.230	0.214
	(0.190)	(0.190)	(0.190)	(0.190)	(0.192)
Repeated Job Inter*Interdependencies in production		0.190***			
		(0.0553)			
Repeated Job Inter*Peer Monitoring			0.355**		
			(0.167)		
Repeated Job Inter*Task Variety				0.301***	
				(0.0580)	
Repeated Job Inter*Job Autonomy					1.067***
					(0.0786)
Constant	-1.147***	-1.202***	-1.134***	-1.163***	-0.722***
	(0.241)	(0.239)	(0.245)	(0.246)	(0.223)
Observations	9765	9765	9765	9765	9765

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The regressions also controls for industry dummy variables and employee's main job activity

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted regressions.

Table 2. Probit Analysis: Job autonomy and mutual help (Probit coefficients)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	mutual_help	mutual_help	mutual_help	mutual_help	mutual_help
Job Autonomy	1.133***	1.164***	1.075***	1.113***	1.058***
	(0.0474)	(0.0586)	(0.0538)	(0.0469)	(0.0527)
Firm Size	-2.81e-06	-2.78e-06	-2.78e-06	-2.83e-06	-2.78e-06
	(1.77e-06)	(1.74e-06)	(1.73e-06)	(1.76e-06)	(1.76e-06)
Gender (1 if female)	-0.0990**	-0.0986**	-0.101**	-0.100**	-0.0975**
	(0.0475)	(0.0473)	(0.0477)	(0.0479)	(0.0472)
Age	-0.00591**	-0.00581*	-0.00565*	-0.00598**	-0.00613**
Education (Ref.: primary and lower secondary education)	(0.00299)	(0.00297)	(0.00300)	(0.00300)	(0.00298)
Vocational upper education	0.0950	0.0955	0.0967	0.0939	0.0931
	(0.0641)	(0.0639)	(0.0644)	(0.0637)	(0.0637)
General upper education	0.178**	0.177**	0.177**	0.180**	0.174**
	(0.0861)	(0.0855)	(0.0860)	(0.0853)	(0.0856)
higher education (Bachelor)	0.170**	0.169**	0.168**	0.169**	0.163**
	(0.0831)	(0.0830)	(0.0834)	(0.0825)	(0.0827)
Higher education (Masters, PhD)	0.151*	0.147*	0.154*	0.154*	0.143
Employee's main job activity (Ref.: other activity)	(0.0871)	(0.0870)	(0.0873)	(0.0871)	(0.0869)
Installation, repair, maintenance	0.293***	0.294***	0.293***	0.292***	0.291***
Socio-professional condition (Ref.: Blue-collars)	(0.105)	(0.105)	(0.105)	(0.105)	(0.104)
Managers	0.274***	0.273***	0.276***	0.275***	0.268***
	(0.0873)	(0.0871)	(0.0877)	(0.0873)	(0.0875)
Supervisors and technicians	0.229***	0.229***	0.230***	0.230***	0.228***
	(0.0640)	(0.0639)	(0.0647)	(0.0638)	(0.0636)
Employee	0.202**	0.201**	0.206**	0.204**	0.204**
	(0.0823)	(0.0819)	(0.0825)	(0.0824)	(0.0818)
Job tenure	0.00519*	0.00513*	0.00499*	0.00528**	0.00520*
Size of Interactions	(0.00266)	(0.00265)	(0.00269)	(0.00267)	(0.00267)
Team2up5	0.189*	0.191**	0.192**	0.186*	0.192**
	(0.0968)	(0.0970)	(0.0968)	(0.0967)	(0.0967)
Team6up10	0.242**	0.244**	0.244**	0.242**	0.243**
	(0.102)	(0.102)	(0.102)	(0.102)	(0.102)
TeamMore10	0.326***	0.326***	0.326***	0.322***	0.325***
	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)
TeamPay	0.161**	0.161**	0.159**	0.159**	0.158**
	(0.0668)	(0.0667)	(0.0663)	(0.0663)	(0.0665)
IndivPay	0.0726	0.0729	0.0732	0.0707	0.0701
	(0.0553)	(0.0553)	(0.0556)	(0.0546)	(0.0545)
WeakPerfEval	0.0637	0.0648	0.0632	0.0625	0.0649
	(0.0614)	(0.0613)	(0.0618)	(0.0615)	(0.0612)
StrongPerfEval	0.160***	0.159***	0.159***	0.158***	0.158***
Monitoring (Ref.: no monitoring)	(0.0455)	(0.0456)	(0.0460)	(0.0460)	(0.0455)
HiercMonit	-0.0568	-0.0573	-0.0555	-0.0568	-0.0592
	(0.0479)	(0.0478)	(0.0478)	(0.0479)	(0.0480)
OutsideMonit	0.128***	0.127***	0.125***	0.125***	0.126***
	(0.0396)	(0.0398)	(0.0399)	(0.0394)	(0.0397)
AutomMonit	0.0633	0.0622	0.0625	0.0647	0.0635
	(0.0487)	(0.0483)	(0.0493)	(0.0487)	(0.0485)
PercVarPay	0.215	0.206	0.214	0.215	0.213
	(0.197)	(0.197)	(0.197)	(0.197)	(0.197)
Repeated Job Inter*Job Autonomy		-0.0872			
		(0.0826)			
Job Autonomy*Interdependencies in production			0.140*		
			(0.0728)		
Job Autonomy*Peer Monitoring				0.168	
				(0.148)	
Job Autonomy*Task Variety					0.128*
					(0.0660)
Constant	-1.313***	-1.331***	-1.285***	-1.294***	-1.252***
	(0.245)	(0.248)	(0.245)	(0.246)	(0.239)
Observations	9765	9765	9765	9765	9765

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The regressions also controls for industry dummy variables and employee's main job activity

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted regressions.

Table 3. Probit Analysis: Interdependencies in production and mutual help (Probit coeffs)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	mutual_help	mutual_help	mutual_help	mutual_help	mutual_help
Interdependencies in production	0.178***	0.188***	-0.237***	0.137***	0.0726
	(0.0383)	(0.0518)	(0.0493)	(0.0402)	(0.0484)
Firm Size	-3.92e-06*	-3.93e-06*	-3.74e-06**	-4.25e-06**	-3.90e-06*
	(2.09e-06)	(2.07e-06)	(1.72e-06)	(1.97e-06)	(2.00e-06)
Gender (1 if female)	-0.143***	-0.143***	-0.129***	-0.145***	-0.139***
	(0.0435)	(0.0440)	(0.0476)	(0.0448)	(0.0434)
Age	-0.00258	-0.00258	-0.00264	-0.00270	-0.00257
Education (Ref.: primary and lower secondary education)	(0.00291)	(0.00292)	(0.00291)	(0.00292)	(0.00293)
Vocational upper education	0.111*	0.110*	0.107	0.0984	0.104
	(0.0639)	(0.0637)	(0.0655)	(0.0645)	(0.0637)
General upper education	0.189**	0.189**	0.169*	0.188**	0.179**
	(0.0911)	(0.0903)	(0.0872)	(0.0918)	(0.0904)
Hgher education (Bachelor)	0.119	0.118	0.129	0.111	0.108
	(0.0885)	(0.0880)	(0.0869)	(0.0882)	(0.0888)
Higher education (Masters, PhD)	0.139	0.138	0.146	0.141	0.124
Employee's main job activity (Ref.: other activity)	(0.0919)	(0.0916)	(0.0913)	(0.0917)	(0.0914)
Installation, repair, maintenance	0.347***	0.347***	0.322***	0.349***	0.340***
	(0.123)	(0.122)	(0.122)	(0.122)	(0.123)
Caring of people	1.439**	1.436**	1.438**	1.440**	1.449**
Socio-professional condition (Ref.: Blue-collars)	(0.617)	(0.618)	(0.615)	(0.602)	(0.612)
Managers	0.499***	0.498***	0.426***	0.501***	0.487***
	(0.0856)	(0.0859)	(0.0876)	(0.0860)	(0.0857)
Supervisors and technicians	0.378***	0.378***	0.319***	0.384***	0.368***
	(0.0668)	(0.0670)	(0.0680)	(0.0675)	(0.0672)
Employee	0.272***	0.271***	0.249***	0.281***	0.265***
	(0.0765)	(0.0765)	(0.0779)	(0.0768)	(0.0765)
Job tenure	0.00360	0.00364	0.00299	0.00359	0.00348
Size of Interactions	(0.00251)	(0.00251)	(0.00255)	(0.00250)	(0.00250)
Team2up5	0.264***	0.262***	0.263***	0.266***	0.272***
	(0.0979)	(0.0968)	(0.0940)	(0.0993)	(0.0993)
Team6up10	0.331***	0.330***	0.330***	0.335***	0.339***
	(0.104)	(0.103)	(0.0999)	(0.105)	(0.105)
TeamMore10	0.455***	0.453***	0.432***	0.453***	0.460***
	(0.109)	(0.107)	(0.101)	(0.111)	(0.111)
TeamPay	0.275***	0.275***	0.225***	0.263***	0.268***
	(0.0676)	(0.0675)	(0.0645)	(0.0671)	(0.0675)
IndivPay	0.107*	0.107*	0.0951	0.105*	0.101*
	(0.0600)	(0.0599)	(0.0597)	(0.0604)	(0.0599)
WeakPerfEval	0.0536	0.0532	0.0671	0.0471	0.0518
	(0.0656)	(0.0658)	(0.0654)	(0.0667)	(0.0661)
StrongPerfEval	0.194***	0.194***	0.177***	0.193***	0.187***
Monitoring (Ref.: no monitoring)	(0.0469)	(0.0473)	(0.0500)	(0.0467)	(0.0469)
HiercMonit	-0.0349	-0.0350	-0.0317	-0.0296	-0.0377
	(0.0434)	(0.0434)	(0.0451)	(0.0431)	(0.0438)
OutsideMonit	0.195***	0.195***	0.153***	0.187***	0.192***
	(0.0494)	(0.0487)	(0.0482)	(0.0497)	(0.0503)
AutomMonit	0.0757*	0.0760*	0.0676	0.0764*	0.0755*
	(0.0441)	(0.0443)	(0.0499)	(0.0445)	(0.0440)
PercVarPay	0.218	0.215	0.252	0.219	0.226
	(0.190)	(0.191)	(0.192)	(0.190)	(0.190)
Repeated Job Inter*Interdependencies in production		-0.0289			
		(0.0715)			
Job Autonomy*Interdependencies in production			1.113***		
			(0.0829)		
Interdependencies in production*Peer Monitoring				0.451***	
				(0.131)	
Interdependencies in production*Task Variety					0.194***
					(0.0560)
Constant	-1.257***	-1.245***	-0.931***	-1.234***	-1.264***
	(0.254)	(0.243)	(0.242)	(0.257)	(0.255)
Observations	9765	9765	9765	9765	9765

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The regressions also controls for industry dummy variables and employee's main job activity

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted regressions.

Table 4. Probit Analysis: Peer monitoring and mutual help (Probit coefficients)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	mutual_help	mutual_help	mutual_help	mutual_help	mutual_help
Peer Monitoring	0.662***	0.769***	0.723***	0.176	0.688***
	(0.108)	(0.123)	(0.126)	(0.156)	(0.140)
Firm Size	-4.41e-06**	-4.38e-06**	-4.38e-06**	-4.21e-06**	-4.41e-06**
	(1.94e-06)	(1.96e-06)	(1.98e-06)	(2.09e-06)	(1.96e-06)
Gender (1 if female)	-0.140***	-0.135***	-0.139***	-0.141***	-0.140***
	(0.0449)	(0.0454)	(0.0449)	(0.0451)	(0.0440)
Age	-0.00336	-0.00336	-0.00338	-0.00366	-0.00335
Education (Ref.: primary and lower secondary education)	(0.00291)	(0.00293)	(0.00292)	(0.00294)	(0.00292)
Vocational upper education	0.0951	0.0948	0.0964	0.0977	0.0947
	(0.0610)	(0.0603)	(0.0608)	(0.0603)	(0.0607)
General upper education	0.198**	0.196**	0.199**	0.200**	0.198**
	(0.0879)	(0.0868)	(0.0878)	(0.0863)	(0.0880)
Higher education (Bachelor)	0.118	0.117	0.120	0.118	0.118
	(0.0826)	(0.0821)	(0.0821)	(0.0821)	(0.0826)
Higher education (Masters, PhD)	0.143	0.141	0.143	0.151*	0.143
Employee's main job activity (Ref.: other activity)	(0.0894)	(0.0889)	(0.0893)	(0.0897)	(0.0892)
Installation, repair, maintenance	0.355***	0.350***	0.356***	0.340***	0.355***
	(0.121)	(0.121)	(0.122)	(0.121)	(0.121)
Caring of people	1.431**	1.430**	1.431**	1.409**	1.431**
Socio-professional condition (Ref.: Blue-collars)	(0.583)	(0.584)	(0.583)	(0.582)	(0.583)
Managers	0.496***	0.491***	0.495***	0.484***	0.496***
	(0.0840)	(0.0834)	(0.0837)	(0.0840)	(0.0838)
Supervisors and technicians	0.374***	0.371***	0.373***	0.364***	0.375***
	(0.0644)	(0.0640)	(0.0640)	(0.0638)	(0.0643)
Employee	0.269***	0.267***	0.268***	0.268***	0.270***
	(0.0753)	(0.0749)	(0.0748)	(0.0746)	(0.0754)
Job tenure	0.00415*	0.00425*	0.00418*	0.00448*	0.00414*
Size of Interactions	(0.00250)	(0.00251)	(0.00252)	(0.00254)	(0.00251)
Team2up5	0.259***	0.255***	0.258***	0.244**	0.259***
	(0.1000)	(0.0982)	(0.0995)	(0.0964)	(0.0986)
Team6up10	0.339***	0.338***	0.339***	0.329***	0.339***
	(0.106)	(0.105)	(0.105)	(0.103)	(0.105)
TeamMore10	0.449***	0.443***	0.448***	0.432***	0.449***
	(0.112)	(0.108)	(0.111)	(0.106)	(0.111)
TeamPay	0.262***	0.265***	0.263***	0.257***	0.261***
	(0.0667)	(0.0682)	(0.0669)	(0.0654)	(0.0664)
IndivPay	0.101*	0.104*	0.101*	0.0925	0.101*
	(0.0590)	(0.0600)	(0.0588)	(0.0580)	(0.0590)
WeakPerfEval	0.0469	0.0516	0.0475	0.0514	0.0469
	(0.0665)	(0.0654)	(0.0663)	(0.0647)	(0.0664)
StrongPerfEval	0.190***	0.189***	0.190***	0.187***	0.190***
Monitoring (Ref.: no monitoring)	(0.0466)	(0.0475)	(0.0467)	(0.0478)	(0.0467)
HiercMonit	-0.0310	-0.0320	-0.0318	-0.0356	-0.0307
	(0.0439)	(0.0441)	(0.0440)	(0.0438)	(0.0438)
OutsideMonit	0.185***	0.183***	0.185***	0.175***	0.185***
	(0.0500)	(0.0496)	(0.0501)	(0.0476)	(0.0497)
AutomMonit	0.0829*	0.0866*	0.0834*	0.0837*	0.0830*
	(0.0434)	(0.0442)	(0.0436)	(0.0446)	(0.0436)
PercVarPay	0.245	0.238	0.246	0.237	0.245
	(0.188)	(0.189)	(0.188)	(0.190)	(0.188)
Repeated Job Inter*Peer Monitoring		-0.325*			
		(0.177)			
Interdependencies in production*Peer Monitoring			-0.0993		
			(0.151)		
Job Autonomy*Peer Monitoring				0.839***	
				(0.217)	
Peer Monitoring*Task Variety					-0.0418
					(0.244)
Constant	-1.159***	-1.151***	-1.159***	-1.100***	-1.160***
	(0.252)	(0.250)	(0.251)	(0.247)	(0.253)
Observations	9765	9765	9765	9765	9765

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The regressions also controls for industry dummy variables and employee's main job activity

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted regressions.

Table 5. Probit Analysis: Task variety and mutual help (Probit coefficients)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	mutual_help	mutual_help	mutual_help	mutual_help	mutual_help
Task Variety	0.307***	0.321***	-0.0750	0.267***	0.272***
	(0.0391)	(0.0458)	(0.0513)	(0.0462)	(0.0426)
Firm Size	-4.07e-06*	-4.05e-06*	-3.28e-06*	-3.99e-06*	-4.21e-06**
	(2.18e-06)	(2.19e-06)	(1.80e-06)	(2.10e-06)	(2.12e-06)
Gender (1 if female)	-0.130***	-0.129***	-0.111**	-0.130***	-0.127***
	(0.0426)	(0.0430)	(0.0442)	(0.0426)	(0.0426)
Age	-0.00316	-0.00317	-0.00620**	-0.00300	-0.00333
Education (Ref.: primary and lower secondary education)	(0.00293)	(0.00293)	(0.00286)	(0.00296)	(0.00296)
Vocational upper education	0.0939	0.0940	0.0888	0.0935	0.0950
	(0.0622)	(0.0622)	(0.0616)	(0.0625)	(0.0607)
General upper education	0.166*	0.166*	0.155*	0.164*	0.173**
	(0.0899)	(0.0894)	(0.0845)	(0.0895)	(0.0867)
Higher education (Bachelor)	0.0894	0.0882	0.0975	0.0873	0.0925
	(0.0862)	(0.0860)	(0.0834)	(0.0869)	(0.0837)
Higher education (Masters, PhD)	0.0822	0.0799	0.0841	0.0832	0.0938
Employee's main job activity (Ref.: other activity)	(0.0899)	(0.0892)	(0.0867)	(0.0902)	(0.0883)
Manifacturing, building sites, exploitation	0.169**	0.168**	0.129*	0.167**	0.169**
	(0.0815)	(0.0814)	(0.0776)	(0.0811)	(0.0804)
Installation, repair, maintenance	0.313**	0.312**	0.305***	0.314**	0.322***
	(0.122)	(0.122)	(0.106)	(0.122)	(0.120)
Caring of people	1.354**	1.361**	0.953*	1.372**	1.370**
Socio-professional condition (Ref.: Blue-collars)	(0.612)	(0.613)	(0.529)	(0.609)	(0.601)
Managers	0.440***	0.438***	0.342***	0.442***	0.438***
	(0.0862)	(0.0866)	(0.0857)	(0.0863)	(0.0853)
Supervisors and technicians	0.334***	0.333***	0.300***	0.335***	0.334***
	(0.0665)	(0.0668)	(0.0617)	(0.0668)	(0.0651)
Employee	0.255***	0.253***	0.251***	0.256***	0.257***
	(0.0752)	(0.0750)	(0.0755)	(0.0753)	(0.0746)
Job tenure	0.00411	0.00415*	0.00474*	0.00392	0.00420*
Size of Interactions	(0.00252)	(0.00252)	(0.00256)	(0.00251)	(0.00251)
Team2up5	0.275***	0.273***	0.250***	0.277***	0.277***
	(0.1000)	(0.0989)	(0.0952)	(0.101)	(0.102)
Team6up10	0.342***	0.341***	0.301***	0.343***	0.345***
	(0.106)	(0.105)	(0.0988)	(0.106)	(0.107)
TeamMore10	0.462***	0.459***	0.389***	0.462***	0.459***
	(0.111)	(0.109)	(0.103)	(0.113)	(0.115)
TeamPay	0.259***	0.259***	0.202***	0.256***	0.255***
	(0.0674)	(0.0675)	(0.0651)	(0.0673)	(0.0678)
IndivPay	0.0893	0.0891	0.0742	0.0886	0.0896
	(0.0598)	(0.0597)	(0.0524)	(0.0598)	(0.0595)
WeakPerfEval	0.0565	0.0569	0.0700	0.0540	0.0519
	(0.0647)	(0.0645)	(0.0602)	(0.0653)	(0.0656)
StrongPerfEval	0.174***	0.173***	0.164***	0.172***	0.173***
Monitoring (Ref.: no monitoring)	(0.0462)	(0.0464)	(0.0451)	(0.0463)	(0.0460)
HiercMonit	-0.0382	-0.0385	-0.0651	-0.0392	-0.0394
	(0.0437)	(0.0438)	(0.0477)	(0.0437)	(0.0440)
OutsideMonit	0.182***	0.182***	0.151***	0.181***	0.179***
	(0.0492)	(0.0489)	(0.0461)	(0.0498)	(0.0518)
AutomMonit	0.0863**	0.0854**	0.0697	0.0847**	0.0869**
	(0.0425)	(0.0422)	(0.0447)	(0.0429)	(0.0424)
PercVarPay	0.251	0.245	0.209	0.248	0.251
	(0.189)	(0.190)	(0.193)	(0.189)	(0.189)
Repeated Job Inter*Task Variety		-0.0392			
		(0.0631)			
Job Autonomy*Task Variety			1.043***		
			(0.0742)		
Interdependencies in production*Task Variety				0.0999*	
				(0.0517)	
Peer Monitoring*Task Variety					0.413**
					(0.197)
Constant	-1.190***	-1.173***	-0.761***	-1.215***	-1.175***
	(0.247)	(0.241)	(0.224)	(0.250)	(0.251)
Observations	9765	9765	9765	9765	9765

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The regressions also controls for industry dummy variables and employee's main job activity

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted regressions.

REFERENCES

BLACK S., LYNCH L., 2001, "How to Compete: the Impact of Workplace Practices and Information Technology on Productivity", *Review of Economics and Statistics*, 83(3 Aug), 434-445.

BLOOM N., VAN REENEN J., 2010, "Human Resource Management and Productivity", *NBER Working Paper* 16019, Cambridge, Massachussets.

BLOOM N., VAN REENEN J., 2007, "Measuring and Explaining Management Practices across Firms and Countries", *The Quarterly Journal of Economics*, Vol. CXXII, Issue 4, 1351-1408.

BRENNER M., FAIRRIS D., RUSER J., 2004, "´Flexible´ Work Practices and Occupational Safety and Health: Exploring the Relationship between Cumulative Trauma Disorders and Workplace Transformation", *Industrial Relations*, Vol. 42(1), 242-266.

CHE Y-K., YOO S.-W., 2001, "Optimal Incentives for Teams", *The American Economic Review*, 91 (3), 525-541.

CRISTINI A., ERIKSSON T., POZZOLI D., 2011, "High Performance Management Practices and Employee Outcomes in Denmark", *Working Paper* 11-01, University of Aarhus, Aarhus School of Business, Department of Economics.

DRAGO R., GARVEY G., 1998, "Incentives for Helping on the Job: Theory and Evidence", *Journal of Labor Economics*, 16, 1-25.

ENCINOSA III W.E., GAYNOR M., REBITZER J. B., 2007, "The Sociology of Groups and the Economics of Incentives: Theory and Evidence on Compensation Systems", *Journal of Economic Behavior & Organization*, 62(2), 187-214.

FORTH J., MILLWARD N., 2004, "High-Involvement Management and Pay in Britain", *Industrial Relations*, vol. 43(1), 98-119.

GAGNÉ M., DECI E. L., 2005, "Self-Determination Theory and Work Motivation", *Journal of Organizational Behavior*, 26, 331-362.

HACKAMN R., OLDHAM G., 1980, *Work Redesign*, Reading, MA: Addison-Wesley.

HAMILTON B. H., NICKERSON J.A., OWAN H., 2003, "Team Incentives and Worker Heterogeneity: an Empirical Analysis of the Impact of Teams on Productivity and Participation", *Journal of Political Economy*, 111 (3), 465-497.

HANDEL M.J., GITTLEMAN M., 2004, "Is There a Wage Payoff to Innovative Work Practices?", *Industrial Relations*, Vol. 42(1), 67-97.

HOLMSTRÖM B., MILGROM P., 1991, "Multitask Principal-Agent Analysis: Incentive Contracts, Asset Ownership and Job Design", *Journal of Law, Economics and Organization*, 7, 24-52.

ITOH H., 1992, "Cooperation in Hierarchical Organizations: An Incentive Perspective", *Journal of Law, Economics and Organization*, 8, 321-345.

KANDEL E., LAZEAR E., 1992, "Peer Pressure and Partnerships", *Journal of Political Economy*, 100 (4), 801-817.

KAUFMAN B., MILLER B., 2011, "The Firm's Choice of HEM Practices: Economics meets Strategic Human Resources Management", *Industrial and Labor Relations Review*, 64 (3), 526-557.

KEHR H. M., 2004, "Integrating Implicit Motives, Explicit Motives and Perceived Abilities: the Compensatory Model of Work Motivation and Volition", *Academy of Management Review*, 29, 479-499.

KNEZ M., SIMESTER D., 2001, "Firm-Wide Incentives and Mutual Monitoring at Continental Airlines", *Journal of Labor Economics*, 19(4), 743-772.

LINCOLN J., KALLEBERG A., 1990, *Culture, Control and Commitment*. New York:Cambridge University Press.

MAN D., LAM S., 2003, "The Effects of Job Complexity and Autonomy on Cohesiveness in Collectivistic and Individualistic Work Groups: a Cross-Cultural Analysis", *Journal of Organizational Behavior,* 24 (8), 979-1001.

RAVER J., EHRHART M. G., CHADWICK I. C., 2012, "The Emergence of Team Helping Norms: Foundations within Members' Attributes and Behaviour", *Journal of Organizational Behavior,* 33, 616–637.

Appendix

Table A1. Descriptive Statistics. Firms and employee's characteristics (standard errors in parentheses)

Firm's characteristics				**Employee's job characteristics**	
Activity sector	**%**	**LOG Turnover**	**Sample mean**	**Socio-professional condition**	**%**
			11.64	Managers	18.45
Food manufacturing industry	4.93		(0.1923)		(0.0105)
	(0.027)	**Capital intensity 2005**	**Sample mean**	Supervisors and technicians	26.79
Consumption goods industry	5.85		132.09		(0.0077)
	(0.03)		(18.55)	Employees	17.17
Automobile industry	5.16	**Employees's personal characteristics**			(0.0096)
	(0.0186)	**Gender**	**%**	Blue-collars	37.58
Capital goods industry	10.12	Male	69.59		(0.0091)
	(0.0068)	Female	30.41	**Main job activity**	**%**
Intermediate goods industry	17.63		(0.0077)	Manufacturing, building sites, exploitation	31.97
	(0.0079)				(0.0093)
Energy	2.88	**Age**	**Sample mean**	Installation, repair, maintenance	8.93
	(0.0133)		40.43		(0.004)
Construction Industry	8.17		(0.1786)	Cleaning, gardening, housework	2.42
	(0.0037)				(0.0042)
Trade and repairs industry	21.56	**Education**	**%**	Maintenance, warehouse logistics	10.12
	(0.0122)	Primary and lower secondary education	12.04		(0.0049)
Transportation services	7.81		(0.005)	Secretarial work, reception	5.84
	(0.0043)	Vocational upper secondary education	38.28		(0.0036)
Real Estate	0.67		(0.0079)	Management, accounting	7.83
	(0.00085)	General upper secondary education	17.42		(0.0047)
Business services	12.74		(0.0053)	Commercial activities	13.85
	(0.0128)	Higher education (Bachelor)	16.53		(0.0067)
Personal Services	2.45		(0.0067)	Research and development	8.79
	(0.0026)	Higher education (Masters, PhD)	15.73		(0.0052)
Financial activities	0.036		(0.011)	Teaching	0.0006
	(0.00036)				(0.00025)
Size	**Sample mean**	**Job tenure**	**Sample Mean**	Caring of people	0.45
Number of staff	1414.59		8.07		(0.0026)
	(6013.559)		(0.164)	Other activity	9.75
					(0.0063)

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted data.

Table A2. Descriptive Statistics. Implicit, Explicit Incentives and Mutual Help

Work practices	%	**Pay**	
Repeated job interactions	37.92	Team Pay	**%**
	(0.0085)		25.9
Job autonomy	30.65		(0.0083)
	(0.0076)	Individual Pay	**%**
Interdependencies in production	36.7		36.72
	(0.0101)		(0.0073)
Peer Monitoring	6.57		
	(0.0063)	Percentage Variable Pay	Sample Mean
Task Variety	49.34		3.43
	(0.0084)		(0.0012)

Interactions size	**%**	**Performance evaluation**	
		Weak Performance Evaluation	**%**
1 colleague	4.02		18.25
	(0.0033)		(0.0066)
between 2 and 5	30.33	Strong Performance Evaluation	**%**
	(0.0084)		34.55
between 6 and 10	23.17		(0.0165)
	(0.0057)		
more than 10	42.49	**Monitoring**	
	(0.0081)	Hierarchical Monitoring	**%**
Mutual help			88.3
	%		(0.0062)
	36.67	Outside Monitoring	**%**
	(0.0068)		36.18
			(0.0074)
		Automatic Monitoring	**%**
			26.38
			(0.0085)
		Monitoring by colleagues	**%**
			31.33
			(0.0085)

Note: Standard errors in parantheses

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted data.

Table A3 Frequencies between work practices

	Job autonomy		
Repeated Job Inter.	0	1	Total
0	0.4205	0.2002	*0.6208*
1	0.273	**0.1062**	*0.3792*
Total	*0.6935*	*0.3065*	*1*

	Interdep. in prod		
Job Autonomy	0	1	Total
0	0.4567	0.2369	*0.6935*
1	0.1763	**0.1301**	*0.3065*
Total	*0.633*	*0.367*	*1*

	Task Variety		
Interdep. in prod		1	Total
0	0.3319	0.3011	*0.633*
1	0.1747	**0.1923**	*0.367*
Total	*0.5066*	*0.4934*	*1*

	Interdep. in prod		
Repeated Job Inter.	0	1	Total
0	0.3886	0.2321	*0.6208*
1	0.2444	**0.1349**	*0.3792*
Total	*0.633*	*0.367*	*1*

	Peer Monitoring		
Job Autonomy	0	1	Total
0	0.6669	0.0267	*0.6935*
1	0.2674	**0.0391**	*0.3065*
Total	*0.9343*	*0.0657*	*1*

	Task Variety		
Peer Monitoring	0	1	Total
0	0.4824	0.4519	*0.9343*
1	0.0242	**0.0415**	*0.0657*
Total	*0.5066*	*0.4934*	*1*

	Peer Monitoring		
Repeated Job Inter.	0	1	Total
0	0.5766	0.0442	*0.6208*
1	0.3577	**0.0215**	*0.3792*
Total	*0.9343*	*0.0657*	*1*

	Task Variety		
Job Autonomy	0	1	Total
0	0.391	0.3025	*0.6935*
1	0.1156	**0.1909**	*0.3065*
Total	*0.5066*	*0.4934*	*1*

	Task Variety		
Repeated Job Inter.	0	1	Total
0	0.2984	0.3224	*0.6208*
1	0.2082	**0.171**	*0.3792*
Total	*0.5066*	*0.4934*	*1*

	Peer Monitoring		
Interdep. In prod	0	1	Total
0	0.6082	0.0248	*0.633*
1	0.3261	**0.0409**	*0.367*
Total	*0.9343*	*0.0657*	*1*

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted data.

Table A4 Correlations across work practices

	Repeated Job Int	Job Autonomy	Interdep Prod	Peer Monitoring	Task Variety
Repeated JobInt	1				
Job Autonomy	**-0.0686**	1			
	0.0000				
Interdep Prod	**-0.0269**	**0.082**	1		
	0.0079	0.0000			
Peer Monitoring	**-0.0463**	**0.1664**	**0.1131**	1	
	0.0000	0.0000	0.0000		
Task Variety	**-0.0894**	**0.1666**	**0.04**	**0.0627**	1
	0.0000	0.0000	0.0001	0.0000	

Source: COI 2006/Insee-Dares-CEE.

Field: Stable employees (one year of service) from productive units of 20 or more employees. Weighted data.

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