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We conduct a case study of the linkages of task organization, human capital accumulation, and wages in Morocco, using matched worker–firm data for electrical–mechanical and textile-clothing industries. In order to integrate task organization into the interacting processes of workers' training and remunerations, we assume a recursive model, which is not rejected by our estimates: task organization influences on-the-job training (OJT) that affects wages. Beyond sector and gender determinants, assignment of workers to tasks and OJT is found to depend on former education and work experience in a broad sense. Meanwhile, participation in OJT is stimulated by being assigned to a team, especially of textile sector and for well-educated workers. Finally, task organization and OJT are found to effect wages.

Keywords: Morocco; wages; on-the-job training; human capital; task organization

1. Introduction

1.1. The issues

In this case study, we examine how task organization and on-the-job training (OJT) interact with human capital accumulation and earnings of workers in eight Moroccan firms in the textile-clothing and electrical–mechanical industries.

In most human capital theories, wage differentials between individuals are determined by their differences in education, experience, and OJT. In this perspective, market forces are often seen as equalizing individuals' earnings, provided human capital endowments are identical. However, how task allocation and OJT affect these mechanisms is generally neglected.

In this paper, we scrutinize the interrelationships between task organization, human capital accumulation, OJT, and wages. For this, we use a matched worker–firm data set that provides detailed information on workers' attributes for a few manufacturing plants. Our analysis should be viewed as a case study since our data may not represent the manufacturing sectors in Morocco perfectly. Case studies in developing countries are appealing as there is a persistent lack of knowledge on how workers' human capital and earnings can be improved in connection with work organization and OJT. Human capital accumulation in firms through OJT should depend on task allocation, as different

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techniques are used in different posts, and the opportunities of learning from coworkers vary across differently organized groups of workers.

1.2. The literature

Few empirical studies have incorporated task organization within firms when studying how workers benefit from human capital or how wages are determined. Yet, task organization may be a major transmission channel of human capital across workers. Lindbeck and Snower (2000) emphasize this (p. 356):

> In the new types of firms emerging nowadays, the traditional separation of roles tends to break down. Workers are often given responsibilities spanning more than one of the traditional groupings. Greater emphasis is now also placed on continuous learning and skill development, all-round knowledge, the potential to acquire multiple skills, and the ability to learn how the experience gained from one skill enhances another skill.

A few authors report the emerging new forms of work organization in industrialized countries since the mid-1980s, starting from the Japanese flexible company model (OECD, 1999; Osterman, 2000). It is sometimes possible to recognize some prominent features: growing role for teamwork and job rotation, reduction in the number of management levels, development of workers' versatility and continuous learning, notably through OJT, decentralization of responsibilities within firms, and direct participation of employees in decision-making in multiple dimensions. There is no reason why such innovation should not extend to firms in Less Developed Countries (LDC).

Some authors have explored theoretical macroeconomic explanations on how new work organization emerged. Greenan and Guellec (1994) analyze the impact on growth of ways of processing and communicating information in firms. Thesmar and Thoenig (2000) study the macroeconomic growth implications of the organizational structure of firms. Lindbeck and Snower (2000) examine the forces driving the restructuring process in firms. Caroli, Greenan, and Guellec (2001) formalize the link between human capital accumulation and organizational changes. The latter show that, in industrialized countries, the relative increase in skilled workers may impulse the decentralization of work organization. They advocate amplifying the range of workers' skills, in particular through OJT, to yield further decentralization of firm organization.

These works emphasize the relevance of linking within-firm task organization, human capital accumulation, and wages. Nevertheless, to our knowledge, no empirical study has focused on these issues using matched worker–firm data on a developing country.

What are the determinants of within-firm task organization in exporting firms in Morocco? How does work organization influence OJT? How do these two variables affect wages? We explore these questions. We start by discussing the Moroccan labor market in Section 2. We present the data in Section 3 and our model in Section 4. We comment on the estimation results in Section 5. Finally, Section 6 concludes.

2. The Moroccan labor market

2.1. The general context

Morocco is a semi-developed economy with a fast evolving working population. During the 1990s, social indicators much improved following public social expenditure and better focus of social policies on rural areas (The World Bank, 2001). In the last decade,

Morocco has enjoyed sustained economic growth, with an average annual growth rate of about 5%, almost twice its average growth rate in the 1990s (The World Bank, 2012).

Yet, poverty and vulnerability were found to be on the rise at the time of the survey we use. Household surveys in Morocco (Living Standards Measurement Survey) show that the poor rose from 13.1% of the population in 1990/1991 to 19% in 1998/1999. Explanations of these high poverty figures can be found in sluggish GDP growth, drop in agricultural value-added after several droughts, collapse in employment creation, and growing inequality in rural areas.

More recent data on poverty and labor market are scarce in Morocco.[1] However, according to the Morocco Household and Youth Survey from 2009 to 2010 (The World Bank, 2012), 49% of Moroccan youth are neither in school nor in the workforce. In such circumstances, a crucial question is whether better education and training can lead to large earnings increases as is often the case in developing countries.[2]

In the following, we refer to figures pertaining to the time period of the survey data we collected for this paper, that is the late 1990s. About one-third of the Moroccans were under 15 years old, while the decreasing fertility rate was still at 3.1% in 2000. Moreover, large interurban and rural–urban migrations took place. For these reasons, the Moroccan labor market was tight in peri-urban areas where many exporting firms were concentrated. However, although job searchers were abundant, skills were scarce. More than half the adults were illiterate, this proportion being much higher for women. According to census data, illiteracy even averaged 80% among rural adults aged 35–49 years in 2004 (The World Bank, 2012).

While half the population worked in agriculture, the textile industry stood as a major employment sector (42% of industrial employment, 60% for female labor). Textile production increased by 7.75% per year between 1986 and 1998, and contributed to 11% of exports (Intermon, 2003). Most garment companies corresponded to small-sized families where minimum wage, social security, and legal contracts were not enforced. Meanwhile, a few modern firms accounted for the bulk of human capital investment in this sector. We focus on such firms and on electrical–mechanical companies, another pillar of the Moroccan exporting industry.

In Morocco, human capital and labor remuneration issues are stimulated by the intensifying international competition in the exporting sectors. The export-oriented restructuring of the Moroccan economy was initiated during the 1983 adjustment program (Morrisson, 1991). Foreign trade liberalization was fostered as early as 1986, culminating with several association agreements with the European Union (1995), the free trade agreement with the USA (2004), and the building of a new industrial port in Tangier in 2005. Moreover, from 1989, a large privatization program of public firms went under way. In 2005, China entered the WTO, which generated fierce competition for Moroccan products in Europe, especially since the quotas of the multi-fiber agreement were simultaneously eliminated. These new threats to the Moroccan textile and other exporting firms had adverse consequences for employment and wages. In the textile sector, 75,000 jobs were destroyed in 2005 in Morocco, and many firms shut down.[3] Only firms producing small series and luxury goods seem to be able to stand the Chinese competition, in the absence of modernization. In 2006, Moroccan exports fell down to below six billions euros. Although aggregate wages do not seem to have much suffered, wages in exporting firms have dropped.

In this situation, upgrading skills and human capital appears as one way of generating the required productivity gains in order to face competition. Cammett (2007) shows how

upgrading in the apparel sector largely originates from industrialists and business associations, with subsequent state engagement.

In this paper, we concentrate on exporting firms, which are believed to be among the most efficient firms. As a matter of fact, inefficient firms cannot compete on international markets (Clerides, Lach, & Tybout, 1998).

2.2. Wage formation

In Morocco, the labor legislation underpins the level of wages. Unions enjoy a strong influence. Although the minimum wage (SMIG, *Salaire minimum interprofessionnel garanti*) is not enforced in the informal sector of the economy, it is much better implemented throughout the industrialized and unionized sectors. These workers are generally paid between 13 and 16 salary months per year, including bonuses.

The SMIG did not much affect wages during the 1980s, when real wages of the Moroccan manufacturing sector declined, while the real SMIG increased by about 25%. During the 1990s, the SMIG increments shadowed the shifts in the mean urban wage more than proportionally (The World Bank, 1994). Thus, the partial vanishing of the differential between mean urban wage and SMIG contributed to reducing wage dispersion. Besides, the 52% SMIG hike between 1989 and 1994 cannot be explained by the sole change in the cost of living (35% over this period). The monthly SMIG (1659 dirhams[4]), which had not been updated since 1996, was raised by 10% in 2000.

A few authors studied the functioning of the labor market in Morocco. Lane, Hakim, and Miranda (1999) underline the stagnation of the average wage in the manufacturing sector over the 1990s. They show that considerable gaps in average wages persist across sectors. The least remunerative industrial sectors are those of leather and confection, while the sectors of drinks and tobacco correspond to the higher mean wages which are more than three times higher in 1995 than those in the confection sector.[5] The least remunerative industries had the largest share of job creation during the past decade, which is believed to explain much of the wage stagnation.

2.3. Labor laws

Skills of the labor force and competition largely explain wage disparities across sectors (as in Clerides et al., 1998). Our data confirm this while other factors intervene, notably labor laws. Legally, the minimum wage is not applied to certain types of employees, such as young workers below 18 years old, temporary workers, or trainees. Furthermore, in 1986, at least half the firms of the Moroccan private manufacturing sector and 40% of large companies over 100 employees pay unskilled workers an average wage below the SMIG.[6] Meanwhile, only 3% of firms in this sector pay skilled workers below the minimum wage.

The statutory frame of the Moroccan labor market is stiff. Until recently, working relations were governed by laws dating back to 1921 that strongly emphasized job security so that dismissing permanent workers was expensive.[7] The law provided for a 48-hour maximum workweek with no more than 10 hours a day, premium pay for overtime, paid public and annual holidays, and minimum conditions for health and safety, including prohibition of night work for women and minors.

The former labor code, combined with the slow pace of the law, contributed to making human resources management more expensive in Morocco (The World Bank, 1999).

However, the recently adopted labor code (July 2003) encourages flexibility and conciliation. The new code reflects international conventions regarding the protection of children, women, handicapped people, workers, and unions' rights.

Temporary workers bring flexibility to the Moroccan labor market although this is acquired at the cost of employment stability and accompanying investment in human capital (Lane et al., 1999).[8] Job precariousness not only diminishes the worker's personal interest in his or her training in the firm but also deters human capital investment from employers. Statistics from the *Direction de la Statistique* on the creation of industrial employment in 1995 exhibit the prominence of seasonal jobs at a rate of 80%. These jobs, contributing for 19% to total employment in the transformation industries, grew by 8% compared to 1994, while permanent jobs increased only by 1%. Moreover, many workers access the labor market through informal networks, frequently relying on family or personal links (El Aoufi, 1997; Lenoir, 2003). We now discuss the data used in the estimation.

3. The Moroccan matched worker–firm data

A survey at the employee's workplace was conducted to produce a sample of matched worker–firm data in Morocco.[9] The data include information on each worker in the surveyed firms: individual characteristics (matrimonial status, number of dependent children, geographic origin), wages, educational investment (years of schooling at the primary, secondary, and upper levels, university or vocational degrees), post-school training (apprenticeship, internships, formal training within the current firm), experience in the labor market, and occupation in the current firm. The data combine these workers' characteristics with the characteristics of the firms in which they work.

A sample of 187 individuals were interviewed during summer 1997 (Nordman, 2000). The year 1997 was an exceptionally good agricultural year, which stimulated the whole economy. The survey was completed in January 2000 when the employees of an additional firm were included in the sample, which now amounts to 203 individuals matched with 8 firms. The firms were selected on criteria of size (not less than 50 employees), activity, vocation to export, and capital ownership. Firms not exporting their production or foreign owned were not retained in the sample.[10] Employers have been asked about their firm's characteristics, including: workforce composition, work organization, training and communication practices, organizational or technical innovations, and competitiveness. The observed occupational structure within each firm was used to constitute representative subsamples of their workers. These surveyed workers were randomly chosen within each occupation strata, and not less than 10% of the man power was interviewed.

In these data, four firms belong to the textile-clothing sector located in the Tangier area and four firms to the mechanics, metallurgical, electrical, and electronics industries (IMMEE or electrical–mechanical industries to shorten) in the Casablanca area. We therefore conduct a case study. However, a few summary statistics show that these firms exhibit relevant characteristics. The average size of the surveyed establishments is 230 employees. A total of 54.1% of the employees work in the textile sector and 45.9% in the IMMEE. The proportion of female in the overall worker sample amounts to 49.8%.

Tables 1 and 2 in the Appendix report descriptive statistics on the workers' characteristics and monthly wages. The mean schooling year is 9.8 years (standard deviation 9.7). It is calculated from the workers' questionnaires, using the available

information on the highest level of education reached by the workers. When this variable is calculated from the age at the end of school, from which we deduct 6 years, the average number of years of schooling is close to 13 years. The education variable we use is net from repeated classes (accounting for the observed unsuccessful years of education[11]) in order to avoid overestimating education.[12] A total of 6% of the workers have had no schooling, 16.7% have completed only primary education (1–5 years), 65.5% have reached an educational level of 6–12 years (secondary school), and 11.8% have completed studies in higher education. A total of 33% of employees have a vocational diploma related to their current job.

The average tenure in the current firm is 6 years (4.3 years for females, 7.4 years for males). Total professional experience is on average 8.7 years (10 years for males, 6 years for females). Previous experience off the current job is on average 2.7 years (1.2 years for females, 3.9 years for males). A total of 14% of the employees have worked in their firm for at least three years without any previous work experience. The large overall ratio of tenure to overall work experience, equal to 69%, is due to the presence of numerous young workers. Indeed, the average age of workers is 30 years, with six workers observed under 17 years old and none under 15 years old. Seventeen individuals are paid under the SMIG of 1996: 1659 dirhams. Then, studied firms do not massively employ underaged or pay below the SMIG, as sometimes mentioned for Morocco (Intermon, 2003).

Let us look at a few wage characteristics. The average monthly wage of the surveyed employees is 228 US dollars,[13] 1.3 times greater in the IMMEE. Moreover, the average male wage is 1.5 times higher than that of females. It has been claimed that training and experience are similarly remunerated across genders in the export textile industry (Bourquia, 1999). In general, differences in human capital endowments across gender and sector may contribute to explaining wage differentials. Indeed, the workers' average education in the textile sector is 11.1 years against 15 years in the IMMEE. Given that the clothing sector is the lowest wage manufacturing sector in Morocco, the interindustry wage differential could explain part of the gender wage gap. However, the proportion of female workers in the two sectors is similar. This reinforces the suspicion of wage discrimination against females even if female workers are generally less experienced.

4. The model

Our estimation strategy is to use a simple recursive model in order to guide the data analysis, particularly in terms of the correlations between classical human capital accumulation, task organization, OJT, and wage determination. We shall check that the estimated correlations are consistent with the expected signs according to our model. Another approach would have been to estimate a simultaneous model of task allocation, OJT, and wage determination, relying on instrumental variables (IVs) to ensure the identification of the effect of explanatory variables. Unfortunately, this approach, which we tried and rejected, is not possible with the small sample size and without exceptional instruments. In these conditions, using a recursive model is a tractable alternative approach. The recursive setting is assumed under the untestable assumption that there is no correlation of the errors of the different equations of interest since these equations correspond to (assumed) slightly lagged events. We work under this hypothesis, which constitutes a convenient device for extracting meaningful insight from limited data. Alternatively, instead of causal inferences, the results may be seen as reflecting mere correlations between variables, which is still of interest.

We model the data generating process (DGP) as resulting from four stages. First, we state some 'initial conditions' for firms and workers: education and other classical human capital endowments (i.e. former experience and tenure), industry (textile-clothing or IMMEE), worker's sex, and family situation (notably marital status and number of children). These conditions are permanent or long-term characteristics of the studied sample of workers and firms.

In a second stage, we consider that the firm chooses its task organization and its labor inputs, the latter either through recruitment or by allocating former workers to either former or new posts. These choices are likely to be heavily determined by the technology used in each industry. Only a few dimensions of these work organization decisions have been observed: whether each observed worker works in a production line, whether each observed worker performs his or her tasks in a team, and whether each observed worker is a supervisor or an executive. These exclusive possibilities summarize our knowledge about the work organization in the firm. It is interesting to consider them at an early stage of the DGP as they are likely to determine the OJT that should be related to the worker's role in the firm's task organization, and therefore to the worker's productivity and remuneration in this role.

In a third stage, the firm makes decisions about OJT for each worker, conditionally on their initial characteristics, and on the previous task organization decisions. Finally, at a last stage of the assumed DGP, each worker's remuneration, observed as his or her wage, is determined as a function of: the initial conditions, its place in the firm's work organization, and the previous or actual OJT of the worker.

This recursive model provides us with an interpretation grid to deal with a topic not addressed in the literature: how work organization and OJT interact in the workplace and both contribute to salary determination?

In particular, we shall be able to:

(1) Estimate the determinants of task organization and OJT, instead of considering them as predetermined;
(2) Test if there is a role for task organization and OJT in wage determination, as opposed to the usual specification of wage equations where these aspects are implicitly assumed to have been 'ironed out' by the labor market.

However, since we deal with a one-period case study, we shall not be able to say much about precise causal relationship, sample selection, and endogeneity problems – admittedly important issues – but beyond the reach of these data.

Let us turn with more details about the variables to include as correlates of the dependent variables at each stage of the model. Clearly, what we defined as 'initial conditions' may affect each of the stages as these variables describe the main characteristics of firms and markets. They include for each worker: sex, age, matrimonial situation, number of dependent children, geographical origin, education (number of years of schooling, Koranic school, illiterate, job-related – or not – vocational degree), former apprenticeship, former internship (relevant or not for the present job), tenure, off-firm experience, and unemployment spells; and for the firm: firm dummy and activity sector. We avail of these variables to investigate the determination of stages two and three, i.e. task organization and OJT.

Finally, the wage equation cumulates most available explanatory variables, either as direct determinants, such as for the typical introduction of education, experience, and tenure, or indirectly through task organization and OJT variables.

Although we deal with a case study, one may wonder if the observed firms, more modern and export-oriented than many Moroccan firms, select or attract workers of higher unobserved productivity or more motivated workers. We investigate the issue of sample selectivity by using a truncated regression model for wage equations.

$$Y_{1i} = X_{1i}\beta_1 + u_{1i} \text{ if } Y_{1i} \geq Y_{2i}, \text{ and unobserved otherwise}; \quad (1)$$

$$Y_{2i} = X_{2i}\beta_2 + u_{2i}, \quad (2)$$

where Y_{1i} is the logarithm of the observed wage of each worker i while Y_{2i} denotes his or her unobserved logarithm of reservation wage.[14] β_1 and β_2 are parameter vectors. X_{1i} and X_{2i} are two row vectors describing worker's observable characteristics.

In our case, the number of dependent children allows us to identify the possible selectivity since some female workers with many children may choose not to work or to avoid modern firms with tight time schedules in order to take care of their children instead.[15]

We now move to the estimation results.

5. The results

5.1. Task organization

As mentioned before, better understanding of workers' remuneration may be obtained by analyzing organization inside the firm. We examine three exclusive tasks: work in production line, teamwork, and supervision. An individual is considered as working in a team when he or she starts performing his or her tasks in collaboration with at least two other workers performing complementary tasks. Workers in production lines are attached to stand-alone workstation and are fully restricted by the rhythm of the production process on this workstation.[16]

Columns (1) to (6) of Table 3 in the Appendix present the estimation results of a multinomial logit (MNL) model where the base alternative is 'working neither in production lines, nor in work teams, nor as a supervisor.' The estimated coefficients show the relative probabilities of the three considered types of task organization with respect to any other type. Hausman test results indicate that the hypothesis of independence of irrelevant alternatives is not rejected, which suggests that the MNL specification is appropriate. We show estimates with and without firm dummies (with a sector dummy instead, which is significant). However, we mostly comment the results with firm dummies. Indeed, introducing them much improves the model determination.

The relative probability of working in production lines is positively associated (significantly at the 5% level) with being a female worker or belonging to firms 2 and 3. It is significantly negatively associated with former relevant internship, apprenticeship, education years, and (at the 10% level) relative tenure (the ratio of tenure to firm age).

On the other hand, participation in teamwork is always significantly negatively related to relative tenure. It is also negatively related to working in the textile-clothing sector when the corresponding dummy is included in the model. Finally, it is positively associated with belonging to firms 2 and 3.

On the whole, workers assigned to production lines or teamwork have lower human capital than workers assigned to other heterogeneous tasks, which generally require higher intellectual capacities in these firms. Unemployment spells seem to keep workers out of production line and teamwork although it is unclear why. Perhaps higher unemployment rates exist in the corresponding occupations. Family circumstances do not seem to affect much the task allocation.

The relative probability of being assigned to supervision tasks is significantly negatively associated with unemployment spells and significantly positively associated with former internships, relative tenure, education (at the 10% level) and belonging to firms 2, 3, 5, and 6. These results are consistent with the substantial human capital required to fill these positions. Work supervision has been found more efficient in Morocco than in some sub-Saharan countries, perhaps due to higher human capital of supervisors in Morocco (Fafchamps & Söderbom, 2006). Firms 1, 4, and 8 are associated with a significantly smaller probability of being an executive or a supervisor, everything else equal. These three firms are older than the average with, respectively, 46, 20, and 18 years of existence, while the sample mean is 17.6 years. Their workers are older and have more total experience than the workers in the other firms, perhaps justifying that they require less supervision. These firms have also fewer employees than the other firms of the sample (104, 100, and 50 employees, respectively, compared to 228 on average), which also diminishes supervision needs. Finally, they display the smallest proportions of employees allocated to production lines, which require close supervision.

These MNL estimates reveal diverse determinants of task allocation. First, the technology used in the firm matters. Production lines are used in the textile industry because the treated fibers need to be transformed in successive stages to obtain the final products. In this industry, each worker is responsible for a precisely delimited task and working in a team is rare. Meanwhile, the estimates elicit the role of workers' general education and vocational training. Particularly, former internship or apprenticeship would allow the workers to access jobs with higher skill intensity than jobs in production lines or teams. By contrast, low education workers have a greater probability of working in production lines. Also, in the considered sectors in Morocco, uneducated workers (often female) are typically employed in production lines. While these jobs are seen as little attractive, many workers are confined to them because of strict gender roles in the Moroccan labor context. Finally, having spent a relatively long time in the firm where the worker is observed seems to allow her to integrate work teams and to access supervision positions more easily.

5.2. On-the-job training

Promoting OJT seems to be a promising policy in Morocco. Indeed, investment in OJT allows the labor force to adjust to new international market demands faster than general education. This is important because trade liberalization in Morocco may deplete wages in the traded good sector (Arbache, Dickerson, & Green, 2004).

To investigate how OJT takes place, in the next stage of our recursive model, we estimate: (1) a probit model of participation in OJT and (2) a tobit model of OJT duration. The independent variables include demographic characteristics associated with workers' preferences and family constraints, former education variables, which are again related to preferences while also to the worker's capability to attend additional training, relative tenure, experience off the firm, unemployment spells, and the previously analyzed types

of tasks (production line, team, supervisor) that may affect his or her selection for training in the firm. Firm dummies are not included in the probit models because a few firms use too little OJT to make firm-specific estimation reasonable. However, it remains possible to include firm dummies in the tobit model. The results are reported in columns (1) to (3) of Table 4 in the Appendix. In column (2), the workstation variables are crossed with the two main human capital variables (education and relative tenure) to test for differentiated effects across human capital levels.

The estimates presented in these three columns show that most included socio-demographic characteristics (age – not even included in the final specification, number of children, and gender) and some labor market personal characteristics (internship, unemployment, relative tenure, being supervisor, proximity to SMIG – now omitted) have nonsignificant coefficients.

Working in the textile-clothing sector appears to be clearly detrimental to OJT participation and OJT duration, while general education is positively correlated with OJT participation and duration. Indeed, textile-clothing is not capital intensive but is unskilled labor-intensive. Very few Moroccan garment companies provided formal OJT in 1997. By contrast, the IMMEE sector is relatively human capital intensive, especially its electronics branch. It is therefore more prone to provide OJT, at a time when new technologies are being introduced.

Workers with large off-firm experience have fewer chances of being selected for OJT, and when they are, they benefit from a shorter training duration. It may be that only workers relatively new in the labor force are worth training. Experienced workers often already know the skills of the trade or may have revealed mediocre learning capacity.

Interestingly, being married is negatively associated with OJT participation (at the 10% level), while it has no significant effect on OJT duration. This result may come from the additional stress on time use caused by OJT sessions, which is hard to reconcile with a harmonious family life (Bourquia, 1999). In that sense, single workers may be more available for additional training.[17]

Two types of task organization significantly influence the OJT likelihood and duration: production line and teamwork. However, the impact of work organization (in column 2) on OJT probability becomes really salient when it is allowed to vary according to the worker's education and relative tenure. Workers attached to work teams have more chance than average workers to receive OJT when their education level is high. On the other hand, more educated and tenured workers in production lines have more chance to receive OJT than other workers. So, what seems to matter for OJT selection is a minimal human capital threshold, associated with tasks involving coworkers in teams as well as tasks within production line. By contrast, workers assigned to supervision tasks do not generally receive OJT, perhaps because they are already sufficiently skilled and knowledgeable.[18] On the whole, there is evidence, consistently with our recursive approach, that work organization affects OJT.

5.3. Wages

We are now ready to comment on the wage equation results, starting with a few words on selectivity tests discussed in Section 4. The added polynomial terms in the variable 'number of children,' introduced to test selectivity, are found to be nonsignificantly different from zero (the *P*-values of the tests are, respectively, 0.125, 0.227, and 0.115 for the above-mentioned augmented equations corresponding to columns (1)–(5) in Table 5

in the Appendix). Similar tests based on weighted least squares estimates to account for the possible presence of the variable 'number of children' in the variance of the truncated sample yield still stronger nonrejection of the hypothesis of no selectivity. These results suggest that there is no obvious evidence of selectivity bias in these data, provided fertility can be considered as sufficiently disconnected to human capital accumulation. We now comment on the ordinary least squares (OLS) estimates of the wage equations, omitting insignificant selectivity terms. These equations include OJT and task organization variables.

Column (1) reports the coefficient estimates obtained with a wage regression including a sector dummy while specifications (2) to (5) use firm dummies in lieu of the sector indicator. Introducing firm dummies, of which that of firms 1, 2, and 3 have significant coefficients, substantially changes the estimates of the coefficients of tenure and of some organization and training variables. This suggests that other coefficients may not be constant across firms although such nonconstant effects cannot be estimated with the small sample size. Then, the firm dummies model is our preferred specification.

One issue in OLS estimates is that human capital and training variables may be endogenous, yielding inconsistent estimates. Unfortunately, we cannot employ IVs to deal with this problem. Besides, because of the small sample size, our attempts at estimating two-stage least squares versions of the OLS estimates produced altogether insignificant results, useless for any inference purpose. There is just not enough information to use IV estimators in these data.

In the case of human capital variables, there is nothing that can be done to alleviate the endogeneity problem. However, how serious this problem is remains unclear. Some authors end up suggesting that OLS estimates may often be superior to IV estimators in the absence of exceptional instruments that are very rarely found in empirical work (Card, 1999). We follow Card's approach.

Education, off-firm experience, and relative tenure all positively affect wages although the impact of relative tenure is decreasing with the tenure duration. The estimated effect is only 3–4% increase in wages with every year of education and 2.8% with one more year of off-firm experience. The returns to human capital seem to be a bit low regarding education, while high for off-firm experience. For example, four years of college would add between 12% and 16% to a worker's wage, not much more than working for four years prior to getting a job (four times 2–3%).[19] In columns (3) and (5), we report estimates excluding relative tenure since tenure cannot be well instrumented in these data. We find that while the estimated coefficient on the education variable diminishes when omitting tenure, the qualitative aspect of our main results – especially the coefficients on the OJT and task organization variables – remains unchanged. In particular, the duration of OJT has a strong positive impact on wages in specifications (2) to (5). However, neither former internship nor former apprenticeship significantly affects wages in these data. Other worker characteristics influence wages. Female workers are paid significantly less than male workers (at the 10% level).[20] On the contrary, the proximity to the minimum wage does not seem to affect wage levels.

Let us now turn to the task organization variables. Working in a team or in a production line does not much affect remunerations, even when these variables are crossed by education level (specifications 4 and 5). By contrast, executives or supervisors are much better paid, as expected. On the whole, the impact of task organization variables on worker remuneration remains much less important than that of human capital characteristics in these data.

6. Conclusion

In this paper, we conduct a case study of the linkages of task organization, human capital accumulation, and wages in Morocco using matched worker–firm data of eight exporting firms in two industrial sectors. The interpretation of the results is carried through a hypothesized recursive model, representing task organization, OJT, and remunerations as consequences of successive joint decisions of firms and workers.

The estimates of models of involvement in production lines, in teamwork, or in supervision tasks – our variables describing work organization in the firm – exhibit clear interactions of human capital accumulation with these occupation characteristics. Low human capital workers and workers without former internship and apprenticeship are more often confined to production lines than other workers. By contrast, high education, tenure, off-firm experience, former internship, and the absence of unemployment spells are important factors to access executive or supervisor positions, characterized by high earnings levels.

OJT involvement appears to be constrained by three conditions: a relevant industrial location (textile firms require little formal OJT owing to task simplicity), a minimal human capital (in the form of education, tenure, or off-firm experience), and an appropriate family situation (single workers may adapt more easily to the time constraints associated with OJT). Moreover, we find that task organization exerts differentiated effects on OJT participation, depending on the workers' schooling level. More educated and tenured workers in production lines or work teams have more chances to receive OJT than their poorly educated counterparts. In these data, the workers already occupying supervision positions do not generally participate in OJT.

Task allocations affect worker wages mostly because supervision tasks are much better remunerated than other tasks. However, the impact of task organization on wages may also take place through its influence on OJT, which contributes to raising wages. Overall, OJT is found to largely improve worker remunerations and seems often to be determined by previous task allocation. As a consequence, the Moroccan Government could subsidize OJT to promote workers' productivity and wages, notably for workers employed in teams or in production lines. In that way, OJT may contribute to firm responses to the new international competition. However, what our estimates show is that OJT participation and assignment to tasks liable to require OJT are somewhat conditional on the workers already reaching a minimum human capital level, whether in terms of professional experience or education.

Our results suggest policy implications although caution should be taken not to extrapolate results for a few firms to the whole Moroccan manufacturing sector or more broadly. It has been observed that in Morocco of the 1990s the stagnation of earnings was attributable to the growth of the low-paying sector of the economy, and this may still be valid nowadays. On the other hand, at this period, only 4% of the Moroccan firms engaged in formal training, whereas earnings and productivity in such firms were much higher.

Technical change and intensifying competition due to trade liberalization imply more advanced skills and higher productivity from workers. Skills upgrade is also important for social policy so as to enhance the earnings of destitute populations in Morocco, who are increasingly politically active as recent unrest has shown.

In these conditions, the private sector may crucially contribute to overhauling the labor force skills through OJT programs. This is important because the public educational

system is not adequately responding to the needs of the productive system, as emphasized in Achy (2005). We also found that OJT is partly determined by a minimum education level of the trained workers. Sustainable OJT programs should be supported by the public education system, for example, through vocational and technical institutes. Subsidies to stimulate within-firm OJT programs may also be useful if they lead firms to substantially raise their training initiatives.

The government could coordinate long-run general education policies with policies addressing vocational training since both OJT and education affect wages that are closely related to productivity. What seems to be needed is therefore a joint policy of education and OJT promotion. This would involve better coordination of labor training policies, which are currently led separately by the Ministry of Education and the OFPPT in Morocco (*Office de la Formation Professionnelle et de la Promotion du Travail*).

Public aid to OJT could benefit from being designed so that it answers genuine industrial needs in a way that accounts for the relevant technological and family constraints. For example, training female workers may be efficient if those workers can be relieved from some of their domestic tasks and if mentalities about gender roles can evolve.

Our results exhibit the dependence of task organization and OJT on general education process. There is also a growing interest in workplace learning processes, described as 'informal' in the literature. Several studies show that the impact of training is greater on firm performances when training takes place in connection with changes in work organization and employment structures (Black & Lynch, 1996; Fleisher, Dong, & Liu, 1996). In a Moroccan context of swift opening to international competition, exporting Moroccan firms would gain from better knowledge of the simultaneous determinants of classical human capital accumulation, OJT, and task organization practices.[21] This paper is a first step in the exploration of these complex issues, which would require the constitution of large databases covering all these dimensions.

Notes

1. The forthcoming data on the new household panel data survey conducted by the Observatoire National du Développement Humain of Rabat are likely to relax this constraint.
2. See, for example, Sahn and Alderman (1988) and Behrman (1999).
3. Nevertheless, the (controversial) official statistics show a drop in the general unemployment rate from 11% to 7.7% between 2005 and 2006.
4. 147 US dollars of 2001.
5. In the industrial sector, the annual average wage – ratio of mass salary to permanent employment – amounted in 1995 dirhams to 34,963 dirhams, that is 2914 monthly dirhams.
6. See The World Bank (1994). Females are more likely than males to be paid a wage below the SMIG.
7. Workers are considered permanent when they can justify more than a year of job seniority.
8. High welfare costs in the formal private sector (from 21.7% to 35% of gross wage) increased the cost of permanent workers and deterred firms of the informal sector of joining the formal economy.
9. The methodology of the Moroccan survey is further described in Nordman (2000) and Destré and Nordman (2002). Definitions and descriptive statistics of the variables used in this paper are in Tables 1 and 2 in the Appendix.
10. The survey was designed to concentrate on Moroccan exporting firms, i.e. firms belonging to the formal manufacturing sector of the Moroccan economy. The survey purpose was to investigate the conditions under which employees' workplace learning occurs and its association with the firms' organizational features. Therefore, firms with too few salaries were excluded from the investigation.

11. Angrist and Lavy (1997) estimate the number of repeated classes at 2–3 years in Morocco. In our survey, this number is about 4 years and is calculated from the highest school certificate or diploma and the age at the end of studies.
12. See on this point Behrman and Birdsall (1983).
13. The average monthly wage corresponds to 1.6 times the minimum wage (SMIG). The declared monthly wages are those of May and March 1997 for 90% of the sample and of December 1999 for the rest.
14. See Bougroum and Ibourk (1998) for discussions related to the reservation wage in Morocco.
15. While X_{1i} contains the usual covariates present in Mincer-type wage regressions, such as education, experience, and training variables, X_{2i} also includes sociodemographic characteristics not present in X_{1i} (for example, the number of dependent children, marital status, and geographic origin such as rural or urban) that can be used to identify the reservation wage. As usual, we assume that $(u_{1i}, u_{2i}) \sim N\left(\begin{pmatrix}0\\0\end{pmatrix}, \begin{bmatrix}\sigma_1^2 & \rho\sigma_1\sigma_2\\ \rho\sigma_1\sigma_2 & \sigma_2^2\end{bmatrix}\right)$. Gaussian error is a usual assumption shared with many methods for correction of self-selection in wage equations. The credibility of this assumption is enhanced by the introduction of a dummy for the proximity to the minimum wage that contributes to redressing irregularities in the lower tail of the error distribution. In this model, the first two truncated centered moments for the first equation can be written as $E(Y_{1i}|i \text{ unobserved}) = X_{1i}\,\beta_1 + \rho\sigma_1\varphi(X_{2i}b_2/\sigma_2)/\Phi(X_{2i}b_2/\sigma_2)$ and $V(Y_{1i}|i \text{ unobserved}) = \sigma_1^2 + (\rho\sigma_1)^2\,[-X_{2i}c_2\,\varphi(X_{2i}c_2)/\Phi(X_{2i}c_2) - (\varphi(X_{2i}c_2)/\Phi(X_{2i}c_2))^2]$, where $c_2 = b_2$. Clearly, the generalized inverse Mills ratio (f/F) in the first moment equation cannot be exactly estimated since the nonparticipants are not observed in our data. However, since X_{2i} includes the number of dependent children (ENFT), we can use this variable to detect if selectivity affects wage estimation. The role of ENFT in determining the generalized inverse Mills ratio is approximated by a polynomial of degree 5 in ENFT. Fisher's tests of the joint significance of Powers of ENFT of order 1–5 are implemented from the results of quasi-generalized least squares estimation, which are shown in Section 5.3.
16. Another possible specification could have been to specify an ordered probit by considering that the tasks are ordered according to increasing skills: production line, then work team, then supervisor. However, this is not the chosen approach for two reasons. First, there is no necessary ordering between these tasks. For example, some teamwork, such as cleaning jobs in a factory, are not more skill-intensive than production line works. Second, the multinomial specification we use should broadly encompass an ordered specification. In that case, the ordered structure would somewhat be captured by the estimated coefficients of the multinomial model, which does not occur in our estimates. In particular, an ordered model would lead to rejection of the hypothesis of the independence of irrelevant alternatives, which is not the case in these data, as we discuss below.
17. Because of the small sample size, we avoid interacting the gender dummy with other coefficients in order to preserve degrees of freedom. Besides, we checked that incorporating many interacted terms only yielded more insignificant coefficients.
18. Note that crossed effects of human capital with task organization variables are insignificant in the tobit model of OJT duration. Then, while OJT probability varies according to the workers' human capital and assigned task, their OJT duration does not.
19. We also considered introducing years of schooling and off-firm experience in a nonlinear fashion (adding squared terms) but obtained insignificant results.
20. See Nordman (2004) for gender issues with these data and more broadly Nordman and Wolff (2009) for gender issues in the Moroccan manufacturing sector.
21. As in Bresnahan, Brynjolfsson, and Hitt (2002).

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Appendix

Table 1. Descriptive statistics of the workers' characteristics.

Number of observations, 203	Mean	Standard deviation	Min.	Max.
Age of individual (AGE)	30.41	8.23	16	59
Sex (FEMALE, 1: female; 0 male; conversely for MALE)	0.46	0.50	0	1
Geographical origin (PROVE, 1: rural area; 0 otherwise)	0.82	0.37	0	1
Matrimonial status (MARI, 1: if married; 0 if divorced, widowed or single)	0.42	0.49	0	1
Number of dependent children (ENFT)	0.79	1.36	0	7
Individual never went to school (ANALPHA, 1: yes; 0 otherwise)	0.05	0.22	0	1
Individual went to Koranic school only (KORAN, 1: yes; 0 otherwise)	0.10	0.30	0	1
Years of completed schooling (EDUCATION)	9.78	9.78	0	18
Previous apprenticeship in a firm (APPRENTI, 1: yes; 0 otherwise)	0.18	0.38	0	1
Years of internship related to the current job (STAGA)	0.14	0.33	0	2
Years of internship not related to the current job (STAGAN)	0.06	0.29	0	2
Vocational degree related to the current job (ETUTPA; 1: yes; 0 otherwise)	0.33	0.47	0	1
Vocational degree not related to the current job (ETUTP; 1: yes; 0 otherwise)	0.13	0.34	0	1
Unemployment spells (in years, CHOMA)	1.53	2.28	0	10
Previous relevant experience (EMSIM, 1: yes; 0 otherwise)	0.46	0.50	0	1
Previous off-firm potential professional experience (EXPERIENCE, in years)	5.49	7.12	0	49.08
Starting date in the current firm (ENTREE)	1990.69	5.11	1975	1998
Tenure in the current firm (TENURE, in years)	6.00	5.30	0	21.25
Formal OJT in the current firm (FORMAD; 1: yes; 0 otherwise)	0.30	0.45	0	1
Formal OJT in the current firm (FORMAA, in years)	0.12	0.249	0	2
Work in team (EQUIPE, 1: yes; 0 otherwise)	0.41	0.49	0	1
Work in production lines (LINE, 1: yes; 0 otherwise)	0.15	0.36	0	1
Executive or supervisor (ENCADR, 1: yes; 0 otherwise)	0.24	0.42	0	1
Proximity to the minimum wage (SMIG, 1: if 1600 <= SAL <= 1700; 0 otherwise)	0.17	0.37	0	1
Firms' fixed effects				
Firm 1	0.079	0.270	0	1
Firm 2	0.197	0.399	0	1
Firm 3	0.143	0.351	0	1
Firm 4	0.133	0.340	0	1
Firm 5	0.167	0.374	0	1
Firm 6	0.099	0.299	0	1
Firm 7	0.103	0.305	0	1
Firm 8	0.079	0.270	0	1

Table 2. Descriptive statistics of monthly wages (in dirhams).

Number of observations, 203	Mean	Standard deviation	Min.	Max.
Monthly wage	2689	2019	750	20,000
Monthly wage in IMMEE	3101	1930	750	12,000
Monthly wage in textile-clothing	2281	2030	750	20,000
Mean wage in				
Firm 1 (IMMEE)	4586	3237	2200	12,000
Firm 2 (IMMEE)	2337	1120	750	7500
Firm 3 (IMMEE)	3398	1791	1700	9000
Firm 4 (textile-clothing)	2192	761	1150	5000
Firm 5 (textile-clothing)	1974	813	750	5000
Firm 6 (textile-clothing)	1888	519	1500	3500
Firm 7 (textile-clothing)	3267	4168	1040	20,000
Firm 8 (IMMEE)	2984	1015	1250	4500

Table 3. MNL models of task allocation.

	With sector dummy			With firm dummies		
	(1)	(2)	(3)	(4)	(5)	(6)
	Production line	Work team	Executive/ supervisor	Production line	Work team	Executive /supervisor
Dummy for female	3.9485***	0.1751	1.0783***	2.5532**	0.3464	−0.5753
	(3.42)	(0.15)	(2.70)	(2.36)	(0.55)	(0.58)
Matrimonial situation (MARI)	−0.2004	−2.0739	−0.0505	0.0039	−1.3103	0.0652
	(0.20)	(1.58)	(0.07)	(0.00)	(1.48)	(0.07)
Number of dependent children (ENFT)	−0.3144	−0.0477	0.0269	−0.1883	−0.0872	0.3919
	(0.88)	(0.15)	(0.10)	(0.97)	(0.40)	(1.15)
Years of completed schooling (EDUCATION)	−0.4726***	−0.3611***	0.1289	−0.5295***	−0.1307	0.3061*
	(4.21)	(4.05)	(0.97)	(4.67)	(1.55)	(1.85)
Former apprenticeship (APPRENTI)	−2.0650***	−1.2744	0.0786	−1.8628***	−1.1117	0.5021
	(3.37)	(1.18)	(0.13)	(2.99)	(1.23)	(0.68)
Job-related vocational degree (ETUTPA)	−0.0340	−0.2763	0.7889	0.6207	−0.2479	0.7231
	(0.04)	(0.21)	(1.10)	(0.71)	(0.23)	(0.72)
Former work-relevant internship (STAGA)	−1.6934***	0.5823	1.1472*	−1.7786***	0.6490	2.0645**
	(2.61)	(1.05)	(1.82)	(3.59)	(1.04)	(2.11)
Unemployment spells (CHOMA)	−0.1863	0.0113	−0.2343***	−0.2241**	−0.0927	−0.2924***
	(1.17)	(0.05)	(3.02)	(2.14)	(0.53)	(3.14)
Relative tenure (TENURE/firm age = PANCIE)	−1.0276	−2.5563***	1.5297**	−1.5825*	−1.4458**	3.7510***
	(1.29)	(3.80)	(2.17)	(1.68)	(2.25)	(3.50)
Off-firm experience (EXPERIENCE)	−0.0370	−0.0394	0.0465	−0.0513	−0.0014	0.1090
	(0.65)	(0.38)	(0.96)	(1.11)	(0.02)	(1.54)
Dummy for textile-clothing	0.7555	−3.9145***	0.1473			
	(0.73)	(3.56)	(0.15)			
Firm 2				3.1253***	1.7655**	4.9771***
				(3.13)	(1.99)	(3.13)
Firm 3				−0.1492	1.7127**	3.8358***

Table 3 (*Continued*)

	With sector dummy			With firm dummies		
	(1)	(2)	(3)	(4)	(5)	(6)
	Production line	Work team	Executive/ supervisor	Production line	Work team	Executive /supervisor
				(0.22)	(1.97)	(4.12)
Firm 5				1.8706***	−0.0963	4.1890***
				(3.03)	(0.15)	(7.24)
Firm 6				0.8583	−0.4784	5.2357***
				(1.57)	(0.57)	(3.81)
Constant	4.7260***	6.4747***	−3.3188***	5.4494***	1.6590	−9.2027***
	(2.60)	(5.50)	(2.63)	(3.89)	(1.25)	(3.73)
Observations	195	195	195	195	195	195
Log likelihood	−156.2			−147.1		
Pseudo R^2	0.40			0.45		
Hausman test of independence of irrelevant alternatives: H_0 'Odds are independent of other alternatives' (χ^2)	1.52	0.39	1.64	2.69	−1.30	0.99
Observations	203			203		

Note: Dependent variable: POSTE (production line = 1; work team = 2; executive/supervisor = 3). Absolute values of robust *z*-statistics to firm clustering are in parentheses. *, **, and *** mean significant at 10%, 5%, and 1%, respectively. In the MNL model, the reference group is made of individuals working neither in production lines, nor in work teams, nor as supervisor or executive (23% of the sample). The estimates are weighted by the inverse probability that workers are surveyed within each firm.

Table 4. Participation and duration in OJT.

	Probit of participation in past or current OJT (FORMAD) (1)	Probit of participation in past or current OJT (FORMAD) (2)	Tobit of duration of past or current OJT (FORMAA) (3)
Dummy for female	0.0981	0.1528	−0.0219
	(0.27)	(0.40)	(020)
Matrimonial situation (MARI)	−0.6877*	−0.7424*	−0.2559
	(1.90)	(1.76)	(1.51)
Number of dependent children (ENFT)	0.1007	0.0814	0.0917
	(0.63)	(0.55)	(1.35)
EDUCATION	0.2888***	0.1258**	0.0635**
	(6.26)	(2.42)	(2.35)
Job-related vocational degree (ETUTPA)	−0.3930	−0.2680	−0.1380*
	(0.85)	(0.60)	(1.97)
Former work-relevant internship (STAGA)	0.1856	0.3914	0.1963
	(0.37)	(0.91)	(0.60)
Unemployment spells (CHOMA)	0.1141	0.1240	0.0550
	(0.94)	(1.44)	(1.04)
TENURE/firm age (PANCIE)	0.5365	0.3477	0.0148
	(1.15)	(0.55)	(0.08)
Off-firm experience (EXPERIENCE)	−0.0928***	−0.0805***	−0.0649**
	(3.22)	(3.21)	(2.48)
Dummy for textile-clothing	−1.5673***	−1.5265***	
	(3.65)	(3.52)	
Dummy for executive/supervisor (ENCADR)	0.3646	0.6325	0.1896
	(1.10)	(1.57)	(1.34)
Dummy for production line (CHAINE)	0.9105**	−4.0310***	0.0775**
	(2.23)	(3.72)	(2.10)
Dummy for work team (EQUIPE)	0.6569	−1.4552	0.1377
	(1.47)	(1.08)	(1.09)
EDUCATION × CHAINE		0.3852***	
		(4.59)	
PANCIE × CHAINE		1.5989**	
		(2.32)	
EDUCATION × EQUIPE		0.1902**	
		(2.35)	
PANCIE × EQUIPE		−1.3221	
		(1.41)	

Table 4 (*Continued*)

	Probit of participation in past or current OJT (FORMAD) (1)	Probit of participation in past or current OJT (FORMAD) (2)	Tobit of duration of past or current OJT (FORMAA) (3)
Firm 1			0.6980***
			(4.35)
Firm 2			0.4858***
			(3.63)
Firm 7			0.0325
			(0.25)
Constant	−3.6454***	−1.6583**	−0.9757**
	(3.99)	(1.99)	(2.33)
Observations	203	203	203
Pseudo R^2	0.55	0.58	0.52

Note: Absolute values of robust *z*-statistics to firm clustering are in parentheses. *, **, and *** mean significant at 10%, 5%, and 1%, respectively. In column (3), there are three firm dummies included because only four firms provide OJT. The estimates are weighted by the inverse probability that workers are selected within firms. APPRENTI dropped because no apprentices received OJT.

Table 5. Log monthly wage equations.

	OLS with sector dummy (1)	OLS with firm dummies (2)	OLS with firm dummies (3)	OLS with firm dummies (4)	OLS with firm dummies (5)
Dummy for female	−0.2275*	−0.1494	−0.1672**	−0.1568*	−0.1704**
	(−2.35)	(−1.88)	(−3.02)	(−2.02)	(−3.16)
EDUCATION	0.0251	0.0385***	0.0262*	0.0455***	0.0320*
	(1.87)	(4.45)	(2.27)	(3.56)	(2.00)
Former work-relevant internship (STAGA)	0.1622	0.1589	0.1504	0.1584	0.1428
	(1.37)	(1.25)	(1.09)	(1.28)	(1.06)
Former apprenticeship (APPRENTI)	0.0481	0.0636	0.0592	0.0764	0.0698
	(0.56)	(0.78)	(0.80)	(0.90)	(0.90)
Proximity to the minimum wage (SMIG)	−0.0098	0.0533	−0.0248	0.0472	−0.0268
	(−0.11)	(0.94)	(−0.32)	(0.80)	(−0.33)
Unemployment spells (CHOMA)	−0.0281**	−0.0242*	−0.0207	−0.0240*	−0.0209
	(−2.57)	(−1.92)	(−1.53)	(−2.07)	(−1.64)
TENURE/firm age (PANCIE)	0.4660***	0.7279***		0.7203***	
	(4.99)	(5.31)		(5.11)	
PANCIE squared	−0.2120***	−0.2814***		−0.2668**	
	(−3.77)	(−3.66)		(−3.29)	
Off-firm experience (EXPERIENCE)	0.0284**	0.0282**	0.0280**	0.0292**	0.0282**
	(3.36)	(3.25)	(3.20)	(3.20)	(3.06)
EXPERIENCE squared	−0.0004*	−0.0003	−0.0004*	−0.0004	−0.0004
	(−1.92)	(−1.51)	(−1.99)	(−1.48)	(−1.75)
Dummy for executive/ supervisor (ENCADR)	0.3157***	0.3334***	0.3935***	0.3148**	0.3845***
	(4.08)	(3.74)	(4.35)	(3.29)	(4.00)
Dummy for production line (CHAINE)	−0.0495	0.0087	−0.0185	0.1353	0.0644
	(−1.25)	(0.14)	(−0.25)	(0.84)	(0.37)
Dummy for work team (EQUIPE)	−0.0111	−0.0796	−0.1459	0.0309	0.0913
	(−0.14)	(−1.23)	(−1.83)	(0.13)	(0.32)
EDUCATION × CHAINE				−0.0138	−0.0087
				(−1.08)	(−0.61)
EDUCATION × EQUIPE				−0.0098	−0.0209
				(−0.52)	(−0.97)
OJT duration (FORMAA)	0.2190	0.2643***	0.3040***	0.2693***	0.3018***
	(1.28)	(6.25)	(5.18)	(6.05)	(5.13)
Dummy for textile-clothing	−0.1522				
	(−1.28)				
Firm 1		0.3667***	0.4022***	0.3584***	0.4163***
		(7.64)	(6.98)	(8.25)	(6.92)
Firm 2		−0.1885***	−0.0131	−0.1732***	−0.0004
		(−6.07)	(−0.36)	(−6.45)	(−0.01)
Firm 3		0.3749***	0.4600***	0.3681***	0.4549***
		(14.05)	(21.80)	(14.02)	(20.10)
Firm 4		−0.0276	0.0566	−0.0323	0.0624
		(−0.45)	(0.95)	(−0.54)	(1.06)

Table 5 (*Continued*)

	OLS with sector dummy (1)	OLS with firm dummies (2)	OLS with firm dummies (3)	OLS with firm dummies (4)	OLS with firm dummies (5)
Firm 5		0.0023	0.0396	−0.0008	0.0423
		(0.08)	(1.36)	(−0.03)	(1.35)
Firm 7		−0.0576	0.1081**	−0.0697	0.1090**
		(−1.17)	(2.73)	(−1.33)	(2.60)
Firm 8		0.0439	0.2591***	0.0382	0.2565***
		(0.86)	(5.27)	(0.72)	(5.06)
Constant	7.3702***	6.9527***	7.2174***	6.8801***	7.1542***
	(26.66)	(42.65)	(38.71)	(34.83)	(30.39)
Observations	203	203	203	203	203
R^2	0.59	0.71	0.65	0.71	0.65

Note: Absolute values of robust *t*-statistics to firm clustering are in parentheses. *, **, and *** mean significant at 10%, 5%, and 1%, respectively.