**The Limits of Human Capital Theory:
the Heterogeneity of Individual Competence and Income**

Fatima Suleman, Instituto Superior de Ciências do Trabalho e da Empresa, Lisbon, Portugal
fatima.suleman@iscte.pr

Jean-Jacques Paul, Research Institute on Sociology and Economics of Education, CNRS, University of Bourgogne, Dijon, France
jean-jacques.paul@u-bourgogne.fr

Abstract

Jean-Jacques PAUL[1] and Fátima SULEMAN[2]: **The Limits of Human Capital Theory: the Heterogeneity of Individual Competence and Income**

[1]IREDU, University of Bourgogne/ CNRS, BP.26513 – 21065 DIJON CEDEX, FRANCE
Email: jean-jacques.paul@u-bourgogne.fr
[2] DINAMIA, ISCTE, Avenida das Forças Armadas, 1649-026 LISBON, Portugal
Email: fatima.suleman@iscte.pt

This research aims at discussing the limits of Human Capital Theory (HCT) in defining the level of individual competence and its reward in the labour market. Our approach proposes the foundation of the "*economics of competences*" and is intended as a contribution to the discussion of new human capital approaches which integrate job matching theory hypotheses in the economics of education.

We argue that HCT does not conveniently explain the different level of competence and its reward. This paper aims at comparing the respective impact of the traditional Human Capital Variables (HCV) and of the competences on employees' reward and careers. We would like to introduce the idea of heterogeneity of human capital.

The data are derived from an original survey conducted in five large banking companies in Portugal. Six hundred clerks were interviewed regarding their individual characteristics (age, gender, education, experience in the labour market, experience in the company). Their respective supervisors were asked to assess their competences using a list of thirty skills. Complementary models are used in this research, relating to earnings, the distribution of profit shares to employees and promotion. These different dimensions show that traditional human capital variables are important determinants for earnings, whereas competences explain the profit shares distributed to employees and the chances to be promoted.

Theme: Education and Training
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JEL-Code: J24, J31, J41, J44

Introduction

The purpose of this paper is to provide some empirical evidence to illustrate important aspects of recent developments in economics of education. For this reason, particular attention is paid to the concept of competence and its influence on employee reward.

The paper aims at comparing the impact on fixed earnings, flexible pay and careers progression of the traditional human capital theory variables (education and experience) and of specifically identified and assessed competences. Although it is true that this question can be related to new methods of human resources management, it is not our intention to assess the extension of these new methods. To make our contribution clearer, we argue that the HCT does not take into account the heterogeneity of human capital nor the heterogeneity of human capital reward.

The objective is to test if the HCV (years of schooling, years of labour market experience) and competences substitute or complement each other in the definition of earnings.

If they are substitutes, competences may constitute a more explicit vision of what HCV concretely represent.

If they are complements, one can assume that they refer to two different dimensions:

− HCV are used in an "anonymous" way to determine the average level of earnings corresponding to given levels of education, experience in the labour market, experience in the company, in accordance with social rules;

− competences indicate the effective use of different knowledge and skills acquired and are used when individual and contingent criteria are required.

Following the employer learning model, the question is now whether or not the employer, if they have information about the effective use of knowledge and skills, will cumulate or substitute this information with that on schooling and other observable characteristics to reward the employee.

This paper is made up of five parts. First of all, basic considerations will be presented in order to relate our approach to other researches and to introduce the restrictions of human capital theory (HCT). Section 2 describes how the data have been collected. In a third part, traditional earnings models are tested, using the two kinds of variables, HCV and competences. The fourth part presents a profit sharing model, while the fifth part discusses a promotion model.

1. Basic Considerations: the Limits of the Human Capital Theory

Our approach is close to the one developed by Green (1998), by Allen and Van der Velden (2000), by Paul (2002) and by Heijke, Meng and Ramaerkers (2002) in trying to find the "value of skills" through hedonic earnings equations. The aforementioned research works represent new approaches of HCT, which propose the use of a checklist of competences to define the individual level of competence.

Our research offers two interesting and original features:

a)   the use of competences assessed by direct supervisors, this is to say an hetero evaluation, and not a self evaluation, as used by the above-mentioned authors;

b)   the use of profit shares benefited from by employees and of chances to be promoted, in addition to the earnings, to assess the impact of human capital variables and competences.

The aforementioned authors have, therefore, introduced the idea of heterogeneity of individual competence but did not take into account the heterogeneity of reward schemes to evaluate the impact of this heterogeneous human capital.

1.1.   The Heterogeneity of Human Capital

Arguing from the point of view of the emerging "*economics of competences*", one could enforce the claim that the HCV are not sufficient for defining the level of individual competence and its reward in the labour market (Suleman, 2004). Following this line of reasoning, we can formulate the main restrictions of HCT for defining this level of competence.

Firstly, according to the HCT, years of schooling and experience are a proxy for individual competence. The theory has paid little attention to the specific knowledge and skills acquired. To be effective, the HCT assumes the stock of homogeneous human capital. The new approaches of HCT propose the heterogeneity of human capital, which is fulfilled by a competence portfolio.

The fundamental problem left by HCT was the confusion between the process and the product. That is to say, the confusion between the source of acquisition of the

competence and the competence itself. In addition to this, the HCT does not specify the kinds of knowledge and skills acquired through the investments in schooling and experience.

Thus it is assumed that the individual competence refers to qualification or the resources acquired through HC investments. However, the importance of context specificity of the use of knowledge and skills play an important role. Here we are proposing integration of the idea of "*effective use*" – "*mobilisation*" – of resources imported from the French sociological approach. In economics of education, the job matching theory explicitly takes into account this effective use of individual knowledge and skills.

According to Heijke and Ramaekers (1998), the job matching theory differs from HCT because it does not presuppose that individual knowledge and skills are productive in all available jobs. The main premise of the job matching theory is that jobs and individuals are both heterogeneous. Consequently, if there are differences between jobs, individuals can have comparative advantages in accessing and performing particular activities (Heijke and Ramaekers, 1998).

In the definition of competence, one must also incorporate the contributions of French economics of conventions. In accordance with this approach, the individual competence is the result of an assessment of the effective use of knowledge and skills. Eymard-Duvernay and Marchal (1997) suggest that the individual competence is a convention as to what the competence is. It follows that measurement of individual competences should take into account the human capital stock and the assessment of knowledge and skills used to perform professional activities.

For the sake of clarity, this paper puts forward a definition of individual competence, which takes into account the following: the qualification acquired through investments in human capital; the effective use of the knowledge and skills; and the assessment of the knowledge and skills acquired and used (Suleman, 2004).

1.2. The Heterogeneity of Human Capital Reward

Secondly, the HCT does not take into account the whole reward system. The theory shows how individuals are rewarded through fixed salary or wage. Armstrong refers to fixed salary as the base pay and suggests that there may also be additional payments related to performance, competence, contribution, skills (Armstrong, 1999). These are the contingent pay.

We agree with Armstrong (1999) where he argues that it one cannot explain the earnings using only competences. In his book "Employee Reward", Armstrong (1999) defines competence-related remuneration as a method of remunerating individuals according to their ability to perform: "*competence-related pay does not confine itself to the acquisition of competence. It is about the effective use of competence to generate added value*", (Armstrong, 1999: 294).

However, Armstrong maintains that pay is in fact "*related*" to competences rather than "*based*" upon them. Indeed, according to Armstrong, it would seem impossible to base remuneration directly upon competences, since the evaluation of competences remains extremely difficult. Other factors, such as those linked to the market, can also influence remuneration.

According to Stankiewicz (2002), enterprises face new moral hazard problems: if they use a competence-based pay system they must have guarantees of the effective use of competences. To solve this moral hazard problem, Klarsfeld and Saint-Onge (2000) suggest the use of a mixed system: competence (c) and performance (p) related pay – w = w c,p). Stankiewcz argues for a separate reward system to identify the clear impact of competence – w = w(c) + w (p). We will show that the impacts of competences and performance are not independent of each other because competences are closely related to performance.

Inspired by the economics of conventions, this research uses the concept of reward rules (*règles salariales*) to support the hypothesis that the reward system is not the result of the confrontation of labour demand and supply, but rather the corollary of decisions of social actors, namely the employers and unions.

In accordance with this concept, we will introduce the human resource management concept of "remuneration" to refer to all cash payments and benefits received by employees. The remuneration includes the fixed salary and any additional pay, as well the contingent or flexible pay, such as profit shares.

Our main objective is to underline the heterogeneity of human capital reward, which is, to some extent, the result of employer wage policies. The moral hazard problem employers face calls for some reward rules, which can contribute to leading the employees to cooperate. The question is how firms can configure their wage policies to guarantee the effective use of convenient competences, as well as to face institutional constraints.

2. The data

The data were supplied by an original survey of five large banking companies in Portugal. Six hundred clerks (not in a supervising position) were interviewed regarding their individual characteristics (age, gender, education, experience in the labour market, tenure-experience in the company). Their respective supervisors were asked to assess their competences using a list of thirty competences. The list of competences had been previously checked with the help of human resources managers of the main banking companies and some branch managers.

There are four main reasons why the banking sector was chosen for the survey:

a) it is a sector in which the concept of competence finds widespread use in human resources management;

b) following the restructuring process in the sector, there is a need for competences to carry out commercial functions;

c) the organisational structure of companies based on branches with small teams and direct supervision by the branch manager;

d) the geographical distribution of branches throughout the Portuguese territory.

The records of the assessment by supervisors for each of the thirty competences were synthesised using a principal component analysis. Five main factors were produced, making it possible to define five groups of competences: cognitive competences, strategic competences, behaviour towards the organisation, general knowledge and behaviour towards others. These five clusters have been used in the different models.

Table 1. The five clusters of competences built on the principal components

Cognitive competences	Specific technical knowledge
	Autonomy
	Responsibility
	Adaptability
	Innovation
	Planning and organising
	Ability to organise
	Ability to selection and to process information
	Ability to solve problems
	Ability to learn
	Ability to transfer knowledge and experiences
	Capacity to understand the specificities of the banking activity
Strategic competences	Negotiation
	Persuasion
	Perseverance and orientation towards results
	Orientation towards the client
	Understanding of the strategy of the bank
Behaviour towards the organisation	Readiness to learn
	Effort to learn
	Following the rules and procedures
	Cooperation
	Adaptation to the working hours
	Punctuality
General knowledge	General technical knowledge
	Knowledge of foreign languages
	Computer literacy
Behaviour towards others	Relationship with colleagues
	Capacity to work in team
	Communication
	Willingness to help others

3. The Earnings Models and the Value of Competences

We will first test a traditional Mincerian model, using the HCV.

$$LnY_i = b_0 + b_1 School_i + b_2 Exp_i + b_3 Exp_i^2 + e_i \text{ (model 1)}$$

where $School_i$ is the years of schooling of the individual *i* and Exp_i is his/her experience in the labour market.

In model 2 the in-company experience is added to the Mincerian model.

In a second step, we test the following model, using only the set of competence indicators:

$$LnY_i = b'_0 + \sum_{j=1}^{n} c_j x_{ij} + e'_i \text{ (model 3)}$$

where the logarithm of the monthly earnings[1] Y_i is a linear function of the competences x_{ij} effectively used during the professional activities and assessed by the direct hierarchy. In our model, the competences include the five following dimensions: cognitive, strategic, specific, behaviour regarding the organisation, general knowledge and behaviour regarding others.

In a third step, we will combine the two types of variables in the same earnings model.

$$LnY_i = b''_0 + b_1 School_i + b_2 Exp_i + b_3 Exp_i^2 + \sum_{j=1}^{n} c_j x_{ij} + e''_i \text{ (model 4)}$$

The Mincerian model explains 47.7% of the total variance, which is in line with the usual estimations elsewhere and with the level of explanation for other years (1985 and 1998) and all the Portuguese banks (see Suleman, 2004).

The competences alone explain only 15.1% of the variance in earnings, whereby the cognitive competences are the more important in this process.

According to Abowd and Kramarz (1996), companies use their reward system to acquire, from heterogeneous individuals, human resources with a specific competence profile, geared towards profit maximisation. Nevertheless, the relation between earnings and competences cannot be perfect (Capelli, 1993). In addition to a methodological problem linked to the quality of the data, the labour market conditions, transaction costs and industrial standards need to be taken into account as factors which may influence earnings policy decisions.

Once we have established the limits of the relation between earnings and competences, we can try to assess the intensity of this relation.

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[1] The basic pay and other regular payments make up the monthly earning.

The interesting result of this equation has to do with the rather modest part of the variance explained by the competences, in an economic sector where this notion finds widespread use. We can notice that in the different banks, which compose our sample, experiments are presently carried out for defining or re-defining competences, so that they can be used as supports for purposes of human resources management.

The results may correspond to the perplexity of Reynaud (2001), who argues that there is a divergence between the discourse and the management practices and offers some interpretations for this finding.

Table 2: Earning models

Model	Model 1	Model 2	Model 3	Model 4
Schooling	.03522 (.000) t=7.295	.03381 (.000) t = 6.810		.03033 (.000) t = 6.224
Experience	.04096 (.000) t=12.596	.03929 (.000) t = 11.139		.03849 (.000) t = 11.377
Squared experience	-.000521 (.000) t= -7.456	-.000538 (.000) t = -7.553		-.000472 (.000) t = -6.895
In-company experience		.003016 (.225) t = 1.215		.001296 (.583) t = .550
Cognitive competences			.05596 (.000) t = 5.182	.04865 (.000) t = 5.901
Strategic competences			.02130 (.055) t = 1.924	.0393 (.000) t = 4.686
Behaviour towards organisation			-0,0292 (.010) t = -.2.589	-.00207 (.808) t = -0.243
General knowledge			-.00701 (.000) t = 6.359	.01728 (.102) t = 1.641
Behaviour towards others			-.0142 (.203) t = -1.275	.004916 (.560) t = .583
Constant	11.303 (.000) t = 131.863	11.324 (.000) t = 129.624	12.234 (.000) t = 1090.960	11.374 (.000) t = 134.772
N	447			
Adj. R^2	.465	.465	.146	.524

The dependant variable is the logarithm of monthly earnings. Banking companies survey, 2001

As table 2 shows, the inclusion of the competences variables in the Mincerian equation dramatically increases the proportion of the variance explained by the model, since 52.4% of the variance can be explained by the whole model. This means that the

competences explain somewhere between 5% and 15% of the earnings. It is, however, particularly interesting to observe how each group of competences reacts when education is introduced into the model.

Bowles, Gintis and Osborne (2001) argue that education has an autonomous influence on earnings, i.e. that the productive value of schooling is not limited to cognitive competences. For Cawley, Heckman, Lochner and Vytacil (2000), it is impossible to make a distinction between the effects of education and the effects of cognitive skills on earnings, since education and cognitive skills are highly correlated.

The first result is that the coefficient of education is only slightly modified by the introduction of the competences, when we consider the Mincerian model ($b_{school} = 0.03522$) and the complete model ($b_{school} = 0.03381$). Education keeps its market value, measured by the stability of its returns, even when other competences are known.

It seems that education and cognitive competences have separate effects on earnings. The coefficients of the two variables are not much altered when the variables are considered separately or together in the model. One can add that there is only a weak correlation between these two variables (Pearson correlation of 0.102, with a significance level of 0.016).

Education appears to be a more influential determinant than cognitive competences. This can be showed, for instance, by using standardised variables. The beta coefficients are higher for education than for cognitive competences ($\beta_{school} = 0.354; \beta_{cogn} = 0.197$).

This result is consistent with the opinion the supervisors expressed during the interviews: education remains the main access to competences. A vocational formal degree-level education is an important criterion for admittance to this sector.

The main conclusion is that education is valued independently of the competences. This means that although individuals with the same educational background may show different levels of competences, the individual remuneration remains predominantly based on education. When they have inside information, employers do not substitute but cumulate the information about individual characteristics to define individual earnings.

The second result concerns the type of competences valued. In an international comparative study, Paul (2002), at the European level, has concluded that the competences valued most are software skills and languages. Our results reveal the importance of cognitive competences. A higher level of cognitive competence leads to an earning increase of about 5%. This value of cognitive/transferable competences may reflect the fact that the basic/cognitive skills are needed to acquire the technical and specific ones. These competences are the infrastructure to acquire more skills. Stankiewicz (2002) refers to them as "meta-competences".

On the other hand, this value may be due to the radical changes in banking activities, which are more complex, uncertain and permanently changeable. Banking employees must be polyvalent and must be able to learn permanently.

Finally, Bowles and Gintis' hypotheses (2000), regarding a positive relation between education and earnings, are not confirmed by our results, since the competences involving social relationships do not appear significant in the model. Their main argument concerns the influence of education on norms and preferences, which reduces problems linked with incentives and work discipline.

Behaviour regarding the organisation and behaviour regarding others are weakly correlated with education (Pearson correlation coefficients of 0.056 and 0.112 respectively, with significance levels of 0.117 and 0.009). It is true that this population is more homogeneous than the whole workforce, as Bowles and Gintis' hypothesis refers to the whole population. Nevertheless, some of the variables included in our "cognitive competences group", such as ability to work with autonomy or readiness to assume responsibilities and risks, may correspond to what Bowles and Gintis call the principle of "*incentive enhancing preference*".

It is surprising that behaviour regarding others – which includes the ability to work in teams and the ability to communicate, both of which are considered important abilities in the banking sector – does not appear significant in the model.

4. Other Means of Rewarding Competences: Profit Sharing

Nowadays, rewards can be related to the performance of companies, with the aim of involving the employees in the success (or failure), making more systematic mechanisms such as profit sharing. It is interesting to observe what the determinants are for the profit shares paid to each employee, and to compare these determinants to those used for earnings.

Profit sharing schemes are contingent pay, which represents the flexible part of the remuneration, linked to the economic performance of the company, such as sales of products and services, attractiveness of the bank, and so on. From an individual point of view, this scheme depends on the assessment made by the hierarchy, according to the individual performance.

Before analysing the determinants for profit sharing, it is worthwhile assessing their weight in the total earnings of the employees in the banking sector.

Table 3. Profit sharing as a proportion of the total annual earnings

Size	N	%
<5%	65	19.3
5%-10%	189	56.3
10%-15%	66	19.6
15%-20%	14	4.2
>20%	2	.6
Total	336	100.0

The results show the relative size of profit sharing in the total annual earnings. As we can see, it makes up, on average, about one month's pay.

In order to assess the impact of the different variables (HCV and competences), the following model was tested:

$$LnPS_i = f_0 + g_1 School_i + g_2 Exp_i + g_3 Exp_i^2 + g_4 Expcomp + \sum_{j=1}^{n} h_j x_{ij} + \varepsilon_i$$

where PS_i is the profit shares received by the individual *i* and is a linear function of the HCV and of $x_{i1},...,x_{in}$ which are the competences. In order to better understand the impact of these different variables, we can compare the two models – the earnings model (the previous one) and the profit sharing model. In this comparison, only those employees who receive a profit

share are included (336 out of 600[2]). To facilitate the comparison between the coefficients of the different variables, standardised coefficients are used.

Table 4:
Models for determining the impact of human capital variables and competences upon earnings and profit shares (unstandardised and standardised coefficients)

Model	Monthly earnings (logarithm)	Profit sharing (logarithm)
Years of schooling	.022 .291 (.000)	.039 .210 (.023)
Experience in the labour market	.030 1.651 (.000)	.023 .510 (.070)
Squared experience	.000 -.751 (.000)	.0001 .109 (.648)
Experience in the company	.000 .017 (.890)	-.024 -.400 (.006)
Cognitive	.033 .167 (.000)	.163 .328 (.000)
Specific	.034 .169 (.000)	.105 .211 (.000)
Behaviour towards org.	.017 .079 (.082)	.111 .209 (.000)
Behaviour towards others	-.005 -.025 (.574)	-.060 -.111 (.042)
General knowledge	.015 .070 (.194)	-.057 .118 (.070)
Constant	11.567 (.000)	11.586 (.000)
Adj. R²	.474	.238
N	270[3]	

The level of significance of HCV is lower in the profit sharing model than in the earnings one.

If we look at the models using HCV and competences, the first thing we notice is that these variables altogether, which reflect the supply side, explain better the earnings than the profit sharing. Other factors, which have more to do with the demand side (occupation), could be important for explaining this latter variable.

Experience remains significant, but with a lower coefficient than for the earnings model. Education remains also significant, which proves that education and competences

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[2] In the earnings model, we have excluded the missing values, so the number of cases studied is 447.
[3] We have excluded the missing values of the analysis

have independent effects on profit sharing. One can add that profit sharing depends on the worker "performance", but is related to basic pay. This means that profit sharing is partly defined as a percentage of basic pay. Consequently, since basic pay is related to human capital variables, it is not surprising that these variables show a positive influence on profit sharing, once competences are taken into account.

Surprisingly, employees with less in-company experience benefit from a larger percentage of profit sharing than the others. This finding is worthy of more in-depth study and may reveal different aspects:

− people who missed out on promotion, for whatever reasons, are trapped;
− young people, for a variety of reasons (such as over-qualification at recruitment or the fact that they have new competences), have more chances of promotion;
− there is a certain degree of discrimination towards older employees;
− there is, effectively, a certain degree of obsolescence of the competences older employees have.

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The results show that competences are more important in determining profit sharing than in determining monthly earnings. Cognitive competences remain the most influential, but other competences such as specific/strategic ones and behaviour towards the organisation appear to have a positive impact. Indeed, cognitive competences lead to an increase of about 5% of monthly earning and an increase of some 16% of profit sharing (table 4).

To conclude, as far as the process of individualisation/flexibleness of earnings is concerned, human capital variables are more crucial in the definition of the regular earnings, whereas competences are more important for determining the flexible part represented by the profit share allocated to the worker.

5. The Impact of the Individual Variables on Career Progression

In the survey, the supervisor was asked the following question:

− *Once you have evaluated the worker, what kind of development can his/her career take?*

Here, we are only concerned with promotion as a career progression.

A logistic regression is used in each of the analyses of the effects of individual characteristics – schooling, experience, in-company experience, competences and gender[4] – on the promotion probability. In order to ascertain any effect of generation (cohort), we begin with a model containing all cases and, in subsequent analyses, two cohorts of employees are compared: those with in-company experience of up to 10 years and those with more than 10 years of in-company experience[5].

Estimation of the coefficient used the maximum likelihood method and the variables were selected using a forward stepwise regression method. Only the significant variables are given in the table.

Table 5. Results of logistic regression estimating the promotion probability

Model estimated	All cases – model 1	In-company experience ≤ 10 years – model 2	In-company experience >10 years – model 3
In-company experience	-.059 (.013) w = 6.199		
Cognitive competences	1.022 (.000) w = 33.231	.983 (.000) w = 23.747	.985 (.004) w = 8.101
Strategic competences	.883 (.000) w = 26.086	.787 (.000) w = 16.365	.957 (.020) w = 7.969
Behaviour towards organisation	.712 (.000) w = 15.923	.662 (.001) w = 11.467	1.140 (.020) w = 5.403
General knowledge	.419 (.023) w = 5.156		
Behaviour towards others	.513 (.004) w = 8.221	.390 (.046) w = 3.993	.799 (.029) w = 4.748
Constant	-1.713 (.000) w = 36.604	-1.698 (.000) w = 73.203	-3.538 (.000) w = 40.789
Cox and Snel R2	.210	.184	.147
Nagelkerke R2	.351	.277	.355
-2 likelihood	321.395	253.249	69.873
N to be promoted	81	67	14
N not to be promoted	392	219	173

A striking result is the negative impact of in-company experience on the chance to be promoted. This result is consistent with the vision of a rupture of the traditional functioning of the internal labour markets (see for instance Ballot and Piatecki, 1996).

Ballot and Piatecki discuss the employer's dilemma concerning the trade-off between the incitation effects of promotion and the quality of the external labour supply. Current

[4] For a more in-depth analysis of gender discrimination see Suleman (2004)
[5] Since the number of cases is small, we must be careful in the analysis of these results.

evidence suggests that the new generation is more educated than the previous. From such a perspective, the employers have to choose between the specific competences acquired inside company, which seems to be obsolete, and new competences acquired through higher level of education.

The competences assessed by the supervisor seem to have a crucial importance for the probability to be promoted. Cognitive competences are again the more influent, but other competences such as the specific/strategic ones, behaviour regarding the organisation, behaviour towards others, general knowledge have also a positive impact. Comparing the model 2 and 3 of logistic regression, it seems quite clear the importance of competences on the chances to be promoted. For both groups, cognitive competences are undoubtedly relevant.

The results presented in table 5 show that, excluding general knowledge, all types of competences are relevant to be promoted for both groups. There are in fact quite large differences between the influence of competences on fixed remuneration and on the probability to be promoted.

Our results tackle the basic dilemma of competence model stretched by French sociologists (Reynaud, 2001), namely the unsustainability of a pay system based on competences. Reynaud argues that this type of pay system generates a permanent instability of earnings which cannot be sustainable for employees, nor for employers.

Employers search also for new ways to reward the level of individual competence and this issue is quite clear on the decisions about profit sharing and promotions.

The studies linked to the human capital theory have been focused on earnings, especially on basic pay. Our analysis showed that the reward system and the career progression present interesting features. The possibility of using more information on individual competences – the inside information, is used as an additional input on top of the potential productive contribution represented by the education level. This information on competences is considered when the flexible pay and promotion are discussed. In that case, it seems that competences more than education is used as main criteria for ranging individuals for profit sharing and promotion.

Conclusion

In this paper we have studied the relation between individual characteristics and the reward system. Besides HCV, which constitute the anonymous way of defining wage levels, we used inside information about individual competence assessed by supervisors.

The research findings show that the assessed competences are particularly relevant in determining the flexible part of employee reward (profit share) and in allocating employees into occupational slots. Conversely, the human capital variables are more crucial for the definition of earnings.

The limits of HCT have thus led us to other limitations, which have to do with the conditions for implementing competence-based pay. There are probably some institutional and social constraints. However, we would highlight that competences are used to guarantee the flexibility of the reward system. And competence-based profit sharing and promotion would indicate that there is supply side domination in the labour market. The employers face certain difficulties in making wages more flexible. Wherever possible, they use their degree of freedom to tie individual income to performance indicators.

This approach, based on competences, also provided a more precise vision of the present functioning of the internal labour market, with a distinction between earnings, premiums and promotion and with different criteria for each of these components. In the whole process, cognitive/transferable competences are crucial. This reveals the ways firms use to get the competences they need and the means to solve moral hazard problems.

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Annex: Results of the principal component analysis

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Technical general knowledge	0.443	0.117	8.593E-02	0.647	0.128
Technical specific knowledge	0.680	0.106	6.477E-02	0.317	0.199
Foreign languages	4.633E-02	0.172	1.617E-02	0.783	0.121
Relations with colleagues	0.243	0.196	0.259	0.161	0.787
Working in team	0.263	0.370	0.388	0.220	0.628
Communication	0.366	0.480	5.847E-02	0.246	0.487
Willingness to help others	0.248	0.323	0.457	0.173	0.588
Negotiation	0.325	0.794	0.132	0.159	0.235
Persuasiveness	0.368	0.751	7.588E-02	0.126	0.275
Perseverance and orientation towards others	0.452	0.619	0.323	0.112	0.132
Orientation towards the client	0.329	0.661	0.267	0.218	0.274
Autonomy	0.760	0.309	0.131	-5.625E-02	0.188
Responsibility	0.709	0.271	0.200	-6.342E-02	0.306
Adaptability	0.528	0.365	0.300	0.368	0.295
Innovation	0.587	0.454	0.190	0.290	0.203
Readiness to learn	0.381	0.353	0.526	0.434	0.220
Effort to learn	0.373	0.385	0.489	0.413	0.182
To follow the rules and procedures	0.479	0.244	0.490	7.102E-02	0.119
Cooperation	.362	0.522	0.487	0.224	0.266
Adaptation to the working hours	0.113	0.245	0.738	0.187	0.221
Punctuality	0.155	8.281E-03	0.789	-8.025E-02	0.153
Planning and organising	0.609	0.349	0.304	0.207	5.912E-02
Ability to use computing systems	0.520	0.168	0.231	0.472	0.191
Capacity to analyse	0.743	0.285	0.191	0.273	0.146
Ability to select and to process information	0.641	0.398	0.185	0.315	0.141
Ability to solve problems	0.728	0.324	0.235	0.173	0.143
Ability to learn	0.559	0.289	0.333	0.417	0.252
Ability to transfer knowledge and experiences	0.690	0.322	0.180	0.253	0.227
Capacity to understand the specificities of the banking activity	0.589	0.474	0.235	0.253	9.597E-02
To understand the strategy of the bank	0.458	0.575	0.350	0.280	9.672E-02

Note: variance explained by factors: 1st factor = 56.3%; 2nd factor = 5.4%; 3rd factor = 4.0%; 4th factor = 3.5%; 5th factor = 2.6%; total variance = 71.73%; KMO = 0.974; Bartlett test= 13715.154; significance = 0.000 Varimax rotation

Human capital variables and profit sharing

Model	Monthly earnings (logarithm)	Profit sharing (logarithm)
Years of schooling	0.300***	0.237**
Experience in the labour market	1.589***	0.349
Squared experience	-0.862***	-0.023
Experience in the company	0.110	-0.222
Constant	11.593***	11.621***
Adj. R²	0.438	0.014
N	321	