Journal of Universal Computer Science, vol. 9, no. 12 (2003), 1519-1532
submitted: 29/8/03, accepted: 19/9/03, appeared: 28/12/03 © J.UCS

Bad Management and its Consequences in a Problematic European Union Member (Portugal)[1]

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Abstract: This paper analyses the Portuguese current economic situation, and points out to the decisive importance of management decisions, in order to explain the present state of affairs and to win over the massive challenges that lie ahead. The main conclusion is that, investments in training, education and skills can help Portugal to achieve success in trade. Evidence of that was obtained applying three simple economic models to statistical data on around 30 exporter economic sectors, related to the years from 1989 to 2001 (see section 4). That basic idea will be completed with three others that reinforce it: (1) the Portuguese future economic evolution will depend heavily on its external record (see section 3); (2) bad management caused Portugal to have traditionally low levels of education, skills and training (see section 3); (3) a new skills management attitude will be needed focusing in the importance of education, skills and training as real success factors (see section 5). The findings presented are somewhat preliminary, and may be extended and deepened by further and more detailed research (see section 7).

Keywords: Skills management, Exports, Portugal, Training, Education.
Category: K.4 Computers and Society (Public Policy Issues, Social Issues)

1 Purpose

The main goal of this paper is to analyse the relation between economic success and skills management in Portugal. There is a general agreement that trade success is one of the problems the country faces, and that skill investments are one of the strategies that might be used to solve that problem. But some work is still missing in order to dissect the "exports/skills" relation, to show its importance and realism and to find stable grounds in which to base some exported oriented investments in human capital.

Accordingly, in this paper, detailed sector data are used to enlighten the practical relation between exports, on one hand, and skills, education and training, on the other hand. By the models and data used, this study may be considered to be somewhat a novelty. And, by its conclusions, this is probably an interesting contribution because it sheds a new light on an increasingly important problem.

[1] A short version of this article was presented at I-Know '03, (Graz, Austria, July 2-4, 2003).

2 Theories

2.1 The economics of skills and exports

The social benefit of skills investments is well established in economic theory, and well documented by empirical analysis.

Seminal studies made in the Human Resources (HR) field explain with great security that previous work experience, and investments in education and training, decisively increase the productivity and wages of the persons and organizations involved; benefits can also be sensed in other areas as:

- the employment quality, and the unemployment levels and spells of those individuals;
- the quality of the products, the process failures and the organizational climate, that characterize the relevant companies.

In social terms, the investment in skills generally leads to increases in the wealth levels. Finally, it is stressed that even if formal education and training are extremely important, tacit and informal knowledge are also very relevant in economic terms.

The positive relation between skills and exports is also very well known, in theory and in practice. International Economics analysis state very firmly that the labour force characteristics have a major influence the specialization pattern of every country; from that follows naturally the idea that skills can contribute decisively for the wealth level of every country, not only in an internal basis (as defined by the HR theories explained above), but also in an international one.

Given that the world is entering a "knowledge era", in which a "knowledge based economy" (KBE) will be dominant [Buigues et al. 2000], [Rodrigues 2002] the theories just mentioned turn to be very important at the present moment of human history.

2.2 The sociology of skills organization

If economists can explain why investments shall be done, sociologists can help explaining what the content of those investments should be. "Scientific Management" theories elaborated by Frederick Taylor, and other subsequent analysis made on the Sociology of Labour field, supplied alternative "optimal ways" of organizing skills, based on several specific aspects of the organizations: human relations, socio-technical foundations, technology, external environment, and national coherences [see Tomé 1994]. All those alternative theories are particular cases from a general and more relative theory that gathers them all. In the two last decades, the emergence of the so-called new technologies, lead to the study of "post Tayloristic" organizations, that were compared with "pre-tayloristic", tayloristic and "neo-tayloristic" ones; at the same time, much work was done concerning the definition of "skills", and "competence" [see Tomé 1994].

2.3 The new knowledge management theories

In the nineties, knowledge management (KM) emerged as a brand new field of science, characterized by the following may features:

- it gathers the lessons learned by the theories that were previously exposed;
- it adjourns those theories, because it relates them with a new and difficult concept (knowledge itself), which is better defined as "understood information";
- it broadens the relevant field's scope, making it very multidisciplinary, because knowledge is actually studied by many different sciences such as linguistics, psychology, pedagogy, and engineering;
- in KM studies, education, training, experience, skills, and the other HR characteristics are seen as critical success factors (CSFs). Indeed, one of the most important aspects of the KM research has been to define the intellectual capital (IC) components, and other intangible factors, which, in order to explain the market success of companies, are effectively CSFs; in fact, KM analysts try to explain the company valuing with elements that are not listed in the traditional balance sheet - see [Sveiby 1997], [Kaplan and Norton 1992], [Edvinsson and Malone 1997], [Wagner et al 2001] and also [Sveiby 2002] for a survey;
- KM scholars are not only concerned with the formal aspects of companies, and organizations; indeed, informal, tacit and organizational knowledge are among KM main concerns. But that concern is not an impediment to KM rigorous measurement, rather it is a mark of quality and a sign of wisdom.

In this paper, the KM-CSF pattern of analysis will be applied to the macroeconomic evolution of a country, in an external context. Economic success will be measured by the export levels per worker, and the countries' evolution will be explained by some factors which will be considered as CSFs: education levels, formal skills levels and number of years of tenure.

3 Context

3.1 Economic History

Portugal is a small country (a sixth the size and the population of France) with large history. Independent since the 12th century, the Portuguese were remarkable by the "Discoveries" they made in the Renaissance, and in consequence possessed a so called overseas Empire" until 1974, when a democratic revolution overthrew a dictatorship that lasted since 1926.

However, Portugal only succeeded to "take off" [Rostow 1963] very recently, with the help of the European Economic Community/European Union (EEC/EU), after the 1986 adhesion. In 1975, the Portuguese Gross Domestic Product (GDP) per head in Purchase Power Parities (PPP), was only of 54 percentage points of the EEC average [EC 2001:143]. A period of democratic consolidation, social transformation and economic troubles (with two International Monetary Fund agreements) ensued, and in 1986 the country stayed at the same distance from the Community. The years following the adhesion are known as the "golden decade": in 1997, Portugal had converged to 74 percentage points of the EU average [EC 2001:143]. The economic improvements were easily detectable by any indicator [see Table 1].

	1985	1997
GDP ph (dollars)	1970	10600
Life expectancy (years)	74	76
Electricity consumption (ckgeqph)	1312	2051
Infant Mortality (°/oo)	19	8

Ckgeqph – coal kilograms equivalent per head; °/oo – per thousand
Source: [World Bank, 1987, 2000].

Table 1: Portuguese Economic Development – Main indicators

3.2 Present Situation

3.2.1 Problems

Nowadays (July of 2003), however, the country faces big macroeconomic problems:

- the convergence process with the EU ceased;
- the country is in recession since the mid of 2002;
- consumption expansion is severely weakened by the almost insignificant rise in salaries;
- the need to control the deficit budget caused huge cuts in public spending, which affected mostly the public social policies, that are essential to guarantee the well being of most of the population;
- low European Central Bank fixed interest rates are positive factor, but firms don't seem able to capitalize on them, augmenting the investment, because the increase in demand is small;
- unemployment is still low (around 6-7%) but its numbers are rising; given that in Portugal unemployment is very much poverty related, if the figures were to acquire an "European" shape (around 8-9%), that may well cause important social unrest;
- the current account balance deficit is around 4% of the GDP, due to two factors: a) a large trade unbalance, cause by big agricultural imports, and by a very big propensity to import basic consumption goods; b) the difficulty to capture new foreign direct investments, which have been recently redirected to the Eastern European countries and to the South East of Asia.

3.2.2 Challenges

In the forthcoming years Portugal will face several complex phenomenon that will strongly test its economy:

- the Stability Pact criteria, whose observance will originate further cuts in the budget expenses; that will mean new cuts in social policies, and will put immense pressure in the private sector, which will have to become the engine of growth;
- the Eastern countries' adhesion to the EU, and the growing globalization process will both pose big threats to the position of Portuguese firms in the European and world markets;
- the emergence of a KBE, for which Portugal lacks the needed level of IC.

3.2.3 Need of External Success

Given the big limits that exist to the deficit expansion, and the small dimension of the country, exports might be easily seen as a possible engine of future growth. This idea has had some importance lately:

- in the budget that was approved in November 2002, the new Government forecasted an export growth of 5 to 7%, which was considered essential to assure a 1.25 - 2.25% GDP increase in 2003;
- in January this year the Government proposed a "strategy of economic diplomacy", by which Portuguese ambassadors should become something like "export promoters".

3.3 Traditional "bad management" practices and their consequences

3.3.1 Cause: Traditional lack of skills investment

The point with the strategy defined in the previous section is: Will it work ? Some doubts arise. The Portuguese problem is on quality. That one is an ancient story that nowadays has some new characters. Already in 1989 some economists warned of the Portuguese problems in the textile sector [Lopes et al 1989:222]. But in February 2003, the Minister of Economy himself stated that "Portugal has to produce quality brands", and that "internationally the lack of trust in Portuguese products is evident". In order to make quality goods, skills are essential.

And, what is decisive to note, is that the problem has deep roots. The Portuguese economic history of the last century was marked by a set of government inactions (1), and firms abuses (2), which contributed to weaknesses in the labour force (3), that finally made skills investments insufficient and even residual. As a consequence the Portuguese economy is a low skilled one, in what concerns productivity, wages, and export patterns (see 3.3.2).

3.3.1.1 Government inactions

During the dictatorship years (1926-74) the Portuguese Government pursued an elitist qualification policy, that ultimately caused the disqualification of the Portuguese labour force. Child labour was most common, and many of the men and women that were born on those days are said to "had never been children". General education was of 4 years; the "elite" of the work force was composed of bright youngsters that after 6 years of schooling made 3 years of technical and commercial studies [Lacomblez and Freitas 1992:7].

In the sixties, as the regime became more repressive, and around 20% of the budget began to be spent in a colonial war in Africa, around 1 million Portuguese migrated to Western Europe, where, significantly, and after naturally having been trained, they were known as excellent workers.

In 1974 the illiteracy rate was on 21% (the Ancient Regime thought that if people didn't know how to read they would have less probability to rebel); and the country had only around 1000 PhDs.

With the democratic regime, the educational improvement has been made step by step: illiteracy elimination, and 6, 9 and 12 years of schooling attainment have successively been presented as national objectives in the last 3 decades [see Table 2].

	1974	2000
Less than 4 years	41.5	2.1
4 years	44.5	33.4
6 years	8.1	22.8
9 years		16.9
12 years	4.1	17.1
University	1.2	7.7

Source: [Lacomblez and Freitas 1992],. LFC 2000

Table 2: Labour force – Educational attainment (%)

Also, Government sponsored training became quite common after the EU adhesion using the European Social Fund (ESF) support. Portugal is, with Ireland, one of the countries that received, in relative terms, more support from the ESF; around 9% of the labour force is trained using the ESF support each year, using a sum of money comparable with 0.8% of the Portuguese GDP; however, the real impact of that help is still very much debatable [Tomé 2001].

3.3.1.2 - Companies' abuses

During the dictatorship, Portuguese firms, managers and landlords used the available workforce for their profit. By 1974 a few big industrial groups, with links in the agricultural and financial sectors, virtually controlled the country. Instead of contesting the ancient regime they approved it and profited from it. Little educated workers were usually not trained, even if they spent a live working in the same factory; as a result, in case of lay-off those individuals were extremely bad prepared to find new jobs; so, many 55 year olds, with 4-6 schooling years, were considered a lost force if fired.

Today, the employment problem still exists, having been dramatically put forward when, in 2002, almost 100.000 people lost their jobs. The "social responsibility" level of Portuguese companies and organizations is not high: pay is restricted (generating low living standards), social democratic and conservative labour laws are not entirely complied with, employment is increasingly precarious, no preparation is normally given to future laid-off people. Furthermore:

- in the last two decades many investments destined to improve firms and organizations were effectively made (involving training, management, and technical tools), but they were overshadowed by the fraud and misuse problems that were linked with the absorption of EU subsidies in which companies rested for their realization;
- with the democracy labour relations become more even, and dialogue increased; but a "technocentric" perspective still dominated Portuguese management, in contrast to a more "anthropocentric" approach. Given that technological investments are easily made in partnerships, that posture contributed to aggravate the low technical level of Portuguese firms, which is in line with the low standards of the Portuguese labour force.

3.3.1.3 - Labour force weaknesses

During the dictatorship, unions were forbidden. And Portuguese workers lacked the money to fund education or training: in fact they were very much caught between a government that didn't give them education, and firms that didn't give them training. Within the democratic regime, unions have tried to defend the increase of jobs qualifications at the Social Agreements Meetings, in which the Government, unions and employers' associations take part.

3.3.2 Consequence: Portugal as a "low skilled" economy

Both on its investment levels, and on its results, Portugal must be considered a relatively low skilled economy [Ashton and Green 1996]:

- basic statistics put Portugal well behind in the EU levels in what concerns the attainment levels in education: only 21% of the Portuguese reached the end of the secondary cycle of education, compared with 63.5% in the EU; in the 25-9 age group the figures are 38 and 75% [EC 2002a];
- the scarcity of qualifications, causes low productivity levels (around 46% of the EU average at current prices) [EC 2002b], and as consequence wages are low: around 51% of the German average according to OECD analysis, at PPP;
- from that set of qualifications-wages-productivity resulted an industrial pattern of specialization that originated an export pattern dominated by low quality and highly price related products.

3.3.3 The basic problem

From what has been said, it may be concluded, that nowadays, Portugal is, in fact, a relatively low skilled and troubled economy. And given the Portuguese present problems, and the challenges that have to be faced, it is necessary to find if and how investments in skills can originate exports' increases.

4 Empirical study

4.1 Aim

Considering the theoretical ideas expressed in 2, and the historical facts described in 3, it is very important to try to test the idea that Portuguese exports may be related with the levels of skills, education and training that characterize the Portuguese labour force; in consequence, it would be possible to direct the Portuguese investments in those "critical" areas more properly.

4.2 Data

Since 1988, the Portuguese Ministry of Employment annually publishes the "Labour Force Charts" (LFC) which contain data on the skill and education levels, and on tenure, by sub-sectors of economic activity. For some years (1990, 1991, 1994, 1996, 1997, 1998 and 2000), the same Ministry already published an "Inquiry on the Execution of Training Operations" (IETO); those inquiries contain detailed data on

training investments for the same sub-sector grid used in the LFCs. Finally, the National Institute of Statistics annually makes "External Trade Statistics" (ETS) from which data on the exports' level by the LFCs' sub-sectors of economic activity grid can be obtained. Those data being related to pre-EURO years, they are expressed in "Escudos", an EURO being equal to 200.492 escudos.

4.3 Models

4.3.1 Standard cross section analysis

The estimated equation had the following simplified formula:

$$\text{Exports per worker} = a + b\,QUA + c\,SCH + d\,TEN + ei \qquad (1).$$

The qualifications subset (QUA) consisted of 8 variables: Apprentices, Non Qualified Workers, Semi Qualified Workers, Qualified Workers, Highly Qualified Workers, Foremen and Teams Managers, Intermediate Staff, Managers. The schooling set (SCH) consisted of 7 variables: less than 4 years, 4 years, 5-6 years, 7-9 years, Secondary school, Bachelors, University. The Tenure subset (TEN) consisted of 6 variables: Less than 1 year of experience, 1 to 4 years, 5 to 9, 10 to 14, 15 to 19, 20 and more. For each subset of independent variables, each category was represented by its percentage rate in each sub sector.

A positive sign associated with the regression coefficient meant that the relevant category of skills, education or training had a positive impact in the exports per worker ratio. A negative sign meant that the detected impact was negative. The magnitude of the coefficient reflected the magnitude of the impact that had been discovered. The pattern of signs and magnitudes should describe the way Portuguese skills, education and tenure levels influenced Portuguese exports. Calculations were performed using each variable, and each one of the subsets of variables. Lagged estimations were performed to see if the current HR levels had an impact in the future exports' pattern. Thus, lagged results could be compared with current ones. Differential estimations were also performed, to see if a change in the HR composition had any effect on the export changes; the results that were obtained could then be compared with the static and lagged ones. The estimation method used was Ordinary Least Squares.

4.3.2 Exports and firm dimension

The equation used was the same as in the previous section, but in this case the data concerned four classes of firms' dimension: 10-49, 50-99, 100-499 and + 500 workers. The comments made in the previous section on variable meaning, signs and magnitudes apply to this alternative way of describing the relation between HR and exports.

4.3.3 Exports and training investments

The equation used was:

$$\text{Exports per worker} = e + f\,TRA + ui \qquad (2)$$

The training set consisted of nine variables: share of trainees in the labour force, pubic share in funding, private share in funding, investment per worker (total, private and public) and investment per trainee (total, private and public). For each variable,

data were available by sub sector (as in 4.3.1) and by firm dimension (as in 4.3.2); thus, it was possible to perform simple cross sections and multiple cross sections analysis.

A positive sign associated with the regression meant that the relevant variable had a positive impact on the exports' per worker level; a negative sign meant the opposite. The magnitude of the coefficient reflected the magnitude of the detected impact. The set of signs and magnitudes that unfolded should describe the way Portuguese training investments influence the Portuguese exports levels. In the cross section case, lagged estimations were performed to see if the current training levels had an impact in the future exports' pattern; and, in consequence, lagged results could be compared with current ones. The estimation method used was Ordinary Least Squares.

4.4 Results

4.4.1 Standard analysis

Three basic analysis were performed, related to 1989, 1997 and 2000. Some lagged analysis was also performed, trying to detect:

- the impact of 1989 HR levels in the 1997 export levels and in the 89-97 evolution;
- the impact of 1997 HR levels in the 1998, and 2000 export levels, and also in the 1997-8 and in the 1997-2000 evolution;
- the impact of the evolution in HR levels between 1989 and 1997, and between 1997 and 2000 in the exports evolution verified in the same period of time.

For each case the coefficients that were statistically significant are shown in [Table 3] and in [Table 4].

	1989	1997	2000	97-98	97-(98/97)	97-00	97- (00-97)	DIF89/97	DIF97/00
N	22	30	29	30	30	30		19	30
SEC									507
5-6 SCH	*39*	*129*	202	154		192		*81*	**417**
4 SCH									384
10-14 TEN	*- 47*		*370*					*132*	
5 a 9 TEN			419						
Less 1 TEN		***-109***	***-154***						
Foremen			*732*	611	**266**	774	432		-1482
QW									**-242**
SQW	***21***		137						274
Apprentices			**401**						**522**

NOTE: 97-98*:* impact of 97 HR in 98 exports. 97 (98-97): impact of 97 in the 98-97 evolution
DIF 89/97: impact of 89-97 HR evolution in the 89/97 exports evolution. Others in the same way.
Italic, **subscript,** bold - **significant at 10%, 5% and 1%.** Values in 1000 Escudos (see 4.2)

Table 3: Equation 1 – Simple regressions – Significant coefficients

	89	89	97	97	00	00	00	97-98	97-98	97-(98/97)	97-(98/97)	97–(98/97)
	SCH	TEN	SCH	TEN	SCH	TEN	QUA	SCH	TEN	SCH	TEN	QUA
N	22	22	30	30	29	29	29	30	30	30	30	30
R2	0.47	0.42	0.33	0.39	0.36	0.44	0.57	0.39	0.26	0.20	0.13	0.28
University	*436*		*229*					335				
Secondary	*202*											
7 -9 SCH			371					**541**		*130*		
5 – 6 SCH	296		*249*		854			435		*111*		
4 years	*183*											
<4 SCH	230											
> 20 TEN				**319**		553			430			
15–19TN		115				**-1323**						
10 -14TN				**934**								
5– 9 TEN						885					*135*	
1to 4 TEN				**691**					727			
Foremen							837					298
Q W s							*-463*					
NQW							*-403*					

	97-00	97-00	97-(00/97)	97-(00/97)	97-(00/97)	DIF97/00	DIF97/00	DIF97/00
	SCH	TEN	SCH	TEN	QUA	SCH	TEN	QUA
N	30	30	30	30	30			
R2	0.48	0.20	0.24	0.23	0.18			
University	**434**							
Secondary						**900**		
7 -9 SCH	**669**		*254*					
5 – 6 SCH	**624**		299					
4 SCH						**754**		
<4 SCH	1534							
> 20 TEN		425						
10 -14TN				-660				
5– 9 TEN				387				
1 - 4 TEN		*609*					*-557*	
Foremen					*521*			
Apprentices								499

See note in Table 3

Table 4: Equation 1 – Multiple regressions – Significant coefficients

It is clear that:

- using simple regressions, very few strong relations emerged; however, the most relevant were detected in relation to the year 2000; very few negative signs, appeared; basic schooling (5-6 years), tenure (5 to 14 years) and middle management seemed to be crucial; there was no much difference between the current analysis or the lagged analysis;
- using multiple regressions, many more important relations were detected; almost all of those relations had positive signs; some education levels (University, 7 to 9 years, and 5 to 6 years) seemed to explain both the current export levels and the exports evolution; increased levels of tenure

also seemed to have some effect on exports, in particular to the levels of less than 4 years, 5 to 9 years, and more than 20 years; in what concerns skills, the significant levels were Foremen and Apprentices; given that almost all of the calculations related to the very recent period of 1997 – 2000, these results reinforce the urgency to upgrade the skill levels of the Portuguese labour force (already shown in [Table 2]) and its stability; finally, some "new blood" and more administrative personnel, seems to be needed.

4.4.2 Dimension consideration

This relation was studied using observations for 10 years (1989, 1991-1999) and 4 classes of firm dimension 10-49, 50-99, 100-499 and + 500 workers. Some interesting relations were found [see Table 5]. Using simple regressions, very strong and positive relations appeared, specially linked with high qualification levels, but also with the middle levels of education and the higher levels of tenure; negative signs appeared for the Apprentices. Not surprisingly the estimation with the QUA subset originated an interesting adjustment and confirmed the positive effect of the Intermediate Staff, and also the negative effect of Apprentices. A very interesting adjustment was obtained in the case of SCH, confirming the value of investments in the level 7-9 years. The multiple regression with the TEN subset was relatively weak, with only a high, and negative, coefficient for the 15-19 class.

	Simple Regressions			Multiple Regressions		
	QUA	SCH	TEN	QUA	SCH	TEN
N	40	40	40	40	40	40
R2				0.43	0.75	0.31
Bachelors SCH					201	
Secondary SCH					**-74**	
7 to 9 years SCH		**46**			**186**	
5 to 6 years SCH		*33*				
4 years SCH		11			-19	
More than 20 years TEN			**201**			
14 – 19 years TEN						*-738*
1 to 4 years TEN			*-107*			
Intermediate Staff QUA	**1331**			**2383**		
Foremen QUA	*1969*					
H Q W QUA	560					
Q W QUA				-746		
Apprentices QUA	**-360**			-1320		

See note in Table 3.

Table 5: Equation 2 – Dimension analysis

4.4.3 Training investments levels' consideration.

The study had to main aspects:
- using the data on training, for the years of 1990, 1991, 1992, 1994, 1996, 1997, 1998 and 2000, by the 4 sub sectors of firm dimension, it was possible to replicate the analysis made in 4.4.2;
- using data on training for 1997 and 2000, and on exports for 1997, 1998 and 2000, it was possible to make a similar analysis to the one made in 4.4.1.

In the first case, considering the company's dimension, the calculations made with simple regressions provided some interesting results. The ratio between trainees and workers was significant at 1%, with a coefficient of 26, pointing to the importance of trainees as export enablers. The private share in costs was also significant at 1%, with a coefficient of 26 also, meaning that private investment is more fruitful than the public one. Operations should be cheap, because the coefficient of investment per trainee was –6, significant at 1%. However, the investment should be made, because the coefficient of investment per worker was 10, significant at 33%. Very interestingly, the private investment per worker was even more positive and significant than the total investment (coefficient of 27, significant at 5%) and the public investment per trainee was more negative than the total (coefficient of –10), with the same level of significance. Finally, the public investment per worker has strong negative effects (-43, significant at 5%).

In the second case, only a significant relation was found, negatively linking the share of public spending in 97 and the exports/worker level in the same year, significant at 10%. This result was at odds with the previous findings. Those findings may be explainable because the sector grid is somewhat artificial in order to explain the effects of training investments, when measured in money terms.

5 Discussion

Even if "to put numbers on people" is a hazardous task, HR studies are a social must. Accordingly, the interest of this study was to mix up some KM with some macroeconomics; in addition to try to analyse an important social question, it should also accrue the broadness to the usual very well made, but also very restricted (firm based) KM studies. This study is complementary to the "normal" KM type of studies. The results that were obtained may be considered minimally satisfying, because they pointed to the social and economic importance of education, skills, tenure, and training, in Portugal. Even if it was impossible to deal specifically with "computers", the questions of "competences" and "skills" were addressed and some important relations were found. This study was much dependent on the administrative classification made by companies: this could explain the failure on the QUA set to explain the exports evolution; also, the statistical classification made by the national statistical offices, which separates artificially the companies by economic sectors; an analysis based in dimension classes turns to have more economic significance than an analysis based in sectors. Finally it should be noticed that, in the last few years Portugal has received around 100.000 Eastern European migrants, with high skill levels, which, if socially integrated, may be very important upgrading the Portuguese economic situation; also, the changing economic pattern may be seen in the importance of apprentices.

6 Conclusions

In Portugal, schooling is certainly linked with trade success: almost all the analysis point to the benefit of school levels, specially at intermediate ones (5-6, 7-9 years) but also the higher ones: categories that Portugal decisively lacks. Foremen and Apprentices were the two skill levels that emerged as more important. The class of Qualified Workers had bad results, that may be linked with the company use of the skills classification itself. Tenure proved to be significant, the best and more consistent positive signs being obtained for the > 20 years, and for the 5-9 years classes. Training, activities should be augmented, focusing in the trainees/workers ratio, in the investment by worker, in private activities and in low investments per trainee. All the precedent ideas call for a new skill oriented management in Portugal.

7 Suggestions for further research

The present study had a "pilot" nature. Thus, it should be bettered in two different ways:
- in order to improve the quality of the relations that were obtained it would be interesting to use more detailed sector based data, or even better, company data;
- in order to test the models that were used, and to put the Portuguese data in perspective, it would be interesting to apply the same models to another country, like Finland.

Acknowledgements

This paper is a longer and reviewed version of the one which was presented at I-Know 03. I thank Professor Dietrich Albert (University of Graz), Tobias Ley (Know Center), Simon Beck (Putzmeister Inc), Markus Won (University of Bonn), Carola Gosch (Gosch Consulting), Gisela Dösinger (Know Center), Wolfgang Keck (Sozialversicherung, Wien), Gaby Neumann (University of Magdeburg), Wolfgang Hiermann (BEKO-Austria), Juan Gabriel Cegarra (University of Murcia), and José Maria Viedma (Polytechnic University of Catalunia) for all the good questions they put and all the interesting opinions they issued at the Conference. I also thank my PhD tutor, Professor Joaquim Ramos Silva, from the High Institute on Economics and Management in Lisbon for some initial talks that generated the version of this paper that was presented at I-Know 03.

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