

JAPANESE MANAGEMENT AND SALARY PRODUCTIVITY

The case of the electronic and automotive industries in Portugal

Abstract

The present paper intended to assert in what form the Japanese approach to business management, concerning the factors *human resources, research and development* and *organization and methods*, has effect on the value creation by workers, beyond those expressed in salaries.

The investigation fell on companies in the electronic and automotive sectors operating in Portugal, with and without Japanese capital, in the six-year span from 2001 to 2006.

The specific results demonstrated that that impact is clearly visible over the factor *organization and methods*. In addition, there are evidences of substantial and direct influence of *research and development* on the creation of surplus value.

KEYWORDS: human resources; organization and methods; research and development; salary productivity.

1. THE WORKONOMIC INDEX, INDICATOR OF SALARY PRODUCTIVITY

The company's existing workforce forms the operating element that allows the creation of value. Without its activity, it's impracticable to add value to business.

Thus, the concept *salary productivity* measures in which degree the workforce is generating a value that, besides enabling to remunerate that workforce, allows remunerating other entities that make possible the production process: banks, bondholders and other creditors; equity holders; owners of goods yielded to the company; the government.

The management consultant *Boston Consulting Group* (BCG)¹ proposed, as an indicator of salary productivity, the *Workonomic Index*, thus determined:

$WI = [(VAB - S) / S] * 100 = [(VAB / S) - (S / S)] * 100 = (VAB / S - 1) * 100$, being S the mass salary of the time span.

¹ *L'Expansion*, March 2000.

2. THE JAPANESE BUSINESS MANAGEMENT AND THE SALARY PRODUCTIVITY

From the 1960s of the past century, and till the 1980s, the *Japanese economic miracle* has become a common reference. The media's face of this phenomenon was the high competitiveness of the largest industrial corporations in Japan: their products were innovative and had more attractive prices than their euro-atlantic competitors.

As a reason to this competitiveness, it's often referred the high productivity of the Japanese industrial worker, either being the blue-collar workman, the middle management, the researcher or the industrial executive.

On the other hand, this high productivity has been frequently justified on the following factors:

- The *lifelong job*, counterpointing the highly precarious bonds established by the employment relationships in the US ;
- A deep identification between the workers and the executive's goals;
- Innovative work processes;
- A great ability to offer innovative products .

As a last resort, three generic factors were linked to the *Japanese economic miracle*: the *human resources management*, the *organization and methods* and the *research and development* (R & D).

3. GOAL, METHODOLOGY AND HYPOTHESIS OF THE EMPIRICAL STUDY.

The purpose of the present research was to assert in what way the Japanese approach to the *human resources, organization and methods* and *research and development* factors acted upon the salary productivity in the companies in the electronic and automotive sectors operating in Portugal, with and without Japanese capital, in the six-year span from 2001 to 2006.

We've selected fifty six companies, starting from the information released by the newspaper *Diário de Notícias* between 2001 and 2006, in the offprint *DN-Empresas*, headlined *As 1000 Maiores (The 1000 biggest ones)*. From these, twenty one had Japanese capital.

This information allowed us to obtain the necessary data to calculate the *Workonomic Index* according to each one of the fifty six companies, in the 2001-2006 span.

We tested the hypothesis of the Japanese approach of the *human resources, organization and methods* and *research and development* as being favourable to the improvement of the salary productivity.

Thus, we've used in this research a conceptual tool consisting of three independent variables (qualitative) – *human resources, organization and methods* and *research and development* – and a dependent variable (quantitative) – *Workonomic Index*. On the other hand, each one of the independent variables had turned into various components, often strictly related, that express the Japanese approach.

Which components?

Regarding the *human resources*, we considered the following components:

- Internal advanced learning, which allows the fluidity of the production process;
- Team work, to the detriment of individualism;
- Use of oldness as a basis to promotion and salary setting;
- Total productive maintenance, a system of preventive maintenance and systematic registration of the problems encountered in manufactured equipment, as well as the solutions adopted by the operators;
- *Empowerment*, which is reflected in the attribution of autonomy and responsibility to the employees;
- Outsourcing.

Concerning to *organization and methods*, we've considered the following components:

- Functional flexibility;
- *Just-in-time*;
- *Layout* optimization of the manufactured equipment in U-shape, being the first and last tasks done by the same worker; which allows a better control over the production rhythm than the linear layout;

- Quality circles;
- The *ringi* system, reflected in the collective process of decision making, from bottom to top of the chain of command;
- Use of *kanban* (ordering label), which allows to prosecute purchasing, requisition of materials supporting production, and production itself without stock accumulation.

Finally, regarding to *research and development*, we've considered the following components:

- Introduction of innovative products, with an advantageous price-quality relationship;
- Constant upgrade of the range of products and the reduction of their life cycle;
- Zero-defect policy;
- *Kaizen* policy, that is, continuous improvement shared by all the corporation structure; underlying all the Japanese research and development effort.

After we'd determined the components, a questionnaire was sent to the selected companies, in which we asked, the following, on a 1 to 6 scale:

1. What was the importance given to each one of the components that express the Japanese approach to factors *human resources, organization and methods* and *research and development*;
2. What was the business performance regarding the above components.

From the obtained answers, we calculated the gap performance-importance (rate from the division between performance level and importance level) of each question posed. This *gap* allowed us to put performance in perspective when compared to the others components.

Next, we divided the companies in two fields: (1) companies without Japanese capital; (2) companies with Japanese capital.

For each one of these fields we determined the average *gap* regarding each company, concerning each one of the *human resources, organization and methods* and *research and development* factors. We correlated this last *gap* with the *Workonomic Index* average in the 2001-2006 span.

We used the (Charles) Spearman non-parametric correlation coefficient, once the data produced have an abnormal distribution.

4. RESULTS OF THE EMPIRICAL STUDY AND CONCLUSIONS.

The table 1 presents the correlations between salary productivity and each one of the factors in question, for the thirty five companies without Japanese capital.

Table 1
Results of the Spearman non-parametric correlation analysis
(companies without Japanese capital)

		Human Resources	Organization and Methods	Research and Development	Salary Productivity
Human Resources	Correlation coefficient sig. (2-tailed)	1,000 - 35	0,534 0,001 35	0,376 0,026 35	0,316 0,065 35
Organization and Methods	Correlation coefficient sig. (2-tailed)	0,534 0,001 35	1,000 - 35	0,699 0,000 35	0,473 0,004 35
Research and Development	Correlation coefficient sig. (2-tailed)	0,376 0,026 35	0,699 0,000 35	1,000 - 35	0,277 0,108 35
Salary Productivity	Correlation coefficient sig. (2-tailed)	0,316 0,065 35	0,473 0,004 35	0,277 0,108 35	1,000 - 35

Source: Reis, Felipa Lopes; Silva, Victor Gomes (2008).

The salary productivity has a positive and moderate correlation with the *organization and methods* variable (0,473), with a significance level of 1%.

We also verified that there is a correlation:

- Positive and high between the *organization and method* and *research and development* variables (0,699), with a significance level of 1%.
- Positive and moderate between the *human resources* and *organization and method* variables (0,534), with a significance level of 1%.

The Table 2 presents correlations between salary productivity and each one of the factors in question, to the twenty one companies with Japanese capital.

Table 2
Results of the Spearman non-parametric correlation analysis
(companies with Japanese capital)

		Human Resources	Organization and Methods	Research and Development	Salary Productivity
Human Resources	Correlation coefficient sig. (2-tailed)	1,000 - 21	-0,194 0,399 21	0,134 0,564 21	-0,299 0,188 21
Organization and Methods	Correlation coefficient sig. (2-tailed)	-0,194 0,399 21	1,000 - 21	0,800 0,000 21	0,451 0,041 21
Research and Development	Correlation coefficient sig. (2-tailed)	-0,134 0,564 21	0,800 0,000 21	1,000 - 21	0,337 0,135 21
Salary Productivity	Correlation coefficient sig. (2-tailed)	-0,299 0,188 21	0,450 0,41 21	0,337 0,135 21	1,000 - 21

Source: Reis, Felipa Lopes; Silva, Victor Gomes (2008).

The salary productivity has a positive and moderate correlation with the *organization and methods* variable (0,451), with a significance level of 5%.

We also verified that there is a positive and high correlation between the *organization and method* and *research and development* variables (0,800), with a significance level of 1%.

In short, the Japanese approach to *organization and methods* constitute the only relevant factor to improve the salary productivity in companies with and without Japanese capital. In fact, in both groups of companies the components that feature the Japanese approach to *organization and methods* factor contribute moderately to the creation of surplus values.

At the same time, in both groups of companies we ascertain a positive and high correlation between the *research and development* and the *organization and methods* variables. This fact allows hinting a significant indirect influence of *research and development* in the creation of surplus value, through organization and methods.

Finally, for the companies without Japanese capital, there is a positive correlation, although moderate, between the factors *human resources* and *organization and methods*; which allow hinting some indirect influence of the Japanese methods of human resources management in the creation of surplus value, through *organization and methods*.

A new study could reveal the reason why such correlation is restricted to the companies without Japanese capital.

References

- Carvalho, J. Eduardo (2002), *Metodologia do Trabalho Científico: “Saber Fazer” da investigação para dissertações e teses*, Lisboa, Escolar Editora.
- Carvalho, J. Eduardo (2004), *Produtividade: o que é*, Lisboa, Quimera Editora.
- Caetano, António, Vala, J. (2006), *Gestão de Recursos Humanos – contextos, processos e técnicas*, Lisboa, Editora RH.
- Ceitil, Mário (2006), *Gestão de Recursos Humanos para o Século XXI*, Lisboa, Edições Silabo.
- Dolan, Simon e outros (2007), *La Gestión de los Recursos Humanos*, Madrid, McGraw-Hill.
- Hearn, Lafcadio (2006), *O Japão - uma antologia de escritos sobre os agentes*, Lisboa, Livros Cotovia.
- Kotler, Philip (1965), *Marketing Management*, Editora Prentice-Hall, 13ª Edição.
- Ozaki, Robert (1991), *O sistema empresarial japonês*, Lisboa, Publicações Europa-América.
- Reis, Felipa (2007), «Modelos típicos de gestão nipónica – uma perspectiva de desenvolvimento em Portugal», *Economia & Gestão*, Lusíada nº7, pp. 129-143.

- Reis, Felipa (2008), «Las claves del éxito de la competitividad del sistema empresarial japonés», *Revista Empresa y Humanismo*, Universidad de Navarra, vol. 11, pp. 157-186.
- Suda, Toshiba (2007), «Converging or still diverging? A comparison of pay system in the UK and Japan», *International Journal of Human Resource Managemnt*, vol. 18, pp. 216-218.
- Takeda, Margaret; Helms, Marylin (2007), «The influence of human resources management on strategic intent in the multinational enterprise». *International Journal of Human Resources Development and Management*, vol. 7 (2), pp. 139-161.
- Youshikawa, Eiji (2006), *Musashi*, São Paulo, Editora Estação Liberdade.