

“Performance Measurement of the Portuguese Police Force using the Balanced Scorecard”

Thematic Area: Management accounting developments in the public sector

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Abstract

As a result of reforms brought about by the New Public Management (NPM) movement, public organizations have felt the need to develop adequate information systems to improve the policy process decision-making and to introduce resource allocation based on outputs and outcomes. The objective is to increase efficiency, effectiveness, and the quality of the public service with improved management costs.

What is the role of the BSC in the performance measurement of the Portuguese Police System? And to extent are police agents willing to comply with BSC requirements? The first study of its kind in Portugal, this paper proposes to analyze the BSC's place in the police management and police predisposition to apply the BSC as a performance measurement system in the Portuguese Police. Using a unique data set assembled by way of a nationwide survey sent to all the police chiefs of the four branches of the Portuguese police, we estimate an ordered logit regression model. We find that prior knowledge of the BSC, as well as the impact of the NPM issues, are important determinants of the predisposition to apply the BSC.

Key Words: Performance Measurement; Balanced Scorecard (BSC); Management Accounting; Public Sector; Portuguese Police.



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1. Introduction

In the context of the reform agenda of the NPM and the performance evaluation of the public sector, the Balanced Scorecard (BSC) arises as a strategic management system that improves performance and organizational success (Brignall and Modell 2000; Ellingson and Wambsganss 2001; Johnsen 2001; Kaplan 2001; Niven 2003; Wilson, Hagarty and Gauthier 2003). Initially developed for the private sector, the BSC has proven to be an important strategic tool for public and not-for-profit organizations (Kaplan 2001; and Niven 2003).

Given the importance of the BSC in the public sector and the empirical evidence of its application in such organizations as municipalities, hospitals, universities, and government agencies, we propose to analyze the predisposition for its application in the Portuguese police. The inconsistency, inaccuracy, ambiguity, and multiplicity of objectives and activities of the police and the existence of different stake-holders, with divergent interests, make it terribly difficult to the rational decision making process. There is a real need to develop accounting control systems that facilitate performance measurement (Collier 2001). The increase in criminality in recent years and the specificity of the delivery of police activities also call for a proactive management model—one based on devolved budgeting systems (Collier 2001), a clear delegation of authority, and an increase of financial autonomy and management control (Hoque, Arends, and Alexander 2004).

The organization of this paper is as follows. First, we review the literature on the NPM and its implications for the management accounting system, as well as studies on the application of the BSC in the public service, specifically in police organizations. Next, we describe the survey data that we collected and estimate an ordered logit model of the determinants of police officers' predisposition to apply the BSC. We close with a discussion of the results and suggestions for further research.

2. New Public Management and Management Accounting

The NPM reforms have been promoted innovation and modernization throughout public organizations in most developed nations since the 1980s. It has significantly led to the "reinvention of government" (Osborne and Gaebler 1992) through the improvement of the effectiveness, efficiency and economy of government practices. These concepts are based on the business spirit and they have a significant impact in the developed countries.

With the new public management model, it is important to develop an accounting and information system that supports the decision making process so as to allow for better resource management and more quality in service deliver (Humphrey, Miller and Scapens 1993; Ballantine, Brignall and Modell 1998; Broadbent 1999; Goddard 2005). The basic principles of the NPM call for the introduction of agenda reforms in public management, reforms that are based on business management tools, decentralization in structures and services, budget delegation, financial autonomy, accountability, resource allocation based on results and outcomes, introduction of the "value for money" and quality organizational cultures, and an orientation towards citizens (Hood 1991, 1995; Osborne and Gaebler 1992; Dunleavy and Hood 1994).

In spite of the ambiguity and complexity of public sector, it is possible to apply management accounting goals, and, in this way, increase transparency and accountability of their stakeholders (Guthrie, Olson and Humphrey 1999; Wisniewski and Olafsson. 2004). "The main role of management accounting in public sector organizations is to provide managers with the accounting information they need to carry out the planning and control functions" (Jones and Pendlebury 1992: 17). So, accounting "... is the dominant reference point for new style public service managers" (Lapsley 1999: 202). The need for a management system, based on the strategic planning and control, secures the introduction of management accounting in the public sector (Lapsley 1999; Helden 2005; Burns and Vaivio 2001). The diffusion of management accounting practices influences the process of organizational change (Jackson and Lapsley 2003; Lapsley and Wright 2004).

Several scholars have analyzed changes brought about by the introduction of management accounting in public organizations. To name just a few, Audrey Jackson and Irvine Lapsley (2003) look at the usage of the management accounting techniques and the process of their adoption and diffusion in the public sector. They find that the

use of performance measurement has grown significantly in the last years, particularly the adoption of key performance indicators, with a medium percentage of 91 (about 100% in the local administration). They also find that the accounting changes are implemented by legal imposition, especially in health care. The lack of resources and adequate knowledge and skills are the main limitations in the implementation of these changes. With respect to local government, Kathy Ho and Linda Kidwell (2000) found that new accounting techniques, especially the BSC model, although considered the most effective tool in theory, are still being developed. These authors concluded that the Total Quality Management is the management model most applied to local government and that there is a growing interest for the adoption of the accounting techniques in the coming years.

Organizational changes in the public sector imply a change of the values, organizational culture, information and control systems, an improvement of learning and communication processes and an increase in the accounting control (Scarparo 2004). The literature provides many reasons that make the diffusion and implementation of accounting information systems difficult in the public sector. These include a reduced stimuli for governmental accounting innovations and its diffusion, a political culture, based on a lack of transparency of political decision processes, the “politization” of accounting practices,¹ the lack of training and senior government accountants trained in the accounting innovations and the absence of a Chief Financial Officer responsible for governmental accounting (Yamamoto 1999: 294; Jackson and Lapsley 2003; Lapsley and Wright 2004; Collier 2006).

2.1 Management Accounting in the Police Force

Management accounting systems in police services emerges in order to rationalize decision making processes and improve performance (Hoque, Arends, and Alexander 2004). The definition of key activities, the development of the strategic planning and the annual costs plans, the delegation of financial management, the introduction of cash-limited budgets and the alignment of the financial and operational responsibilities, are just a few of the practices that have been introduced in the last years to improve police efficiency (Chatterton, Humphrey and Watson 1995). Mike Chatterton, Chris Humphrey and Ali Watson (1995) analyzed the development of accounting management systems in the British police services. They characterized its

implementation process and concluded the support, orientation, and participation of top management is fundamental for the success in implementation.

According to Paul Collier (1998, 2001), the success of the management control systems also depends of the cause-effect relationships among all the forms of control, such as the demand for police service, input control (financial measurement), output control (non-financial measurement), behaviour control (qualitative measures), outcome control (qualitative measures) and, finally, ritual control (financial, quantitative and qualitative measurement). The police service demands will determine all the other forms of control, given that this is what drives organizational performance. The allocation of resources is directly related to the level of demand, and this relationship cannot be forgotten by the control systems, in order to achieve the desired outcomes. In spite of the importance of the relationship among the different forms of control, Collier (2001) concluded that it does not exist in the police services. In this way, ritual controls, characterized by an “imperfect knowledge of the means-end transformation process, a low availability of output measures or where the ‘correct’ behaviours cannot be identified” (Collier 2001: 102), is the dominate form of control in the police force. The success of the performance control systems is possible only if they are based on the “assumption of rational decision making” and not on the “culturally-dependent values and rituals” (Collier 2001: 95). In contrast, when the target is the “politization” accounting, the consequences of the managerial reforms are a mere appearance of rationality.

The literature on the application of management accounting techniques in the police services reveals the implementation of Activity-Based-Costing (ABC) in the British police (Collier 2006), the BSC in the Scottish police (Wisniewski and Dickson 2001) and in the Swedish police (Carmona and Grönlund 2003). Regarding the application of ABC in the British police, Collier (2006) concluded that it is more a political process than a management process, accordingly what was said earlier about control systems. The power and influence of the several stake-holders in the police activity imply an irrational application of the ABC and of any management accounting techniques. In addition, police officers see that changes as a myth or a mere “distraction” of the leaderships (Collier 1998, 2006).

In sum, the diffusion of the new management accounting techniques (Lapsley and Wright 2004) in the police services, as in the public sector in general, and the emphasis on the learning process instead of on the control process (Collier 2001), assume

important factors in the success of managerial reforms and in the introduction of the rational making decision. Everyone should participate in the implementation of the accounting techniques so as to understand the organizational objectives. This implies that they need to have adequate knowledge about management accounting techniques. In this way, Collier (2001) defends a shift of the control paradigm to the learning paradigm, because, based on the complex activity of the police forces, the learning process will be more efficient in performance.

2.2 The Balanced Scorecard in the public sector

In the context of the new era of information and technologies, Robert Kaplan and David Norton argue in favour of the existence of a strategic information system to help managers in the process decision-making (Kaplan and Norton, 1996). The traditional management and accounting system cannot articulate the performance measures with the organizational strategy. In order to develop a new management system that links strategic information with organizational objectives, Kaplan and Norton develop the Balanced Scorecard (BSC) in the first half of the 1990s; it is now widely diffused in academia, especially in the accounting and management literature.

The BSC is a complementary strategic model that considers financial and non-financial measures. Áge Johnsen (2001) defines the BSC as a management model that translates the organizational mission and strategy into a collection of performance measures. It is a complement of the MBO but “with more emphasis on feedback on results by formal and integrated performance measurement” (Johnsen 2001: 321). Performance measure cannot be only based on financial measures but should consider others perspectives (Wilson, Hagarty and Gauthier 2003). The BSC overtakes this limitation because it links the strategy and organizational objectives with four perspectives of performance measurement: financial; customer; internal processes and learning and growth (innovation) (Kaplan and Norton 1992). Thus, this management tool retained financial objectives and add the importance of non-financial measures like customer satisfaction, quality, innovation, flexibility and employees skills.

In the context of performance measurement on the public management, there has been an increase in the application of the BSC (Ellingson and Wambsgans 2001; Kaplan 2001; Wisniewski and Dickson 2001; Niven 2003; Zelman, Pink, and Matthias 2003; Wisniewski and Olafsson 2004). Since the latter years of the twentieth century, public

sector organizations are increasingly under pressure, both from government and communities, in order to improve their performance and measure and reporting it. The increase of social needs and community expectations about the service delivery and its quality, the increase of cash-budget limitations, and the definition of citizen satisfaction as the mission of public organizations, justify the adoption of an information system like the BSC in public management, in order to add value for communities and to increase the value for money.

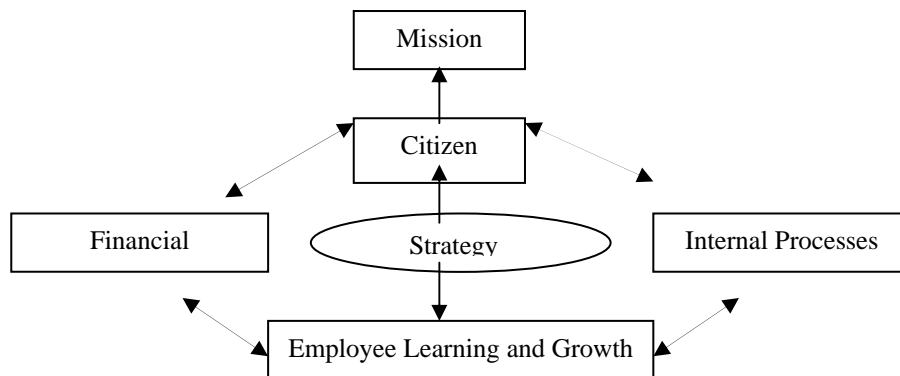
In spite of the BSC in business, it is applicable to any organization, as in public and non-for-profit organizations (Kaplan 2001; Niven 2003). However, each accounting and management model should be adapted in the context that they operate. A uniform approach of the BSC in business and public sector may lead to dysfunctional consequences (Johnsen 2001). In sum, the implementation of the BSC methodology in the public sector, implies that it is necessary to adjust the language, framework and approach to the public management and to the social mission that characterizes these organizations (Ho and Chan 2000; Chan 2004; Niven 2003; Holmes, Gutiérrez de Piñeres and Kiel 2005). Scholars theorize a change in the order of the perspectives in the BSC where the financial perspective is replaced by the customer/citizen perspective and other non-financial measures (see Table 1). Each organization should adapt the BSC to its own mission, strategic goals, values and culture, to assure a successful implementation (Niven 2003; Joyce 2000).

Table 1: Ordering of the perspectives on the BSC: public vs private sector

Private Sector	Public Sector
Financial Perspective Customer Satisfaction Perspective Internal Processes Perspective Learning and innovation Perspective	Customer Satisfaction Perspective Internal Processes Perspective Learning and innovation Perspective Financial Perspective

Source: Wisniewski and Dickson 2001; Carmona and Grönlund 2003.

In this way, the top position of the BSC framework is occupied by the organizational mission, followed by the citizen satisfaction perspective, because in public sector the focus is not to maximize profit, but rather citizen satisfaction (Ellingson and Wambsganss 2001; Niven 2003). Other perspectives must be aligned with the strategy and with the organizational mission in such a way as to allow for the increase in citizens' satisfaction (see Figure 1).

Figure 1: BSC framework for the public sector, accordingly Niven (2003)

Source: Adapted of Niven (2003: 32).

In the theoretical framework we find that many public organizations adopt the BSC to improve financial accountability, provide a better resources management, a better performance measurement and to increase the quality of delivery service. Table 2 show the BSC perspectives for different type of public services and the respectively source in the literature. We conclude that the original model of Kaplan and Norton is re-labelling when the model is applying in the public sector, in order to increase its relevance, where the focus is the achieve of the mission and increase customer/citizen satisfaction and the service quality, but financial perspective is always included because “... it don’t exist BSC without financial perspective” (Niven 2003: 34). In the financial perspective, the main objective is to reduce costs and increase the value for money. Internal processes, operational efficiency and learning are too important questions in the public sector, to assure that organizational mission is better meet.

Table 2: BSC framework for the public sector: comparative analysis

Public Service	BSC Perspectives	Source
All public sector	Value/benefit of service Cost of providing service Support of legitimizing authorities Internal Processes Learning and Growth	Kaplan and Norton (2001)
All public sector	Customers Financial Internal Processes Employee learning and Growth	Niven (2003)
Police – Scotland	Customer/citizen Financial Performance Operational Performance Continual Improvement	Wisniewski and Dickson (2001)
Police – Sweden	Resources Citizen Success Staff	Carmona and Grönlund (2003)
Municipalities – USA and Canada	Financial Performance Customer satisfaction Operating Efficiency Innovation and change Employee performance	Chan (2004)
Local Government – Scotland	Community outcomes Services management (processes) Resources management (people, financial...) Improvement (staff training ...)	Wisniewski and Olafsson (2004)
Hospitals – Canada	Financial Performance Customer Satisfaction Operating Efficiency Innovation and Change Employee Performance	Ho and Chan (2000)
Health Care – UK	Customer Perspective Internal Processes Perspective Learning and Growth Perspective Cost Perspective	Radnor and Lovell (2003)
Universities – Portugal	Financial and Budget Perspective Customer Perspective Social Perspective Internal Processes Perspective Learning and Growth Perspective	Nuno Ribeiro (2005)
Department of Transportation – USA (Illinois)	Customer Satisfaction and Partnerships Best business practices Learning and Growth Delivery of Programs and Services	Lang (2004)

2.3 Adapting the BSC to Police Forces

The police services are confronted with budgeting constraints and pressures like the increase in efficiency and quality of delivery services, the satisfaction of citizens' expectations in regard to public security and order and crime prevention. The BSC has revealed itself to be a useful strategic tool. For identify the suitable perspectives, and to be successfully in the BSC implementation, it is necessary the articulation between the

strategic planning and the operational objectives of each organization. Police activities, such as the maintenance of public order, safety, crime reduction, law enforcement and criminal investigation, should be the basis for the development of the BSC; the focus should not be placed solely in the crime reduction.

Some countries have already implemented the BSC in the police services, in the wide police system or only in some units, as the case of Sweden (Carmona and Grönlund 2003), Scotland (Wisniewski and Dickson 2001), Canada,² United Kingdom, and New Zealand.³ Table 3 identifies some police organizations, around the world, that had implemented the BSC, in part or in the wide police service and the BSC framework adopted.

Table 3: The use of the BSC in the Police Force: comparative analysis

Organization	Country	BSC Framework	Source
Swedish National Police Board	Sweden	Resources Citizens Success People	Carmona and Grönlund (2003)
Dumfries and Galloway Constabulary	Scotland	Customer/citizens Internal processes Learning Financial	Wisniewski and Dickson (2001)
Royal Canadian Mounted Police	Canada	Customer and stakeholders Processes People, learning and change	Reporting 2004-2005
West Mercia Constabulary	United Kingdom	Not define	Chan (2004)
New Zealand Police Force	New Zealand	Police service Community and citizens Financial People (employees) Policing efficiency Leadership, governance and social responsibility	Statement of intent 2005-2006

3. Research Design

In order to follow the research objectives, we develop a questionnaire based on the theoretical framework (Ho and Chan 2002; Carmona and Grönlund 2003; Hoque, Arends and Alexander 2004; Chan 2004), on the informal conversations with some police agents and on the legislation applied to the Portuguese police forces, in a way to insure the consistency of the questionnaire. The questionnaire is organized in four sections: first, the description of responding officer and officer agencies; second, the insight about the importance due to the NPM issues, external entities who influence the

changing process and the characterisation of the level of autonomy; third, the use and importance of performance measures; four, the knowledge on the BSC and the personnel and institutional predisposition on its application, the way as the respondents characterize the BSC and, finally, the main reasons that difficult the BSC implementation.

Using a unique data set assembled by way of a nationwide survey sent to all the police chiefs of the four branches of the Portuguese police (PSP, GNR, PJ, PM)⁴ we develop an ordered logit regression model with the propose to analyze the determinants of the BSC application. The questionnaire was sent to 508 police chiefs (284 GNR, 174 PSP, 19 PJ and 31 PM), in February/2006. Survey data were collected between February/2006 and June/2006. Questionnaires responses were summarized, first into relative and absolute frequencies distribution, using the Excel and SPSS statistical programmes, and, then, the determinants of the application of the BSC in the Portuguese police force are obtaining using the ordered logit regression model, where STATA was the statistical programme utilized.

The ordered logit regression model is the most appropriate for this research because we have an ordinal outcome variable (McCullagh 1980; Liao 1994; Agresti 2002), i.e., the predisposition to apply the BSC is an outcome variable measured in five-point Lickert scale: 1-null; 2- reduced; 3-medium; 4- high and 5- very high. About the explanatory variables, we use the police chief's knowledge on the BSC; the size of officer's agency (population and employees), the level of autonomy (financial and management); the branch of the police force (GNR, PSP, PJ, PM); the importance given to the NPM issues and the dedication of the police agencies to the main activity of community policing. Further, we include three control variables: age, education and professional experience. Table 4 presents all the variables used in the model, its definitions and descriptive statistics, in order to simplify the interpretation of the following results.

Table 4: Variables, Definitions, and Descriptive Statistics

Variable	Variable Definition	Mean	Std. Dev.	Minimum	Maximum
Dependent					
BSCpredisp	Level of personal predisposition to apply the BSC, coded 1: null; 2: low; 3: medium; 4: high; 5: very high	3,30	,861	1	5
Explanatory					
BSCknowl	Level of knowledge in BSC, coded 1: null; 2: reduced; 3: medium; 4: high; 5: very high	1,56	,839	1	5
Size	Size of population covered by officer's agency: 1:< 10.000; 2: 10.000-50.000; 3- 50.000-100.000; 4: 100.000-150.000; 5: >150.000	2,94	1,367	1	5
	Number of employees in officer's agencies: 1:< 20; 2: 20-50; 3: 50-100; 4: 100-500; 5: > 500	2,89	1,288	1	5
autonomy	Level of autonomy, coded 1: null; 2: low; 3: medium; 4: high; 5: very high	1,81	,835	1	4
	Level of administrative autonomy, coded 1: null; 2: low; 3: medium; 4: high; 5: very high	2,37	,927	1	5
Dpm ⁵	Dummy variable representing PM police, coded 1 if; 0 if otherwise	----	----	----	----
Dgnr	Dummy variable representing GNR police, coded 1 if; 0 if otherwise	----	----	----	----
Dpsp	Dummy variable representing PSP police, coded 1 if otherwise	----	----	----	----
Dpj	Dummy variable representing PJ police, coded 1 if otherwise	----	----	----	----
NPM	Level of importance of NPM issues, coded 1- not important; 2- somewhat important; 3- important; 4- well important; 5- strongly important				
Commpol	Percentage of police time dedicated to community policing, coded 1: 5-20%; 2: 20-30%; 3: 30-40%; 4: 40-60%; 5:70- 80%; 6: >80%	3,52	1,445	1	6
Control					
Age	Age of responding officer in years	38,01	9,589	23	59
Educ	Level of education, coded 1: < 12°; 2: 12°; 3: BA; 4- MA; 5- Ph.D.	2,32	,838	1	4
Professexp	Professional experience in years of service	14,59	9,181	0	35

4. Study Results and discussion

We sent 508 questionnaires to the Portuguese police chiefs, the majority of whom the respondents are commanders and directors of the four branches of the Portuguese police force. A total of 250 questionnaires were returned (49%), but only 229 (45%) were considered in the analysis (GNR- 155; PSP- 49; PJ- 9; PM- 16).⁶ The following results consisting of the descriptive analysis, using the relative frequency distribution in order to characterize each variable used in the study, and the application of the ordered logit regression model in the way to answer the research question.

Sample Size

The sample size was measured in terms of population covered by officer's agency and the number of employees (in full time), in the 229 police agencies that returned the questionnaire. Over 50,9% of the responding police agencies are responsible by a population greater than 50.000 inhabitants; the covered population of 33,6% respondents is greater than 100.000 inhabitants and about 22,1% cover a population greater than 150.000 inhabitants. For 36,7% police agencies, the serving community population is between 10.000 and 50.000. Relatively to the number of employees, both police and administrative employees, that working in the police agencies of the sample, 42,8% have less than 50 employees, 14,8% police agencies have between 50 and 100 workers and 34,1% have between 100 and 500 employees. Only 8,3% responding police agencies have more than 500 employees. In sum, respondents of the study represent police agencies with a medium of 50.000 inhabitants and 100 employees (accordingly Table 4).

Police institutions' dedication to policing community

About the relationship between the number of workers that execute police and management functions, we verify that about 87,7% of the responding agencies have more than 60% police agents and 52,2% affect more than 80% of their human resources to police functions. The relationship between the number of police agents and the crime rate is an important measure of the police efficiency (Loveday 1995; Collier 2001), so is important to have a majority of the employees in the police functions. Therefore, to increase the police efficiency, these employees should be affected to the main function of policing community (Collier 2001; Carmona and Grönlund 2003). In our study, we see that only 8,9% of the respondents answer that your institution spend more than 80% of its activities to the policing community, and 24,4% spend more than 60%. On the other hand, 45% consider that no more than 40% of the total time is dedicated to the policing community activity. The time spends in others activities, as to attend administrative and judicial demands, is high and not allows an efficient resource allocation.

Police institutions' importance on the NPM issues

Responding officers should indicate the importance given by your police agency to the factors that characterize the NPM model (Table 5). A greater focus on the "citizen orientation", the importance due to the "quality of the service delivery" and, simultaneously, the adoption of a "costs reduction policy" through a better management

resources, are the factors consider must important by the majority of the respondents. About 69,1% of the respondents consider that NPM issues have an high impact in the police service and 12% consider that very high. Relatively to external entities that have a greater influence in the organizational change, responding officers answer that government, legislators and regulators are the entities with more influence.

Table 5: Police chiefs' importance to the NPM issues

	N	Mean	Std. Deviation
Orientation towards citizens	227	4,28	0,830
Business management tools	224	3,08	1,032
Control systems based on the value for money	221	2,93	0,912
Quality of services delivery	226	4,35	0,820
Decentralization	225	3,24	1,095
Costs reduction policy through a better management resources	225	4,09	0,975
Performance measurement based on rewards plans	224	3,64	1,194
Measurement based on outputs and outcomes	224	3,37	0,919
Management flexibility	224	3,45	0,946

In general, we note a great sensibility of the respondents in adopt issues of the NPM. However, there are some barriers in the application of the NPM in the Portuguese police such as the high centralization and bureaucracy that determines the changing process and the implementation of any reform.

Level of financial and administrative autonomy

The sufficient level of autonomy and decentralization (Hood 1991) are important factors in the implementation of the NPM issues. Accordingly the opinion of 79,36% police chiefs, the level of financial autonomy is low or very low, when compared with their legal competences, and 20,64% consider that it is medium or high. Relatively to administrative autonomy, 36,04% of the respondents consider it medium and over 10% say that it is high or very high. About 54% respondents answer that the level of administrative autonomy is low or very low. The situation is more favourable for the administrative autonomy, because the Portuguese police system has, accordingly the legal framework, administrative autonomy, while financial autonomy is more centralized. Consequently, 73,06% of the correspondents refer that exist a significant gap between legal competences and the attributed financial autonomy, and 93,75% of them consider that this gap is negative for the police efficiency.

Type of performance measures used

Based on five possible perspectives for the BSC, the responding officers should indicate the kind of measures used in your institution, and the level of usage. We verify that measures of the employee performance are more utilized (78,28%), followed by measures of operational efficiency (74,77%), measures of innovation and change (65,77%), measures of citizen satisfaction (54,05%) and, finally, measures of financial performance (36,49%). The lack of financial autonomy justifies the reduced utilization of financial performance measures. On the other hand, the internal rules of the Portuguese police oblige to measure the employee performance what imply a great utilization of this perspective. In a similar study, applying in the municipalities, Chan (2004) verify that measures of financial performance have a greater utilization (80,1%), followed by operational efficiency (71,2%), citizen satisfaction (67,8%), employee performance (65,7%) and, finally, measures of innovation and change (33,4%). The greater utilization of financial measures, in opposite to our results, is because municipalities have local management and financial autonomy.

In spite of the reduced utilization of the citizen satisfaction perspective, in the Portuguese police, the respondents consider that this is one of the most important perspective of the BSC for the police institution, after the operational efficiency and the employee performance perspectives (see Table 6). However, all the five perspectives are consider, at least, important for the majority of the respondents.

Table 6: Perspectives' importance of the BSC

	N	Mean	Std. Deviation
Citizens satisfaction	222	4,29	0,907
Financial performance	218	3,06	1,151
Operational efficiency	221	4,55	2,761
Innovation and change	222	4,09	0,793
Employee performance	222	4,43	0,726

Police chiefs' knowledge on the BSC

The police chiefs' knowledge on the BSC is a key factor for the predisposition to apply this model. In our analysis we verify that over 63% of the respondents have a null knowledge on the BSC, and 23% have a reduced knowledge. Only about 15% (35 respondents) have a medium, high or very high knowledge on the BSC (see Table 7). This situation can be related with the low education of the respondents, because about 50% of them are not graduated, when the learning of the BSC occurs, normally, in the high education.

Table 7: Police chiefs' knowledge on the BSC

	Freq.	%
Null	143	62,45%
Reduced	51	22,27%
Medium	28	12,23%
High	6	2,62%
Very high	1	0,44%

Police chiefs who have some knowledge on the BSC (86 respondents) should identify, accordingly seven features presented by Chan (2004), those that better characterize this management tool. As we can see on the Table 8, the majority of the respondents agree that the BSC “links an organization’s mission and strategy with objectives measures” (3,84), is a “strategic management system” (3,80) and is “a performance measurement system” (3,76). Consequently, they concur that BSC “allows a better articulation and communication of the strategy and organizational objectives” (3,76) and “complements the financial measures of past performance with operational measures that drive future performance and growth” (3,48). They disagreed that BSC is only a fad (2,22) and don’t think that it is an “ad hoc collection of financial and non-financial measures” (2,05), similarly to Chan (2004) conclusions (based in a sample of 80 American and Canadian municipalities).

Table 8: Police chief's perception on the BSC: comparative analysis

	Portuguese Police		Chan (2004)
	Mean	Std. Deviation	Mean
BSC is only a fad	2,22	0,860	2,71
BSC is a performance measurement system	3,76	0,667	3,80
BSC is a strategic management system	3,80	0,683	3,73
BSC is an <i>ad hoc</i> collection of financial and non-financial measures	2,05	0,893	2,54
BSC complements the financial measures of past performance with operational measures that drive future performance and growth	3,48	0,681	3,70
BSC links an organization's mission and strategy with objectives measures	3,84	0,648	3,63
BSC allows a better articulation and communication of the strategy and organizational objectives	3,76	0,735	-----7

Police chiefs' predisposition to apply the BSC

The Police chiefs' predisposition to apply the BSC is the outcome variable used in the regression of the following section. This predisposition can be determined by different factors, but now we only present the relative and absolute frequency distribution of this variable. As we can see on the Table 9, only over 13,1% of the responding officers (30 police chiefs) refer, in the personal view, that have a reduced or a null predisposition to

adopt the BSC, against 86,9% (198 police chiefs) that reveals, at least, a medium predisposition. Of them, 74 respondents have high predisposition and 16 respondents have a very high predisposition. When responding officers consider the culture and the environmental of police organizations, and not only your point of view, we verify that the predisposition to apply the BSC decreases, what let us to think that the BSC implementation imply, firstly, a cultural change.

Table 9: Police chiefs' predisposition to apply the BSC

	Personnel predisposition		Institutional predisposition	
	Freq.	%	Freq.	%
Null	7	3,1%	14	6,1%
Reduced	23	10,1%	63	27,6%
Medium	108	47,4%	123	53,9%
High	74	32,5%	25	11,0%
Very high	16	7,0%	3	1,3%
Total	228	100,0%	228	100,0%

About the reasons that imply the unsuccessful implementation of the BSC or the decision for it non implementation, in the responding police agencies, the results show, based on a response scale of 1 to 5 (1- null; 5- very high), that “resistance to change” (3,67), the fact that the “management is too busy solving short-term impending organizational problems” (3,67), the “lack of highly-developed information system to support the BSC” (3,56), and the “lack of linkage of BSC to employees' rewards” (3,46) are considered more determinants. Chan (2004) fund similar results, but where the “executive sponsorship” (3,88) is one of the most important, contrarily our study.

Ordered Logit Regression Model

As we refer previously, the extent that Portuguese police agents are willing to comply with BSC requirements is determined using the ordered logit regression model. In order to interpret this model, our first propose is look at p-value of each explanatory variable (see Table 10), identify the significant explanatory variables, and look at the signs of the regression coefficients for to describe the direction of the relationship between the explanatory and the outcome variables (Chau-Kuang and Hughes 2004). The signs can be positive or negative, and give an insight into the effects of the explanatory variables on the ordinal outcomes. If it is positive, it means that when one variable increases, the other increases together. The opposite occurs when the sign is negative.

Using the principle of parsimony, we should consider only the relevant variables to explain the effects on outcome variable and not include insignificant variables. Reduced

models are “the ideal models” (Chau-Kuang and Hughes 2004:6). Table 10 presents four different models which are interpreted following.

Model 1

In the first model we used five explanatory variables that are fixed in the others models: “knowledge on the BSC”, “size”, “autonomy”, “dummy representing each police force” and “community policing”. Looking at p-value, we see that “knowledge on the BSC” and police agencies “size” are the most significant explanatory variables of the personnel predisposition to apply the BSC (p-value < 0.05), following by the level of “autonomy” (p-value < 0.1). These three variables exhibited positive regression coefficients which means that police officers who have higher level responses on these variables were likely to rate a higher predisposition to apply the BSC in your agency. So, police officers with more knowledge and perception about BSC functions and advantages, and with higher level of autonomy will be more able to use the BSC. Similarly, larger police agencies (with more employees and population) have too more predisposition, because greater agencies are more complex, which increases the need of management accounting tools as the BSC (Holmes, Gutiérrez de Piñeres and Kiel 2005).

Model 2

Relatively to the model 2 we add one explanatory variable which consists of the most important factor of the NPM chosen by responding police chiefs, when each factor was introduced isolated in the ordered logit regression.⁸ Accordingly the regression results, the “cost reduction politic”, through better management resources, is a significant explanatory variable (p-value < 0.05). Yours positive regression coefficient shows that the predisposition to apply the BSC increases when the importance of the costs reduction politic has higher levels. In this way, we can conclude that NPM model, essentially the need to control and reduce costs and improve the management resources have an important impact in the process of adopting the new management accounting tools.

Model 3

In order to see the effect of all the nine factors of NPM, we introduced them in the ordered regression and we select the most significant to explain the outcome variable. Then, we reintroduced only the significant factors in the ordered regression and we

obtained model 3 that has some differences relatively first and second model. As we can see, it happen an increase of the “knowledge on the BSC” significance, in opposite to the police agencies “size” and “autonomy” level that lost its significance. On the other hand, we have four new significant explanatory variables: “orientation towards citizens”, “business management tools”, “decentralization” and “measurement based on outputs and outcomes”. The importance given to the “decentralization” and to the “measurement based on outputs and outcomes” are the most significant variables to explain the outcome variable (p- value < 0.005), followed by the “orientation towards citizens” and the use of “business management tools” (p- value < 0.05). About the “costs reduction policy” it maintain yours significance, relatively to the model 2.

Looking at the regression coefficients, we see that all the factors of the NPM have a positive relationship with the outcome variable, less the importance given to “decentralization” that has a negative effect. Like this, police chiefs who rated higher importance to the “orientation towards citizens”, “business management tools”, “measurement based on outputs and outcomes” and “costs reduction policy” have more predispositions to apply the BSC. Contrarily, police chiefs who rated higher importance on the “decentralization” have fewer predispositions to apply the BSC. In sum, the appeal for improve performance organizational, after announced NPM reforms, has an important impact in the decision for apply the BSC.

Model 4

Finally, model 4 incorporate three control variables: age, education and professional experience, in order to verify its effect in outcome variable. The knowledge of the police chiefs on the BSC and the NPM issues such as “orientation towards citizens”, “decentralization” and “measurement based on outputs and outcomes”, continue to be significant variables. The sign of regression coefficients don’t change relatively to model 3, so the effect on outcome variable is the same. Beside two factors of NPM don’t maintain its significance (“business management tools” and “costs reduction policy”), we can continue to assume an high impact of NPM issues in the predisposition to apply the BSC.

Relatively to the control variables, we conclude that only “education” has a significant (p- value< 0.05) and a positive effect on the outcome variable. Like this, police chiefs with higher levels of education reveal more predispositions to apply the BSC. This fact reinforces the importance of the knowledge on the BSC in the explanation of the BSC

application on the Portuguese police, because higher education will imply higher knowledge on the BSC, and, thus, higher predispositions on its application.

Table 10: Personnel predisposition to apply the BSC

Explanatory variables	Model 1	Model 2	Model 3	Model 4
BSC Knowl	.409 * * (.194)	.466 * * (.203)	.492 * * * * (.182)	.459 * * (.208)
Size	.226 * * (.110)	.234 * * (.114)	.167 (.118)	-.033 (.144)
Autonomy	.273 * (.162)	.314 * (.168)	.160 (.156)	.146 (.176)
Dgnr	-.000 (.700)	-.099 (.684)	.519 (.586)	.899 (.769)
Dpsp	-.618 (.701)	-.804 (.759)	-.594 (.618)	-.438 (.788)
Dpj	.393 (.841)	.228 (.811)	.947 (.903)	.729 (.808)
Community policing	.029 (.079)	-.009 (.081)	-.013 (.098)	-.011 (.086)
NPM				
Orientation towards citizens	(----)	(----)	.376 * * (.192)	.364 * (.189)
Business management tools	(----)	(----)	.329 * * (.155)	.287 (.185)
Decentralization	(----)	(----)	-.442 * * * * (.134)	-.424 * * * * (.135)
Costs reduction policy	(----)	.433 * * (.175)	.317 * * (.165)	.276 (.202)
Measurement based on outputs and outcomes	(----)	(----)	.523 * * * * (.167)	.570 * * * * (.198)
Control Variables				
Age	(----)	(----)	(----)	.026 (.066)
Educ	(----)	(----)	(----)	.613 * * (.277)
Professexp	(----)	(----)	(----)	-.014 (.065)
cut 1	-1.640 (.941)	.019 (1.162)	2.250 (1.246)	3.895 (2.218)
cut 2	-.029 (.876)	1.616 (1.090)	3.847 (1.221)	5.527 (2.198)
cut 3	2.390 (.922)	4.110 (1.142)	6.569 (1.276)	8.287 (2.300)
cut 4	4.586 (1.024)	6.410 (1.241)	9.079 (1.358)	10.817 (2.415)
N	213	210	206	199
- 2 Log Likelihood	259.06079	249.34429	226.67571	220.93818
* p < 0.1; * * p < 0.05; * * * p < 0.01; * * * * p < 0.005				

Conclusions

Based on the nationwide survey sent to all police chiefs of the Portuguese police force, we estimated an *ordered logit model*. We find that the employment of the BSC is premature. Despite the low levels knowledge and implementation of the BSC in the police force, there is a high sensibility concerning its role in the improvement of performance measurement and its added value to the community. Prior knowledge of the BSC is the main determinant of the willingness to apply it. This suggests that the adoption of the BSC should begin with the diffusion of information on and training in this management accounting tool. This calls for an improvement in the level of education of the police chiefs. NPM issues, such as the emphasis on the citizens' expectations, measurement based on outputs and outcomes, decentralization, business management tools and costs reduction politics, also have a significant effect on the willingness to apply the BSC.

However, there are some limitations in the adoption and implementation process of the BSC, such the resistance to change and reform the public management, the focus on short-term problems and the lack of a connection between the BSC and employees' rewards.

In order to provide better insight on the contribution of the BSC to police forces, we plan to research to look at institutional predisposition to apply the BSC and the culture of public organizations.

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References

- Agresti, Alan. 2002. *Categorical Data Analysis*. 2nd Edition, New Jersey: John Wiley & Sons.
- Ballantine, Joan, Stan Brignall and Sven Modell. 1998. "Performance measurement and management in public health services: a comparison of UK and Swedish practice." *Management Accounting Research* 9 (1): 71-94.
- Brignall, Stan and Sven Modell. 2000. "An institutional perspective on performance measurement and management in the 'new public sector.'" *Management Accounting Research* 11 (3): 281-306.
- Broadbent, Jane. 1999. "The State of Public Sector Accounting Research – The APIRA Conference and some Personal Reflections." *Accounting, Auditing & Accountability Journal* 12 (1): 52-7.
- Burns, John and Juhani Vaivio. 2001. "Management accounting change." *Management Accounting Research* 12 (4): 389- 402.
- Carmona, Salvador and Anders Grönlund. 2003. "Measures vs actions: the balanced scorecard in Swedish Law Enforcement." *International Journal of Operations & Production Management* 23 (12): 1475-96.
- Chan, Lilian. 2004. "Performance measurement and adoption of the balanced scorecards: a survey of municipal governments in the USA and Canada." *The International Journal of Public Sector Management* 17 (2/3): 201-21.
- Chatterton, Mike, Chris Humphrey and Ali Watson. 1995. "Arming the police with management accounting systems?" *Management Accounting* 73 (4): 38-9.
- Chau-Kuang Chen and John Hughes. 2004. "Using Ordinal Regression Model to Analyze Student Satisfaction Questionnaires." *IR Applications* 1 (26): 1-13.
- Collier, Paul. 1998. "Operations and Accountability: the role of performance indicators, financial devolution and strategy in the management of a police force." *International Journal of Police Science and Management* 1 (1): 81-93.
- Collier, Paul. 2001. "Police performance management - an ethical dilemma (chap. 6: 94-123)." In Neyroud, Peter and Beckley Alan (Eds), *Policing, Ethics and Human Rights*. Devon: Willan Publishing.
- Collier, Paul. 2006. "Costing police services: The politicization of accounting." *Critical Perspectives on Accounting* 17: 57-86.

- Departmental Case Studies Royal Canadian Mounted Police. Reporting 2004-2005. Available at http://www.tbs-sct.gc.ca/rma/account/studies/RCMP-GRC_e.asp. Assessed January, 03, 2006.
- Dunleavy, Patrick and Christopher Hood. 1994. "From old Public Administrative to new public management." *Public Money & Management* 14 (3): 9-16.
- Ellingson, Dee Ann and Jacob Wambsganss. 2001. "Modifying the approach to planning and evaluation in governmental entities: a "Balanced Scorecard" Approach." *Journal of Public Budgeting, Accounting & Financial Management* 13 (1): 103-20.
- Goddard, Andrew. 2005. "Accounting and NPM in UK Local Government – Contributions towards Governance and Accountability." *Financial Accountability & Management* 21 (29): 191-218.
- Guthrie, James, Olov Olson and Christopher Humphrey. 1999. "Debating Developments in new public financial management: the limits of global theorising and some new ways forward." *Financial Accountability & Management* 15 (3/4): 209-28.
- Helden, Jan Van. 2005. "Researching Public Sector Transformation: The Role of Management Accounting." *Financial Accountability & Management* 21 (1): 99-33.
- Ho, Kathy and Lilian Chan. 2002. "Performance Measurement and the use of balanced scorecard in Canadian hospitals." *Advances in Management Accounting* 9: 145-70.
- Ho, Kathy and Linda Kidwell. 2000. "A Survey of Management Techniques Implemented by Municipal Administrators." *The Government Accountants Journal* 49 (1): 46-52.
- Holmes, Jennifer, Sheila Amin Gutiérrez de Piñeres and Douglas Kiel. 2005. *Reforming Government Agencies Internationally: Is There a Role for the Balanced Scorecard?* Working Paper. University of Texas at Dallas: 1-32.
- Hood, Christopher. 1991. "A Public Management for all seasons?" *Public Administration* 69 (1): 3-19.
- Hood, Christopher. 1995. "The 'new public management' in the 1980s: variations on a theme." *Accounting, Organizations and Society* 20: 93–109.
- Hoque, Zahirul., Sharee Arends and Rebecca Alexander. 2004. "Policing the police service: A case study of the rise of "new public management" within an Australian police service." *Accounting, Auditing & Accountability Journal* 17 (1): 59-84.

- Humphrey, Christopher, Peter Miller and Robert Scapens. 1993. "Accountability and accountable management in the UK public sector." *Accounting, Auditing and Accountability Journal* 6 (3): 7–29.
- Jackson, Audrey and Irvine Lapsley. 2003. "The diffusion of accounting practices in the new "managerial" public sector." *Journal of Public Sector Management* 16 (5): 359-72.
- Johnsen, Áge. 2001. "Balanced Scorecard: theoretical perspectives and public management implications." *Managerial Auditing Journal* 16 (6): 319-30.
- Jones, Rowan and Maurice Pendlebury. 1992. *Public Sector Accounting*. 3rd Edition, Londres: Pitman Publishing.
- Joyce, Paul. 2000. *Strategy in the Public Sector: A Guide to Effective Change Management*. Chichester: John Wiley & Sons Ltd.
- Kaplan, Robert and David Norton. 1992. "The Balanced Scorecard – Measures That Drive Performance." *Harvard Business Review* January– February: 71-9.
- Kaplan, Robert and David Norton. 1996. *The Balanced Scorecard. Translating Strategy into Action*. Boston: Harvard Business School Press.
- Kaplan, Robert and David Norton. 2001. "Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part I." *Accounting Horizons* 15 (1): 87-104.
- Kaplan, Robert. 2001. "Strategic performance measurement and management in non-profit organizations." *Non-profit Management and Leadership* 11 (3): 353-70.
- Lang, Sandra. 2004. "Balanced Scorecard and Government Entities." *The CPA Journal* 74 (6): 48-52.
- Lapsley, Irvine and Elisa Wright. 2004. "The diffusion of management accounting innovations in the public sector: a research agenda." *Management Accounting Research* 15: 355–74.
- Lapsley, Irvine. 1999. "Accounting and The New Public Management: Instruments of substantive efficiency or a rationalising modernity?" *Financial Accountability & Management* 15 (3/ 4): 201- 07.
- Liao, Tim Futing. 1994. *Interpreting Probability Models: Logit, Probit and other Generalized Linear Models* (Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-101). Thousand Oaks, California: Sage Publications.

- Loveday, Barry. 1995. "Reforming the Police: From Local Service to State Police?" *The Political Quarterly*: 141-56.
- McCullagh, Peter. 1980. "Regression Models for Ordinal Data (with Discussion)". *Journal of the Royal Statistical Society – B* 42 (2): 109 – 42.
- New Zealand Police. Statement of intent 2005-2006. Available at <http://www.police.govt.nz/resources/2005/statement-of-intent/statement-of-intent-2005.pdf>. Assessed June, 08, 2006.
- Niven, Paul. 2003. *Balanced Scorecard step-by-step for government and nonprofit agencies*. New Jersey: John Wiley & Sons, Inc.
- Osborne, David and Ted Gaebler. 1992. *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector*. New York: Plume Book.
- Radnor, Zoe and Bill Lovell. 2003. "Defining, justifying and implementing the Balanced Scorecard in the National Health Service." *International Journal of Medical Marketing* 3 (3): 174-88.
- Ribeiro, Nuno. 2005. *O Balanced Scorecard e a sua aplicação às instituições de ensino superior público*. School of Economics and Management, University of Minho: Braga.
- Scarpato, Simona. 2004. *The Integration of Clinical Governance, Medical Audit and Costing Information: Clinicians' Reinvention versus Managerial Assimilation*. Working Paper. University of Warwick: 1-36.
- Wilson, Chris, David Hagarty and Julie Gauthier. 2003. "Results using the balanced scorecard in the public sector." *Journal of Corporate Real Estate* 6 (1): 53-63.
- Wisniewski, Milk and Alex Dickson. 2001. "Measuring performance in Dumfries and Galloway Constabulary with the Balanced Scorecard." *Journal of Operational Research Society* 52: 1057-66.
- Wisniewski, Milk and Snjólfur Olafsson. 2004. "Developing Balanced Scorecard in local authorities: a comparison of experience." *International Journal of Productivity and Performance Management* 53 (7): 602-10.
- Yamamoto, Kiyoshi. 1999. "Accounting Systems Reform in Japanese Local Governments." *Financial Accountability & Management* 15 (3/4): 291-307.
- Zelman, William, George Pink and Catherine Matthias. 2003. "Use of the Balanced Scorecard in Health Care." *Journal of Health Care Finance* 29 (4): 1-16.

Notes:

¹ Control systems have the main function to legitimate the politic activity to the electorate and not to improve the performance management and to increase the accountability and transparency of public activity.

² Reporting 2004-2005 of the Departmental Case Studies Royal Canadian Mounted Police. Avalaible at http://www.tbs-sct.gc.ca/rma/account/studies/RCMP-GRC_e.asp. Assessed January, 03, 2006.

³ Statement of intent 2005-2006 of New Zealand Police. Avalaible at <http://www.police.govt.nz/resources/2005/statement-of-intent/statement-of-intent-2005.pdf>. Assessed June, 08, 2006.

⁴ PSP – Polícia de segurança pública; GNR – Guarda Nacional Republicana; PJ- Polícia Judiciária; PM- Polícia Municipal.

⁵ PM police is the reference variable.

⁶ Note that these are the first results. The data collected period was to July/2006, in order to increase the response rate.

⁷ This feature was not included in the study of Chan (2004).

⁸ See all the nine factors of the NPM on the Table 5.