Journal of Accounting Education xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Journal of Accounting Education

journal homepage: www.elsevier.com/locate/jaccedu

A conceptual framework for teaching management accounting

Sajay Samuel

Smeal: College of Business, Penn State University, University Park, PA 16802, United States

ARTICLE INFO

Keywords:
Management accounting
Conceptual framework
Organizational economics

ABSTRACT

This paper proposes a conceptual framework for teaching management accounting. The framework is rooted in distinguishing organizations from markets and draws on the fast-developing field of "organizational economics." Market clearing prices, infinitely divisible commodities, and regime of private property rights are three aspects that can theoretically characterize market transactions. This paper argues for conceptualizing the subject matter of management accounting as a response to the relative absence of these aspects of market transactions within organizations. Specifically, management accounting procedures can be classified as instruments that: coordinate the demand and supply of resources in the absence of prices; measure resource consumption given indivisibilities in the cost function; and control resource use when the ownership of assets is separated from its control. This conceptual framework not only lends intellectual coherence to the subject matter of management accounting but also permits its diverse topics to be arranged in a logically articulated manner.

1. Introduction

This paper proposes a conceptual framework for teaching management accounting. About twenty years ago, Vangermeersch (1997, p. 45) complained that "management accounting seems to be a free-standing phenomenon without a deep philosophical basis (that) would facilitate the teaching of cost/management accounting." Responding to his call, there have been many attempts over the intervening years to specify frameworks for and redefinitions of management accounting. This ongoing effort to think through the foundations of management accounting is also linked to renewed attempts to professionalize the field. Section 1 of this paper surveys the relevant scholarly and professional literature to show how the proposed conceptual framework offers a meaningful contribution to it.

Section 2 selectively examines the literature on "organizational economics" to draw out those aspects that can illuminate the field of management accounting. The analyses of organizations are a vibrant and growing area of economics (Gibbons & Roberts, 2013), and it is the distinction between markets and organizations that constitutes the bedrock of organizational economics. In particular, it will be argued in Section 3 that three theoretically assumed features of market exchanges—market clearing prices, infinitely divisible commodities, and private property rights—can serve to conceptually delineate markets from organizations as contrasting modes of organizing economic transactions.

In Section 4, the typical toolkit of management accounting is logically derived from the foregoing dimensional analysis of organizations. Within organizations, managerial decisions, rather than prices, fundamentally influence the allocation of resources. Moreover, unlike markets, organizations are not only marked by the separation of ownership and control but also by the presence of indivisible or lumpy resources. The toolkit of management accounting can be linked to, or even more strongly, logically derived from, these features of organizations. Specifically, whereas coordination tools, as exemplified by budgets, are needed to replace the missing

E-mail address: sajay@psu.edu.

https://doi.org/10.1016/j.jaccedu.2018.05.004
Received 15 February 2017; Received in revised form 23 May 2018; Accepted 24 May 2018

price mechanism, control tools such as variances, and costing tools such as activity-based costing (ABC), are necessitated by the absence within organizations of private property and divisible resources, respectively. A coherent grouping of specific topics is presented in Section 5 of this paper. It is shown that most of the topics discussed in management accounting textbooks can be classified within the proposed tripartite toolkit and a case is made for a grouping of topics whose order unfolds in an articulated manner.

Section 6 takes up the topic of managerial decisions as discussed in management accounting textbooks. Such decisions as dropping a product line, pricing a special order, or evaluating segment profitability rely on the careful calibration of relevant costs and benefits, which in turn, often exploit the concept of contribution margin and its derivatives. These decisions implicitly invoke the strategic posture of the organization. Other decisions such as the "make-or-buy" and "sell-or-process further" explicitly invoke the boundary of the organization. Decisions that implicitly or explicitly put into question the boundary of the organization directly implicate an organization's strategy.

Strategic considerations are not independent of the theoretical reasons given for why organizations exist. Accordingly, a full consideration of such strategic decisions requires grappling with theories of the firm. Even if yet inconclusive, there is a rich literature in economics, organization theory, and sociology directed at explaining the existence of organizations. Concluding remarks reiterate the virtues of the proposed conceptual framework for organizing the content and teaching of management accounting.

2. Literature review

This section of the paper selectively reviews the scholarly and professional literature on "frameworks" and/or "redefinitions" of management accounting to make a case for the contribution of the proposed framework to this literature.[1] Briefly, the proposed framework offers a theoretically grounded explanation for the existence of management accounting practices. As such, it not only presents a coherent template to teach the subject but also addresses a possible gap in the recent project to professionalize management accounting. However, unlike some others, this conceptual framework for management accounting invokes no philosophical warrant though it is anchored in the field of organizational economics (cf. for example, Marple, 1964; Van der Merwe, 2007; Vangermeersch, 1997). Moreover, it is different in two ways from a notable prior effort to specify the conceptual foundations of management accounting (Belkaoui, 1980). The proposed conceptual framework is founded on the discriminating features of organizations and markets as distinct modes of economic governance. In contrast, Belkaoui (1980) argues that management accounting rests on four conceptual foundations, which are the accounting, organizational, behavioral and decisional foundations. Second, Belkaoui (1980) leaves underspecified the relation between the suggested multi-disciplinary foundations and management accounting procedures and practices.[2] In contrast, the overwhelming majority of managerial accounting topics usually presented in textbooks either derives from or is logically linked to the conceptual framework proposed here.

There seems to be general acknowledgement that management accounting as taught to and perceived by students can benefit from an organizing logic. Greenberg and Wilner (2015) undoubtedly generalize anecdotal impressions in noting that a common complaint they have heard repeatedly over a combined fifty plus years of teaching is the lack of a framework in managerial and cost courses. An organizing framework for management accounting has been thought important, particularly as the role of the management accountant changes from compliance with financial accounting rules and regulations to partnering with decision-makers at the highest levels of the organization (Cooper, 2006; Kittredge, 2009). Unsurprisingly therefore, there have been frameworks proposed for management accounting to meet the increasingly complex and changing context of the practice.

Some have proposed frameworks limited to the issue of product costing. For example, Greenberg and Wilner (2015) suggest using concept maps as a tool to generate integrative frameworks for teaching managerial accounting. Yet, they knowingly limit the application of concept maps to the narrow topic of product costing thus leaving out other subject areas, such as budgeting, which are usually classified within the field of management accounting. In this respect, their integrative framework is similar to the *Conceptual Framework on Managerial Costing* proposed by the Institute of Management Accountants (IMA), which emphasizes costing models needed for managerial decisions (IMA, 2014; see also White et al., 2011).

Other frameworks for management accounting have a wider focus and include topics in management accounting beyond product costing. For instance, in Cokin's (2001) management accounting framework, cost measurement and cost uses are proposed as the two fundamental components of management accounting. Cost measurement includes the methods for collecting cost data and those of assigning costs to cost objects. On the other hand, cost uses cover the decision support function of management accounting techniques that are aimed at improving operational control, measuring performance, and planning for profits. Similarly, Berg (2015) recommends a directional framework for the subject of management accounting, which he conceives of broadly as an instrument for governing the enterprise. The planning and control functions of management accounting mirror the intent of looking ahead and back respectively, whereas the cost analysis and reporting functions reflect the intent of looking in and up respectively. Accordingly, these two frameworks recognize that the managerial functions served by management accounting include planning and controlling in

[1] To discover existing frameworks, I have consulted all papers on managerial accounting listed in the comprehensive reviews of accounting educational papers, as complied and reported in Apostolou, Hassell, Rebele, and Watson (2010), Apostolou, Dorminey, Hassell, and Watson (2013), Apostolou, Dorminey, Hassell, and Rebele (2015, 2016). In addition, as indicated by the citations in this section, further bibliographical searches were conducted on a wider dataset than used by Apostolou et al., which is limited to six scholarly journals.

[2] Belkaoui (1980, p.112) suggests that each "foundation" is composed of "determinants" which are, in turn, made up of "elements". For instance, the behavioral foundation is partly determined by motivation theories which include value/expectancy theory as an element. The possible combinations between all the elements and determinants are excessively large to permit any tight linkages between management accounting and its foundations.

addition to costing.

However, still other frameworks for management accounting suggest that it is time to "move away from narrow terms like planning and control" towards a more expansive understanding of the role and function of management accounting as "adding stakeholder value" (Brewer, 2008, p. 36). This even wider framing of management accounting mirrors the renewed and ongoing effort to fundamentally reorient the field by linking it to organizational strategy. For example, Blocher (2009) argues for embedding the topics (e.g., variance analysis) and techniques (e.g., calculation of price variances) of management accounting within an organizational strategy framework, which is intended to answer the question of why these topics and techniques are useful. The deliberations of the task force, jointly sponsored by the IMA and the Management Accounting Section (MAS) of the American Accounting Association (AAA), are an outstanding effort in this regard. It has fleshed out a framework to guide the development of accounting curricula designed to spark long-term success in all accounting careers (Lawson et al., 2014). This framework specifies the range of competencies—from foundational competencies such as communication and management competencies such as leadership, to such accounting competencies as planning, analysis and control—needed to further the value proposition of accounting, which is to enable enterprise performance management. In turn, the *Management Accounting Competency Framework* proposed by the IMA embeds the topics and techniques of management accounting within the above specified framework of competencies (IMA, 2016, see also Bots, Groenland, & Swagerman, 2009).

The recently announced redefinition by the IMA captures fully the strategy-related understanding of management accounting. In 1981, the National Association of Accountants (now the IMA) defined management accounting as the "process of identification, measurement …and communication of financial information used by management to plan, evaluate and control an organization…" (quoted in IMA, 2008, p. 48). Breaking with that relatively narrow process driven orientation, the IMA has proposed redefining management accounting as "a professional discipline that has an integral role in formulating and implementing the organization's strategy" (ibid). Such explicit recognition of management accounting as a profession is thought to help it find its place in society, to mark its boundaries against competing professions, and to shape the distinctive identity of its practitioners.

The redefinition of management accounting as a professional discipline is a fitting opportunity to rethink its conceptual foundations. In his now classic study of the professions, Abbott (1988) highlighted the domain of internal business information as being the most strongly fought over professional jurisdiction in American history. Professional identity and success against competing professions are intimately tied to the elaboration of a suitably abstract knowledge base that can define and defend the jurisdiction of a profession against others. For Abbott, a profession is defined by its legitimized claim over an area of theoretical knowledge, which in turn serves as "the currency of competition (between professions)" (1988, p.102). Abstract knowledge serves as a sound foundation for a profession only when it has a suitable degree of formalization. The optimal quantum of abstraction in the cognitive claims made by a profession lies somewhere between the two extremes of complete abstraction and complete concreteness, both of which make a profession vulnerable to the claims of competing others. When knowledge claims are extremely abstract, they are too general and vague to inform practice, while those that are too concrete can be easily routinized or be susceptible to competitive capture. Accordingly, the knowledge claimed by a profession to define and defend its jurisdiction has to be a well-balanced mix of abstract theory and concrete practice. Without a defensible and monopolized body of knowledge that delineates the scope of management accounting as a professional practice, the bid to professionalize the field will likely flounder (Armstrong, 1993).

The conceptual framework for teaching management accounting proposed in this paper contributes to the literature in three distinct though related ways. One, it links the subject matter of management accounting to a theoretically grounded understanding of organizations. Two, it contributes to the project of professionalizing the field of management accounting by proposing a defensible level of abstraction as suggested by Abbott (1988). Three, the proposed conceptual framework permits a theoretically coherent organization of the topics and techniques usually taught under the name of management accounting. While that contribution is detailed later in this paper, the next section explicates the distinction between markets and organizations and argues for its relevance to an adequate understanding of management accounting.

3. Markets and organizations

Soon after the fall of the Berlin Wall over two decades ago, the Nobel Laureate Herbert Simon argued that the term "market economy" was a misnomer in its usual connotations. Instead, he recommended the phrase "organizational economy" as a better description of advanced industrialized economies such as the US and Western Europe. He noted that a significant quantity of economic activity occurs within organizations and further than most economic actors in advanced industrial societies are employees and not entrepreneurs. Accordingly, he argued that economic theory does itself a disservice by ignoring the fact and the consequences of an economy decisively shaped by organizational imperatives (Simon, 1991). Fittingly, the data bears out his contention (cf: Masten, 2002). Two-thirds of the industrial growth in some forty-three countries during the 1980s occurred because organizations expanded in size (Rajan & Zingales, 1988). Similarly, activity inside organizations added at least as much economic value in the US as did market activity (Lafontaine & Slade, 2009).

While both markets and organizations are modes of economic governance, markets can be distinguished from organizations because the first is a form of spontaneous governance whereas the second is a mode of intentional or planned governance (Williamson, 1991). This understanding of how organizations systematically differ from markets was arguably seeded by Ronald Coase when he suggested that "outside the firm, price movements direct production… (whereas) within the firm, the entrepreneur-coordinator directs production" (1937, p. 388). The development of this insight within economic theory has been fitful at best, and it is only over the last couple of decades that the field of organizational economics has received sustained attention and produced a growing corpus of theoretical and empirical research (Gibbons & Roberts, 2013; Roberts, 2004).

The distinction between markets and organizations is arguably fundamental to management accounting. Indeed, the textbook difference between financial and management accounting usually hangs on the distinction between "insiders" (organizational members) and "outsiders" (market participants). Even the expanded definitions and improved frameworks of management accounting discussed above presume its contributions to an *organization's* strategy. After all, markets do not have strategies. Two related questions thus need to be answered in the attempt to fully grasp the possible relationship between management accounting and organizations. First, along what dimension(s) can organizations be distinguished from markets? and second, what reason(s) account for the existence of organizations?[3] Though related, these questions can be treated separately. In this section, the second question is bracketed to focus attention on the first. As suggested in Section 6 below, the answers to the question of why organizations exist are many and, often, contradictory. Despite the absence of a settled answer to the question of why organizations exist, it is possible to identify criteria or empirical phenomena that distinguish organizations and markets. Such phenomenological criteria to differentiate organizations from markets serve as "stylized facts" (Kaldor, 1961, p. 178) indicating broad tendencies that hold *grosso modo* but not in every detail.[4]

3.1. Prices

A first criterion that distinguishes markets and organizations as alternative modes of organizing economic activity is the price mechanism. As noted by Coase (1937) above, resource allocation in markets is governed by the price mechanism whereas inside organizations it is governed by managerial decisions. Markets function when prices reciprocally coordinate the demand and supply of resources. Prices are efficient mechanisms to summarize and transmit the information known to dispersed buyers and sellers (Hayek, 1945). In this sense, market outcomes are the unplanned or unconscious result of individual decisions. In contrast, the outcome of resource allocation inside organizations reflects conscious decisions. In the evocative metaphor of J.D. Robertson, firms "are islands of conscious power in (an) ocean of unconscious cooperation, like lumps of butter coagulating in a pail of buttermilk" (quoted in Coase (1937, p. 388)). Indeed, as a stylized fact, making resource allocation decisions in the absence of prices could be said to be the very purpose of managers. As Chandler signaled by the title of his celebrated work, the visible hand of organizations replaced the invisible hand of the market when administrative coordination became cheaper than coordination through market mechanisms, that is, coordination through prices (Chandler, 1977). The number of sections of a course taught in a university, the quantity of radiology hours made available in a hospital, the level of inventory maintained in a manufacturing firm, and the quality-related inspections of computer code in a software firm are all instances of resource allocation not governed by the price mechanism.[5]

A possible misunderstanding of the contrast between organizations and markets by the criterion of prices needs to be underscored here. Organizations do face factor prices; that is prices of the inputs bought and outputs sold. Thus, prices do govern resource allocations at the skin or exterior of the organization. Managerial decisions only replace prices in the interior of the firm. With this caveat, the presence or absence of prices is one criterion by which to distinguish markets from organizations. Prices are suspended inside a firm to the extent that conscious plans are used to coordinate the flow of resources.[6]

3.2. Indivisible capacities

A second phenomenological criterion that distinguishes organizations from markets is the presence of indivisible capacities within the organization. It is a standard assumption of neo-classical economics that market exchanges occur in continuously divisible quantities. This assumption of divisibility finds its mathematical expression in supply curves that are twice differentiable, production function that exhibit no lumpiness, and the marginal and total cost curves that are smooth and continuous. In price theory, the firm is typically characterized as a black box, efficiently combining inputs to produce the profit-maximizing quantity of output (Demsetz, 1988). In contrast, the existence of indivisible capacities or lumpy resources characterizes the organization. For instance, when bought from the market, coffee can be purchased in the quantities demanded—from a single shot of espresso to a large carafe. However, investments in indivisible and lumpy resources—machines, facilities, and other inputs—are needed to make coffee for oneself. Market prices are presumed to indicate the marginal price/cost of the quantities demanded and supplied. Consequently, the distinction between fixed and variable costs is irrelevant to market exchanges. Contrarily, it is because of indivisible capacities that the notion of fixed and indirect costs takes on prominence within organizations.

However, two caveats attend the characterization of organizations in terms of indivisible capacities. Though transactions, both across and beyond the boundary of the firm, are governed by prices, it is not the case that continuously divisible resources characterize all such transactions. The sale of a car or the purchase of a table from the market exhibit the same phenomenon of lumpiness as do the fixed capacities of resources inside a firm. Symmetrically, the resources inside an organization whose consumption in the production process is captured by direct costs exhibit a degree of divisibility similar to those purchased in the market. Accordingly,

[3] Accounting scholars have sporadically investigated these questions though usually through the lens of a specific theory of the organization. See for example, Johnson, 1983; Speklé, 2001; Spicer & Ballew, 1983; Watts & Zimmerman, 1983.

[4] The characterization of markets in this paper draws on the standard model of it in neoclassical economic theory. Suspending the assumptions of that model, which include perfect information and complete markets, overturns most of the presumed features of markets (Stiglitz, 2000).

[5] To make this point vividly, I ask students to imagine a market transaction version of the classroom they are attending, which would include, independent contracts between instructor and each student, posted prices per seat that change as a function of demand, rental payments to the institution for brand name and space, etc.

[6] Market prices versus state plans was the substance of the so-called economic calculation debate conducted during the first half of the 20th century. For a general survey of this debate, see Steele (1992).

the criterion of indivisible capacities or lumpy resources as a discriminating variable to distinguish markets and organizations must be understood as a stylized fact.

3.3. Private property rights

A third notable feature of organizations in contrast to markets is the (non)existence of individual property rights. In the canonical instance, the market exchange of goods and services is simultaneously an exchange of property rights. By law, owners usually retain the decision rights over the use and disposition of resources. Moreover, it is a standard assumption of legal and economic theories that the rights of ownership imply the best use of a resource. That is, the use and disposition of a resource is assumed to be optimal because it is the owner's decision (Buckley, Smith, & Zimmerman, 2004). In contrast, organizations separate ownership from the control over resources as forcefully noted by Berle and Means (1932). Employees have decision rights over the use of resources that they do not own and this raises incentive problems since the high-powered incentives of private property are suspended within the organization (Williamson, 1984).

Given the separation of ownership and control within organizations, the influential claim by Jensen and Meckling (1976, p.311) that the firm is nothing more than a "nexus-of-contractual relationships" that resemble market exchanges is erroneous. As noted by Masten (1988, p.185), there are "mechanisms or sanctions available in employment transactions that are not similarly available to independent contractors." For instance, employees are obliged by law to obey the reasonable rules and instructions of employers, to disclose all pertinent and relevant information, and to be loyal to the interests of the firm.

In summary, three criteria distinguish organizations from markets as alternative mechanisms to undertake economic activity. Managers must make resource allocation decisions in organizations that are marked by the absence of: prices, divisible inputs, and individual property rights. These three criteria are stylized facts that define an organization and thus also specify its distinction from markets. Moreover, these criteria delineate the domain of management accounting insofar as the latter refers to tools that managers use to improve organizational outcomes.

4. The toolkit of management accounting

The absence of prices, the suspension of individual property rights, and the presence of indivisible capacities are stylized facts that characterize a firm in contrast to the market. In principle, these three discriminating features of a firm are independent of each other. For example, a small sole proprietorship does not suspend property rights though it could have large fixed costs. In this section, these three discriminating features of organizations are proposed as sufficient conditions to derive the toolkit of management accounting. It maps the three distinguishing criteria of organizations onto a set of three management accounting tools that collectively exhaust its subject matter.

4.1. Accounting tools for coordination

As argued above, prices are replaced by plans for resource allocation in the interior of a firm. Whereas prices serve to coordinate the demand for and supply of resources in the market, conscious planning mimics that function in the firm. Planning entails matching or balancing the quantities of interdependent resources. For example, deriving the quantity of labor hours from the quantity of production through a labor budget coordinates the demand for and supply of labor hours. Thus, the specific difference of budgets and budgeting, as exercises in profit planning, lie in their function as tools to match the demand and supply of resources by quantity instead of prices. That textbook example of gearing all budgets to the one representing the constrained resource makes obvious that budgets coordinate the demand and supply of resources by matching quantities.

A number of consequences flow from deriving budgets from the absence of prices inside the organization. First, since budgets serve to coordinate demand and supply by quantities, both operating and capital budgets fall within its purview. While these are routinely considered in most management accounting texts, not enough emphasis is paid to their coordinative function as a replacement for the price mechanism. For instance, operating budgets, as typically presented, skim over the physical relationship between inputs and outputs in the production process by invoking operations management and "engineering standards." Yet, setting such input-output standards for the use of resources is precisely what budgeting entails, when properly understood. Similarly, capital budgets are primarily plans to create and balance productive capacities over time. Second, as a result of such understanding, the preparation of proforma financial statements and profit plans which rely on adding factor prices to the budgeting exercise will be understood as a secondary, though essential, outcome of budgets. After all, cash budgets match the supply of and demand for cash in terms of its quantity just as labor budgets do so for hours of labor.

Third, much has been made of the budget games played when budgets are used as control devices. However, when budgets are understood for the primary function they are meant to serve, which is as a tool to coordinate resource use within an organization, then attention will correctly be directed against their possible misuse. Fourth, the style and frequency of budgeting—whether participative or top-down and annual or whether more or less frequent—reflects their comparative advantage in signaling the intensities of demand and supply. In highly uncertain environments, participative and more frequent budgeting transmits pertinent and timely information from the periphery to the center of the firm whereas in stable business settings where uncertainty is low, top-down and less frequent budgets enforce centralized plans. Thus, different aspects of budgeting as currently taught flow from understanding it as prompted by the effort to balance quantities of disparate resources in the absence of prices within the organization.

4.2. Accounting tools for costing

Cost allocation procedures serve to calculate “accounting prices” for cost objects and take up a considerable portion of teaching management accounting. It is the prevalence of indivisible capacities inside a firm that constitutes a sufficient condition for such procedures. Multiple cost objects consume an indivisible or lumpy resource because of which it is also called a shared resource. For instance, a classroom cannot be expanded or contracted based on the number of attending students. It is the indivisibility of the resource—classroom—with respect to cost objects—students—that permits it to be named a shared resource or indirect cost. Regardless of terminology, the primary rationale for cost allocations is to measure the resources consumed by products or services, whether such measure is used to set prices, to gauge product line profitability, to define the product portfolio or to control behavior. Measuring the consumption of lumpy resources by a cost object—whether a production department or product—drives the need to define and estimate the consumption of both indirect and fixed costs. Such innovations in cost allocation procedures as activity-based costing and its variants, including time-driven ABC, reflect efforts to better measure the consumption of lumpy resources. The metric of unused capacity is telling evidence that cost allocations stem from the need to measure the consumption of indivisible capacities that characterize the organization.

Deriving the procedures of cost allocation from the presence of indivisible capacities also sheds some light on that well-worn dictum, ‘different costs for different purposes.’ For instance, allocated manufacturing costs is required by GAAP to value inventory, though it is not necessarily useful to such operational decisions as deciding the quantity to produce and sell. That a product cost can vary as a function of its use has led some to conclude that all allocations are arbitrary and further, to find the primary logic of cost allocation as an inducement to control behavior (Zimmerman, 1979). It is true that managers facing allocated capacity costs are induced to use less of the resource than those facing costs without an allocated component. Yet, “measurement” of resource consumption is not reducible to “controlling” behavior. Whether or not managers are confronted by allocated costs is a choice variable but one that presupposes that the consumption of capacity is first measured. Therefore, control over behavior is a secondary and optional consequence of measuring the usage of capacity costs.

4.3. Accounting tools for control

Market exchanges also entail the transfer of ownership rights, which typically confer the decision rights over the use and disposal of assets. It is because of the separation of ownership and decision rights over resources within a firm that control mechanisms are needed to monitor and influence the behavior of managers and workers (Zimmerman, 2017). The extensive field of performance measurement and control is thus derived from the absence of individual private property within a firm. Defining and measuring the outcome of responsibility centers are a way to overcome the absence of the incentives of ownership. Similarly, variance analysis and non-financial measures of operational efficiency and effectiveness are necessitated by the need to evaluate the performance of employees. Indeed, from this point of view, such accounting tools as financial statements, ratio analysis, and balanced scorecards are fittingly understood as control devices that orient the behavior of top-level managers who do not bear the full cost of their actions.

However, just as employment law obliges employees to behave in the interests of the employer, so also some control devices are emplaced to dilute if not dissolve the non-coincidence of interests between the two parties. When person A is given a title as purchase manager, it also unleashes a feeling of ownership of the relevant assets despite the absence of legal ownership. More generally, when understood as partly prompted by the absence of individual property rights, the scope of management accounting would be considerably widened to include socio-cultural devices that are used to incite and entice cooperative behavior.

In summary, the above two sections demonstrate a method to map the defining features of an organization onto the toolkit of management accounting, whereby the former constitutes a sufficient condition for the latter. The absence of prices inside firms necessitates planning tools; indivisible input capacities call for tools of cost allocation; and the absence of individual property rights require tools to measure and control performance. However, this proposed logical mapping between the defining criteria of an organization and the toolkit of management accounting makes no empirical claims. For example, budgets may be used to control behavior based on misunderstanding its primary purpose as coordinating device. Moreover, there is no inherent logic by which to rank-order the three defining features of an organization; each is equally significant. Yet, the mapping reveals that management accounting can be analytically categorized as tools that serve to coordinate, cost, and control resources.

5. Topics in management accounting

The mapping of the toolkit onto the defining criteria of the organization still leaves open the question of how to group the specific topics in management accounting. However, before elaborating on the topics in management accounting in this section, a couple of caveats are in order. Though this section arranges the topics in a certain sequence, no claim is made that this sequence is necessary. Relatedly, this section does not present the topics in management accounting in a detailed table of contents. Instead, a thread is woven to mark the broad contours of a possible coherent grouping of topics in management accounting.

5.1. Coordination

Given that most accounting students are exposed to financial accounting before management accounting, it may be convenient to leverage their knowledge of the financial statements to first present budgets. The accounting categories deriving from the financial statements would serve as elements for an extensive discussion of cost terms and concepts necessary for the preparation of budgets.

Accordingly, sufficient understanding of such concepts as variable, indirect, and opportunity costs; such estimation techniques as regression analysis and learning curves; and such decision theoretic tools as present value and risk-neutrality; could comprise the needed infrastructure on which the operating, capital, and cash budgets are serially presented. The preparation of proforma financial statements would then wrap up the budgeting exercise.

All budgets are calibrated to the constrained resource and the habitual practice of starting from the sales budget implies the assumption that all inputs can be scaled up or down to meet demand. In so emphasizing the primary role of budgets as a device to coordinate the supply and demand of resources by quantities, a deeper inquiry into the engineering standards or physical input-output relationships that undergird operating budgets could be sparked. Constrained optimization problems of production, models of inventory management and factory layout, or more generally, operations management would be opened up as a consequence of focusing on budgets as a tool for coordinating by quantities.

Lastly, whereas the style of budgeting—top down or participative—and its frequency—annual or rolling budgets—could be presented as driven by the need to improve the coordinative function, the well-known behavioral dysfunctions of using budgets as a control device could be discussed as potentially compromising its primary purpose.

5.2. Costing

The existence of indivisible capacities obscures knowledge of the resources supplied to a cost object. Cost allocations are a solution to that measurement problem. Once the general theoretical motivation for allocations has been discussed, the variety of issues surrounding the choice of cost drivers, the definition of cost pools, and general form of allocating costs from pools to the object can be usefully presented. On this scaffolding, a tightly articulated sequence of cost allocation topics could coherently present the calculation of "accounting prices" or allocated costs within organizations. Service to production department allocations would precede the discussion of allocating production department costs to products. Products would be distinguished by whether they are produced in job or process settings and further whether they are joint products or by-products. The valuation of inventory at full or variable costs would round out and complete the discussion of cost allocations. The comparative costs and benefits of alternative methods—for example, volume-based allocations versus time-driven ABC—would then flow directly from the need to consider well-designed allocation rules. Insofar as market prices are calibrated for divisible quantities in market settings, the need to measure the cost associated with the market price of goods and services is not negligible. The arbitrariness of allocated costs can then be contrasted against the necessity of measuring the supply of lumpy resources.

5.3. Control

The creation of divisions and departments to carve out of cost, revenue, profit and investment centers that form sites of responsibility accounting are only the macro-level efforts within an organization to remedy the consequences of the absence of individual property rights. The discussion of divisional performance flows naturally into the discussion of transfer pricing as a technique to introduce market-like forces between departments. That effort to align organizational incentives with market prices (where they exist) and the opportunity cost of resources used internally continues the theme of control mechanisms. The analysis of both cost and revenue variances, including productivity metrics, represents the efforts to address the lack of high-powered incentives at the operational level of the organization. Non-financial operational measures of performance including those for quality and customers offer a glimpse into the rich world of guiding behavior by evaluating it numerically, even if not financially. In principle, insofar as such tools as financial statements, ratio analysis, and balanced scorecards are understood as devices to monitor, measure, and evaluate performance at the organizational level, they too belong to the control tools prompted by the lack of property rights inside the organization.

In summary, the totality of topics presented in this section covers most of what is discussed in the leading textbooks on management accounting.[7] The grouping and sequencing of topics is perhaps idiosyncratic but not arbitrary. In general, the discussion follows a movement from the macro-level of the organization to the micro-level and back again within each kind of tool. However, cost-volume-profit (CVP) is the one major topic that is often center stage in management accounting textbooks but one that has not yet been dealt with in this conceptual framework. But the logic of this framework and, contrary to many treatments of it, CVP analyses appear here as a beneficial consequence or fallout from the toolkit of management accounting.

6. Tools for strategic analyses

Resource allocation decisions inside organizations entail planning, costing, and control because of the defining characteristics of organizations. Ideally, the conscious resource allocation decisions by managers would mimic the efficiency of market prices and the incentive effectiveness of private property rights. It is in the attempt to replicate the efficiency of markets that managers are enjoined to a careful consideration of the relevant (differential or incremental) costs and benefits when making decisions. The relationship between cost and volume as captured by the concept of contribution margin, its variants (segment margin) and its offshoots (breakeven point) form the nucleus of ideas needed to identify the relevant costs of such decisions as whether to add or drop a

[7] I've conducted an informal classificatory exercise on 5 well-known managerial accounting textbooks to be reasonably assured that this claim is not wildly off the mark.

product line, whether to accept a special order, and so on. Interestingly, CVP analyses also includes decisions that directly implicate the boundary of the organization, as for example, make–or–buy and sell–or–process further decisions. In this sense, CVP analyses are similar to inter-organizational cost management (IOCM) techniques (see, Anderson & Dekker, 2014; Cooper & Slagmulder, 2004) and value chain analyses (Shank, 1989). All these can trigger an explicit consideration of the best location for transactions—whether within the organization, in a hybrid organizational structure, or outsourced from the market. From the perspective of this conceptual framework, cost analyses and techniques that explicitly invoke the existential boundaries of the organization and thus also of its strategy, lie on the frontiers of management accounting practice. Moreover, such strategic considerations would likely also raise questions of coordination, costing, and control within organizations.

Though organizations can be characterized by the absence of the price signal, divisible inputs, and individual property rights, the broader question of why organizations exist in the first place is still left open. That question is being vigorously debated in the scholarly literature in economics, sociology, management, among others. While an elaboration of the diverse theories of the organization is inappropriate here, a few markers can be laid down. Ignoring economic sociology (Carruthers & Uzzi, 2000) and organization theory (Santos & Eisenhardt, 2005), the systematic investigation of organizations in economics only takes off in the late 1960s. There are now a variety of such theories ranging from transaction costs economics (Williamson, 1979) and agency theory (Jensen & Meckling, 1976) to property rights (Hart & Moore, 1988) and the theory of complementarities (Brynjolfsson & Milgrom, 2013), all of which derive from the founding insight of Coase (1937). Yet, each of these theories emphasize different factors driving the shape of organizational forms and accordingly are in the contention for a better understanding of the organization as a distinctive governance mechanism (for a flavor of the differences see the discussions in Chandler, 1992; Gibbons, 2005).

Despite the absence of a single economic theory to explain the organization, it is by now abundantly clear that an organizational economy is not the same as a market economy. Given the proposed mapping from organizational features to management accounting procedures, it behooves students of management accounting to also be aware of the theoretical explanations for the existence of organizations. A fuller examination of these explanations could be usefully included in a graduate or advanced course on management accounting that explores the interplay between accounting techniques, organizational strategy, and organizational forms.

7. Conclusion

This paper presented a conceptual framework for management accounting that is theoretically grounded in the organizational economics literature and that offers a logically articulated grouping of topics (see Fig. 1). The framework does not justify the subject of management accounting by such catchall phrases as information for decision-making, accounting for planning and control, and enterprise performance management. Instead, it deduces the need for coordinating resources, for controlling performance, and for measuring resource consumption from the absence inside an organization of prices, property rights, and perfectly divisible inputs respectively. The link between the three distinguishing features of an organization and the toolkit of management accounting allows most if not all of the topics usually covered in management accounting to be thereby theoretically grounded and logically grouped.

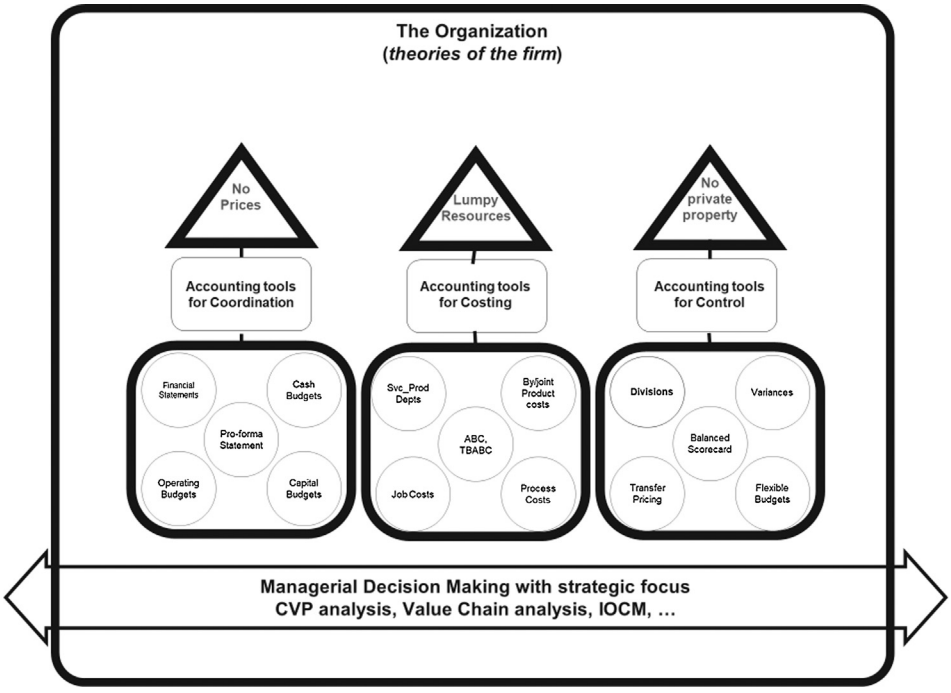

Fig. 1. A conceptual framework for management accounting.

In addition, the framework permits a clearer specification of the relationship between management accounting and both operations management and strategic management. Insofar as operations management entails specifying the physical relationships among inputs and between inputs and outputs it is a form of budgeting, broadly understood. Equally, those cost analyses and techniques—CVP, IOCM, value chain analyses—that open to questions of the appropriate boundary of the organization belong to or at least adjoin the field of strategic management. Lastly, this conceptual framework also opens management accounting to a more wide-ranging examination of the reasons for the existence of organizations. In these three ways, the proposed framework also contributes to developing the appropriate level of theoretical abstraction needed for a profession to claim and maintain its distinctive identity.

In the effort to develop management accounting as a professional discipline, it is useful to forge a conceptually coherent framework that can help delineate the subject and theoretically ground it. After all, being clear on what constitutes management accounting seems vital to the identity of the profession and its knowledge claims. Moreover, accounting students and future professionals may benefit from a tightly reasoned and structured presentation of the topics in management accounting. The framework offered in this paper goes some way to achieving those ends.

Acknowledgements

I am grateful for the comments and suggestions—which included references to key citations—of three anonymous reviewers and the editor that have decisively improved this paper.

Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.jaccedu.2018.05.004.

References

Abbott, A. (1988). *The system of professions: An essay in the division of expert labor.* Chicago: University of Chicago Press.

Anderson, S., & Dekker, H. (2014). The role of management controls in transforming firm boundaries and sustaining hybrid organizational forms. *Foundations & Trends in Accounting, 8*(2), 75–141.

Apostolou, B., Dorminey, J. W., Hassell, J. M., & Rebele, J. E. (2016). Accounting education literature review (2015). *Journal of Accounting Education, 35*, 20–55. http://dx.doi.org/10.1016/j.jaccedu. 2016.03.002.

Apostolou, B., Dorminey, J. W., Hassell, J. M., & Rebele, J. E. (2015). Accounting education literature review (2013–2014). *Journal of Accounting Education, 33*(2), 69–127. http://dx.doi.org/10.1016/j.jaccedu. 2015.04.001.

Apostolou, B., Dorminey, J. W., Hassell, J. M., & Watson, S. F. (2013). Accounting education literature review (2010–2012). *Journal of Accounting Education, 31*(2), 107–161. http://dx.doi.org/10.1016/j.jaccedu. 2013.03.001.

Apostolou, B., Hassell, J. M., Rebele, J. E., & Watson, S. F. (2010). Accounting education literature review (2006–2009). *Journal of Accounting Education, 28*(3/4), 145–197. http://dx.doi.org/10.1016/j.jaccedu. 2011.08.001.

Armstrong, P. (1993). Professional knowledge and social mobility: Postwar changes in the knowledge-base of management accounting. *Work, Employment & Society, 7*(1), 1–21.

Belkaoui, A. (1980). *Conceptual foundations of management accounting.* Reading, MA: Addison-Wesley Publishing.

Berg, T. (2015). A compass for teaching enterprise governance. *Accounting Education, 24*(6), 559–563. http://dx.doi.org/10.1080/09639284.2015.1108776.

Berle, A., & Means, G. (1932). *The Modern Corporation and private property.* NY: Harcourt Brace.

Blocher, E. J. (2009). Teaching cost management: A strategic emphasis. *Issues in Accounting Education, 24*(1), 1–12.

Bots, J. M., Groenland, E., & Swagerman, D. M. (2009). An empirical test of Birkett's competency model for management accountants: Survey evidence from Dutch practitioners. *Journal of Accounting Education, 27*(1), 1–13. http://dx.doi.org/10.1016/j.jaccedu.2009.06.001.

Brewer, P. (2008). Redefining management accounting: promoting the four pillars of our profession. *Strategic Finance*, March, 35–43.

Brynjolfsson, E., & Milgrom, P. (2013). Complementarity in Organizations. In R. Gibbons, & J. Roberts (Eds.). *The handbook of organizational economics* (pp. 11–55). Princeton: Princeton University Press.

Buckley, J., Smith, C., & Zimmerman, J. (2004). *Managerial economics & organizational architecture* (3rd ed.). McGraw Hill.

Carruthers, B. G., & Uzzi, B. (2000). Economic sociology in the new millennium. *Contemporary Sociology, 29*(3), 486–494.

Chandler, A. (1977). *The visible hand: The managerial revolution in American business.* Cambridge: Harvard University Press.

Chandler, A. (1992). What is a firm? A historical perspective. *European Economic Review, 36*, 483–492.

Coase, R. (1937). The nature of the firm. *Economica, 4*(16), 386–405.

Cokins, G. (2001). A management accounting framework. *Journal of Corporate Accounting & Finance, 13*(1), 73–82.

Cooper, P. (2006). Adapting management accounting knowledge needs to functional and economic change. *Accounting Education: An International Journal, 15*(3), 287–300.

Cooper, R., & Slagmulder, R. (2004). Interorganizational cost management and relational context. *Accounting, Organizations and Society, 29*, 1–26.

Demsetz, H. (1988). The theory of the firm revisited. *Journal of Law, Economics, & Organization, 4*(1), 141–161.

Gibbons, R. (2005). Four formal(izable) theories of the firm? *Journal of Economic Behavior & Organization, 58*(2), 200–245.

Gibbons, R., & Roberts, J. (2013). Introduction. In R. Gibbons, & J. Roberts (Eds.). *Handbook of organizational economics*. Princeton: Princeton University Press.

Greenberg, R. K., & Wilner, N. A. (2015). Using concept maps to provide an integrative framework for teaching the cost or managerial accounting course. *Journal of Accounting Education, 33*, 16–35.

Hart, O., & Moore, J. (1988). Incomplete contracts and renegotiation. *Econometrica, 56*(4), 755–785.

Hayek, F. (1945). The use of knowledge in society. *American Economic Review, 35*(4), 519–530.

IMA (2008). Definition of management accounting and management accountants. *Strategic Finance*, August, 48–50.

IMA (2014). The conceptual framework for managerial costing. < http://www.imanet.org/about-ima/news-and-media-relations/press-releases/2014/9/25/ima-releases-new-statement-on-management-accounting-for-managerial-costing-conceptual-framework > .

IMA (2016). The IMA management accounting competency framework. < http://www.imanet.org/tools-and-resources/competency-framework > .

Jensen, M. C., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360.

Johnson, T. H. (1983). The search for gains in markets and firms: A review of the historical emergence of management accounting systems. *Accounting, Organizations, & Society, 8*(2/3), 139–146.

Kaldor, N. (1961). Capital accumulation and economic growth. In E. A. Lutz, & D. C. Hague (Eds.). *The theory of capital* (pp. 177–222). NY: St. Martins Press.
Kittredge, J. (2009). A performance framework for management accounting. *Cost Management, 23*(2), 20–28.
Lafontaine, F., & Slade, M. (2009). Vertical integration and firm boundaries: The evidence. *Journal of Economic Literature, 45*(3), 629–685.
Lawson, R., Blocher, E., Brewer, P. C., Cokin, G., Sorensen, J. E., Stout, D. E., ... Wouters, M. J. F. (2014). Focusing accounting curricula on students' long-run careers: Recommendations for an integrated competency-based framework for accounting education. *Issues in Accounting Education, 29*(2), 295–317. http://dx.doi.org/10.2308/iace-50673.
Marple, R. (1964). *Towards a basic accounting philosophy*. NY: National Association of Accountants.
Masten, S. (1988). A legal basis for the firm. *Journal of Law, Economics, and Organization, 4*(1), 181–198.
Masten, S. (2002). Modern evidence on the firm. *The American Economic Review, 92*(2), 428–432.
Rajan, R., & Zingales, L. (1988). Financial dependence and growth. *The American Economic Review, 88*(3), 559–586.
Roberts, J. (2004). *The modern firm: Organizational design for performance and growth.* London: Oxford University Press.
Santos, F., & Eisenhardt, K. (2005). Organizational boundaries & theories of organization. *Organization Science, 16*(5), 491–508.
Simon, H. A. (1991). Organizations and markets. *Journal of Economic Perspectives, 5*(2), 25–66.
Shank, J. (1989). Strategic cost management: new wine or just new bottles? *Journal of Management Accounting Research, 1*(1), 47–65.
Speklé, R. F. (2001). Explaining management control structure variety: A transaction cost economics perspective. *Accounting, Organizations and Society, 26*(4), 419–441.
Spicer, B. H., & Ballew, V. (1983). Management accounting systems and the economics of internal organization. *Accounting, Organizations and Society, 8*(1), 73–96.
Steele, D. R. (1992). *From Marx to Mises: Post capitalist society and the challenge of economic calculation.* LaSalle, IL: Open Court Publishing.
Stiglitz, J. E. (2000). The contributions of the economics of information to twentieth century economics. *Quarterly Journal of Economics, 115*(4), 1441–1478.
Van der Merwe, A. (2007). Management accounting philosophy I: Gaping holes in our foundations. *Journal of Cost Management, 21*(3), 5–11.
Vangermeersch, R. (1997). Managerial accounting needs a philosophical base. *Management Accountant, 78*(12), 45–47.
Watts, R., & Zimmerman, J. (1983). Agency problems. Auditing, and the theory of the firm. *The Journal of Law and Economics, 26*(3), 613–633.
White, L., Clinton, D., van der Merwe, A., Cokins, G., Thomas, C., Templin, K., & Huntzinger, J. (2011). Why we need a conceptual framework for managerial costing. *Strategic Finance, 93*(4), 36–42.
Williamson, O. (1979). Transaction cost economics: the governance of contractual relations". *Journal of Law and Economics, 22*(2) 233-26.
Williamson, O. (1984). The incentive limits of firms: a comparative institutional assessment of bureaucracy". *Weltwirtschattliches Archiv, 120*(4), 736–763.
Williamson, O. (1991). Economic institutions: spontaneous and intentional governance. *Journal of Law, Economics & Organizations, 7*, 159–187.
Zimmerman, J. (1979). The costs and benefits of cost allocations. *The Accounting Review, 54*(3), 504–521.
Zimmerman, J. (2017). *Accounting for decision making and control* (9th ed.). McGraw Hill.