

Journal of
Economic and Social Thought

www.kspjournals.org

Volume 2

June 2015

Issue 2

Emili Grifell-Tatjé & C. A. Knox Lovell, *Productivity Accounting: The Economics of Business Performance*, Cambridge U. Press, 2015, 398 pp. \$92 Hardcover.

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Book Review

“**P**roductivity Accounting, the Economics of Business Performance” is a book that combines the strengths of economics and business literature to analyse an issue that has been neglected in the traditional accounting reports: the measurement of productivity. Given the fact that managerial decisions co-determine the economic performance of businesses and in most cases these decisions are based on accounting indicators, it is puzzling that these accounting statements do not reflect explicitly the evolution of productivity. Professors Emili Grifell-Tatjé and C.A Knox Lovell methodically scrutinize the relationship between productivity and financial performance in order to provide better tools for assessing business performance.

It is important to emphasize that a profitable business is not necessarily a productive business. A powerful idea well captured in the book. The influence of prices on the financial statements might disguise internal deficiencies that would be exposed in an economic downturn. It is in the practitioners’ best interests to differentiate between a favourable temporary economic situation and well established foundation able to do well even in the case of economic adversity. Davis (1955) homonymous book, “Productivity Accounting”, is a precursor in this line of thought, by proposing to express current accounts balances to constant prices. Grifell-Tatjé and Lovell build on Davis important contribution to the study of productivity at the enterprise level.

The second pillar of Grifell-Tatjé and Lovell’s book is the work done by John W. Kendrick who extended Davis’ contributions and layout some of the concepts currently used in the study of productivity. One of the main strengths of the books is that the authors recover early literature that probably has been ignored due to the format or the language used for publication. Grifell-Tatjé and Lovell do the arduous quasi “archaeological” literature review bringing back valuable work done by researchers during the beginning of the twentieth century. These contributions are relevant today and could generate interesting novel lines of research in the fields of management and economics.

“Productivity Accounting” has been structured to analyse three issues that has been portrait in the business media. The first issue is the central subject of the

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book; the influence of productivity in financial performance. The second aspect studied is the identification of the factors that drive productivity. The third issue discussed is how productivity gains are distributed among the stakeholders of a production process. The authors guide the reader into the study of these questions in a systematic way, which helps in the understanding of these complex issues more easily.

The relationship between productivity and performance occupies a large extend of the books' focus. One of the problems of linking productivity and performance is that their relationship is not straightforward but depends on the time frame, in particular, is less clear in the short run as it is clearly explained in the book. Grifell-Tatjé and Lovell maintain that the key element for measuring productivity correctly is the separation of prices and quantities. According to the authors' framework, productivity is defined as the ratio or the difference between output and input quantity indexes. Therefore, productivity is essentially a physical measure of performance.

The concept of performance is itself elusive, subject to a continuous debate between economists and researchers in management. The reason is that performance might imply the establishment of a goal, an objective to accomplish. The debate is whether firms have only one purpose (profit maximization, the firm as an optimizer unit) or they have many (e.g. financial, social goals). Grifell-Tatjé and Lovell do not have any preconception of what should be the firm's objective. Furthermore, they highlight the importance of not confusing indicators with objectives. The methodologies explained in this book focuses on financial performance whether this performance is deliberately sought or is a "side effect." However, the authors do take a position: inefficiency is a reality; managers not always achieve their targets.

The measurement firm's performance entails the analysis of financial indicators. Contrary to what is customary, Grifell-Tatjé and Lovell explore these indicators separately instead of following a combined approach. The advantage of this path is that they go in depth, providing a detailed description of these indicators, the sources of their variation and the consequences for the stakeholders of the production process. They focus their research in four financial indicators: profitability, profits, costs and returns on assets (ROA).

Profitability, the first indicator analysed in the book, is defined as the ratio of revenues over costs. The second and third chapters are devoted to the study of this indicator. The authors highlight some of the advantages of this indicator over the most commonly reported, profits. First, profitability is more suited for comparing firms with different sizes and second, it could not take negative values, which facilitates posterior analysis. Index number theory is the methodology used to dissect the change in profitability into its more elemental parts - productivity change and price recovery change – and to identify the drivers behind the change in productivity: technical change, efficiency change, resource allocation and size change. Grifell-Tatjé and Lovell distinguish between the use of theoretical index numbers (e.g. Malmquist, Könus) and empirical indices (e.g. Lespeyres, Paasche, Fisher, Törnqvist, Edgeworth-Marshall) in their analysis. In the third chapter of the book the authors explore different possibilities of pairing these indices to obtain information about the economic drivers behind the productivity change.

Chapters fourth to sixth are dedicated to the analysis of the relationship between profits and productivity. Profit, defined as the difference between revenues and costs, is the most widely used financial indicator and it has the advantage of measuring performance in monetary units. The authors revise the evolution of profits as measure of financial performance and the use of empirical indices for decomposing the profit change into price and quantity effects. Contrary to the

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profitability ratio, the decomposition of profit change cannot be expressed exclusively as changes in productivity and in prices. If empirical index numbers are used, the quantity effect is expressed as productivity change plus a quantity margin effect while the price effect is equal to the price recovery effect plus the price margin effect. According to Grifell-Tatjé and Lovell, these margin effects have been overlooked although their effect could be quite substantial. As in the profitability analysis, the authors search for the economic drivers behind the productivity effect but through the use of quantitative techniques to estimate the best practice frontier. The end result is several proposals of decomposition of the quantity effect. These proposals have in common the explicit identification of the contribution of productivity towards the change in profits.

A recurrent issue through these chapters is the so call “investor input” or gross return to capital investment. The debate is whether or not this “input” should be explicitly considered in the analysis of profits. Grifell-Tatjé and Lovell propose alternative decompositions depending on the assumption concerning investor inputs and let the readers decide the convenience of including this element in their analysis. The investor input has the particularity that cannot be easily assigned to changes in quantities or prices. One of the most interesting and intriguing propositions covered by the authors is the possibility of measuring productivity through prices if the investors’ inputs are included, so the profitability ratio is equal to one. The advantage of this proposition is that prices are observable while quantities are not frequently available. The first literature about this approach started in the early fifties; the authors connect the dots until the recent propositions regarding this topic.

Grifell-Tatjé and Lovell explore in detail the variation of costs as way to measure financial performance in the seventh chapter of the book. Focusing in costs is particularly useful in industries where output prices and quantities are assumed to be out of control of the firm. Ignoring the revenue side of profit is appropriate in regulated industries where regulatory authorities set prices and firms are obliged to satisfy consumer demand. It is in this chapter where the Könuš framework is further developed to identify the economic drivers of cost change. Another important contribution is the use of unit cost and unit labor cost for the analysis of business performance; indicators that are frequently use in economic literature.

Returns on assets (ROA), another widely used financial indicator, is analysed in the last chapter of the book. Grifell-Tatjé and Lovell do a very detailed recount in chronological order, of the empirical models that break down ROA into different effects. This journey starts with the DuPont triangle where ROA is expressed as the product of returns on sales times the asset turnover. Afterwards the authors present several pyramids of performance ratios developed through time that incorporate capacity utilization. The last sections, Grifell-Tatjé and Lovell propose two decompositions of the ROA change, one with theoretical index numbers and the other with empirical index numbers. The idea behind these decompositions is explicitly including productivity change as one of the elements behind the DuPont triangle through the use of the Malmquist productivity index. To my knowledge, this is the first time this kind of approach is proposed within the DuPont triangle literature.

Regarding the empirical methods used by the authors in their analysis of financial performance indicators, in addition to Index Number theory, they also rely on frontier analysis. A summary of the fundamentals of production theory is presented in the first chapter of the book. Frontiers can be estimated with Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA), although, in my viewpoint, DEA is more convenient for the majority of the decompositions

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presented in the book due to its attractive features concerning the regularity conditions.

In summary, “Productivity Accounting, The Economics of Business Performance” is rigorous treaty of the issue of productivity and its influence on financial performance. The book provides exhaustive and meticulous explanations of all the alternative ways of decomposing the most important financial indicators (profitability, profits, costs and ROA) in a clear and enticing format. Furthermore, the book contains several insightful numerical examples as well as references to current literature about the topic. In my viewpoint, this book fills the void in the literature on Managerial Accounting, a discipline that provides tools for managerial decisions based on accounting records, since productivity has been a neglected subject in this domain despite its importance in determining the firm’s financial performance. The book is a successful scholarly achievement useful not only academics but definitively for practitioners who wish to understand the innermost causes of financial performance.

Reference

Davis, H.S. (1955). Productivity Accounting. Philadelphia: University of Pennsylvania Press.



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