

Productivity: What's Going On in Europe



By John Lucey, IMS,
Delegate to the EFPS

Part II

Productivity:
value creation and
measurement

It is extremely important to balance the activities, the price and productivity as sources of value creation

Productivity is an expression of how efficiently and effectively goods and services (ie goods and services which are demanded by users) are being produced. Thus, its key characteristics are that it is expressed in physical or economic units – in quantities or values (money) – based on measurements which are made at different levels: on the level of the economy overall, that of a sector or branch of the economy, that of the enterprise and its individual plants/units and that of individuals.

The relation between productivity and value creation

If productivity is to play a role for organisations, it has to be linked to other organisational objectives. In general, organisational success is dominated by three core factors (Van Ark, 2004):

1. The activities the organisation performs ('what is done')
2. The purchase and sales prices of goods and services ('the price for which it is done')
3. The productivity with which the inputs are transformed to outputs ('how it is done')

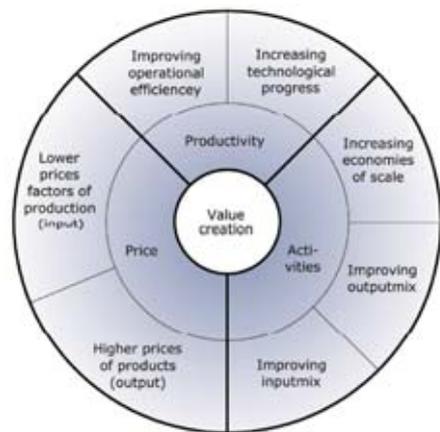


Figure 1: The wheel of value creation
Source: Van Ark & De Jong, 2004

These effects (the activity effect, the price effect and the productivity effect) have a direct impact on the general organisational objective, the creation of value or the creation of added value by the factors of production: capital and labour (figure 1). Productivity improvements can be obtained through an improvement in operational efficiency (the recipes of production/production management) and technological progress or the introduction of a breakthrough innovation. The price effect is related to a fall in the costs of the inputs used and/or a rise of sales prices. Finally the activity effect consists of three underlying factors: a change in the output mix can lead to a rise of value

creation by marketing new products or services, whereas the input mix concerns a change in the input structure. Scale is related to economies of scale which create added value.

The effects, however, can neutralise one another, particularly in the service sector. For example standardisation can raise productivity substantially; however the negative consequences on the quality of the service, the comfort, or the custom-made character of the service may cause the customers to abandon the service. It is extremely important to balance the activities, the price and productivity as sources of value creation. The choice of engaging in certain activities determines the markets in which the organisation will be active, while prices determine the revenue. In order to raise productivity it is essential to manage the organisational processes such that the input mix is optimal, which guarantees the market share to be maintained or even raised in times of economic crisis and continuously adds value to the enterprise.

Productivity measurement

Companies use performance indicators to measure the productivity. The following table gives an overview of the most frequently used performance indicators.

Output measures				
Input measures				
Physical volume (V)	Revenue (R)	Profit (Z)	Added value (A)	
Total investment (I)	V/I	R/I	Z/I	A/I
Fixed investment (If)	V/If	R/If	Z/If	A/If
Number of employees (N)	V/N	R/N	Z/N	A/N
Total of hours worked (H)	V/H	R/H	Z/H	A/H
Wages of employees (W)	V/W	R/W		A/W
Costs of material (M)	V/M	R/M		
Total Costs (C)	V/C	R/C		

Table 1: productivity measurement
Source: S Eilon (1985), A framework for Profitability and Productivity Measures

The performance indicators in the first column of the table are based on physical output or quantities, such as tons or volume. They are particularly used in industrial companies. The second and third columns refer to financial indicators, which focus on profit and loss. The R/I and Z/I ratios represent capital revenues. These indicators are mainly used in financial reports. The last column refers to performance indicators based on added value. Added value is defined as revenues minus operational costs (materials, energy, and purchased services). It represents the added value that the company creates through employing labour and capital.

Measuring productivity in the service sector is difficult and uncertain



Labour productivity does not, as such, measure the specific contributions of labour as a single factor of production

In order to be able to monitor productivity development it is recommended that productivity indicators be quantified. However, measuring productivity in the service sector is difficult and uncertain. For instance the productivity of a bank or a consultancy firm is hard to determine: the differences in the quality of the various services offered and the customisation of the service often lead to rough measures of productivity. The discrepancies in productivity figures which are presented in various on-line research databases are tantamount to this measurement problem. Nevertheless, the following link offers some of the most accepted databases on productivity, www.eco.rug.nl/GGDC/dseries/dataseries.shtml.

On the national level, productivity is usually measured in terms of the volume of labour used in relation to the output produced (GDP, Gross Domestic Product). For within enterprises, 'labour' (meaning human beings at work) tends to be either the single most important factor of production or that which is easiest to measure (in terms of persons employed or hours worked). Within the enterprise, technological and organisational changes serve to improve the effectiveness and the efficiency of the factor labour, without the outcome necessarily having been produced by labour working harder or longer.

'Labour productivity' is usually a proxy for 'overall productivity' or 'total factor productivity'. Total factor productivity is a weighted expression of how well all the factors contributing to productivity development (labour, capital, resources, etc) are marshalled, enhanced and managed to produce the output demanded. Labour productivity does not, as such, measure the specific contributions of labour as a single factor of

production.

Rather, it reflects the joint efforts of many influences, including new technology, capital investment, capacity utilisation, organisational design, energy use, and managerial skills, as well as the skills and efforts of the workforce.

Economic growth

Productivity has been – and remains – the main component of economic growth: it is the 'residual' element that still has not been explained once all the increases in the amounts of the factors of production are accounted for. It is enhanced by substituting capital for labour, or 'taking the labour out of work'. This has been continuously taking place since the beginning of the Industrial Revolution: labour intensive processes of producing materials, transportation, information and leisure, for instance, have all been substituted by capital-intensive processes using new machinery and devices. These drastically reduce the number of workers needed in the production processes, but through the additional wealth generated new demands for goods and services are opened up, thereby increasing employment elsewhere. At the same time, the continuous drive to make better use of labour – both as 'brawn-power' and 'brain-power' – generates new employment opportunities, at least for the qualified and healthy members of the workforce who are able to cope with change.

The factors of production are not limited to the traditional 'labour' (or 'human resources'), capital (both money and 'plant and machinery') and raw materials, but increasingly cover time, space and all resources of the environment. Hence there is the emergence of new concepts such as

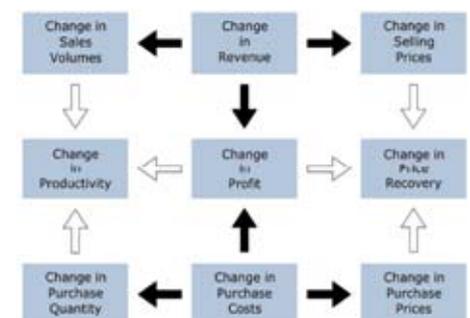
'green productivity', trying to ensure that the benefits of productivity development for the present generation will not be detrimental for the generations to come.

On the macro-economic level, productivity on the one hand influences the use of economic resources in order to achieve better results and, on the other, is also the result of the performance process.

Similar to its association with profitability, productivity is a significant component of competitiveness, the level of which is also determined by the prevailing national level of prices and costs. However, unlike productivity, these costs and prices are to all intents and purposes outside the influence of the individual enterprise.

The contribution of productivity to profits productivity accounting systems, rest on isolating the quantity and price components of monetary value changes for both revenues and costs. South Africa's NPI has extended traditional ratio analysis by isolating the productivity and price changes that drive profit change and measuring total productivity in both percentage and financial terms. The basic concept is explained below:

Sources of Profit Change



The centre column represents the conventional financial accounting definition



**Productivity has been –
and remains – the main component
of economic growth**

of profits as the difference between revenues and costs. To increase profits, revenue must increase faster than costs.

However, corporate revenues and costs comprise various controllable and uncontrollable factors. Merely to monitor revenue and cost changes does not provide knowledge about the interaction of these various factors, interactions that are ultimately translated into the bottom line. Nevertheless, basic accounting information can be used to gain insight into precisely what is driving profits.

Revenue can change only as the result of changes in sales quantities or of changes in selling prices as depicted by the top row. Similarly, costs and expenses will only change when either the volume of resources used or their purchase prices changes, as shown by the bottom row.

The left-hand column then identifies productivity as the ratio between product quantity (output) and resource quantity (input). A productivity level exists for each resource contributing to the business (thus, labour productivity is only one of many components of total productivity). It is now possible to show directly the effect of productivity change on corporate profits. Furthermore, it is clear that if all other factors are held constant, productivity becomes the only source of profit growth.

Productivity does not depend on monetary fluctuations which can lead to windfall gains (and losses) by intermediaries and speculators in future developments; rather, it requires perseverance, being a continuous process of doing things better today than yesterday and tomorrow better than today. And the inevitable driver behind this process is 'competition' in its many forms.

The EANPC and its members strive to pursue a 'holistic concept' of produc-

tivity. The input side covers not only the volume of labour but the quality and quantity of all resources – including the natural, infrastructural and organisational – which enterprises use to achieve their results. In this way a whole range of options are opened up for the efficient design of performance processes. On the output side of the production process it has to be mentioned that nowadays outputs not only include products and services, but also the social and ecological impacts of the production process. The approach of the EANPC and its members covers the whole gamut of measures for fostering productivity focusing on the 'human factor'. This human factor consists of two notions of capital: on the one hand human capital constituted by the individual skills competencies and attitudes of the employees and on the other social capital, the mutual trust and confidence, the collaboration and cooperation, the spirit of partnership among the labour and management of enterprises.

Thus, human factor can be a valuable element in enterprise competitiveness only when it consists of two equally important aspects: high quality human resources and good organisation of people's work. Improving the productivity of the enterprise and its supply chain results from how this social capital (organisation of work) enables the enterprise to make effective use of its human capital to make the most of its economic capital. This social capital facilitates innovation and change for productivity and competitiveness. There are various examples of enterprises that have managed to optimise the human factor. Measures of particular importance to foster productivity focusing on the human factor include giving more responsibility to employees

at the workplace, providing work that sustains health, designing workplaces which require skills and organisations that thrive on individual and collective learning, critically monitoring and using new understanding and knowledge, facilitating cooperation and collaboration between management and labour, etc.

In other words, it means taking the 'high road' to enhanced performance – improving the quality of the factors of production and the ways in which they are used, having the medium and long term development of the enterprise in mind – rather than the 'low road' of unthinkingly economising on the use of the factors of production for the benefit of short-term profit, which is, unfortunately, prevalent in today's world.

A broad approach is also taken for recording the results of performance. It is not just figures for turnover, profits and yields which are important, but also the societal benefit of the results from the performance processes, including the benefits for employment, improving working conditions and sustainable development within a shrinking world.

John Lucey will continue his series of articles on European productivity, with part III being published in the Autumn edition of *Management Services Journal*.

This article is from the EANPC publication *Productivity: The High Road to Wealth* and reproduced with their permission.

