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10 July 2025

Quantum Noetic Metaphysics

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Abstract

The research examines productivity and productive capital formation and the dynamic interplay between various factors of productivity. We attempt to derive a metaphysical perspective on the theory of productivity in relation to human capital formation. A simple model of productivity function has been designed to explain the underlying principles.

Keywords: *Productivity, productive capital, noetic space, intangible resources, habit formation.*

1. Introduction

Fruits of productive habits have their roots in great virtues. If a habit of distinguished action becomes a custom, it is socially beneficial (Wright, 2011). Formation of habits that promote productive actions strengthen the roots of education and learning, if such habit formation constitutes the roots of productive virtues (Pollard, 2006). Therefore, there are benefits of having good habits. Just as the goodness of an action is determined by virtue of the benefit it extends, so is the value of a book determined by the *quality* of information that it holds. The book is just a medium to hold "value", which has certain qualities. This factor—*quality*, is the most important determining variable that defines the "real outcome" of productive actions (Syverson, 2010). Productivity, although being a

Conception of Productivity:

"Attain perfection by performance of tasks. Outstrip your rivals with your performance and productivity. "

socioeconomic function, is more *economic* than *social* to be sure. But this statement is, in fact, representative of a relative context, since social productivity is a key constitutive element of economic sociology.

In this paper, we address the *metaphysics* of productivity and human capital formation that promotes productive actions (David, 2000; Bänziger & Suter, 2017; Hermeto, 2024). Productivity has value, whereas being productive means that one who's an active performer is doing some work to achieve some end results. In relation to modern organisational practice, it is relevant to conceptualise how "efficiently" things are produced by one firm relative to all its competitors. In individual but objective context, it refers to the principles of action for productivity that promises success. The "quality" of success depends on the primacy, value, and worth of productive activities.

It is not just a matter of speed, scale or scope, but the production function is much reliant on the "quality" of things produced, thus becoming the mark of competency and value. In economic sense, this is what we may refer to as Total Factor Productivity (TFP). According to Syverson (2010), TFP is often stochastic in nature as industries observe large differences in productivity among their producers, and across producers. Variations in productivity may also result from adoption of new, emerging technologies, since we are observing a recent trend in AI-driven productivity gains (Gao and Feng, 2023). According to the authors, artificial intelligence and AI-driven tools are fostering economic growth and sustainability as it presents immense potential in various domains of human activity. A comprehensive literature review of the role of AI and generative artificial intelligence in promoting productivity could be obtained from Naqvi, Bahroun, and Ahmed (2014). Various forms of input goes into production function, including physical capital, human capital and capability, and others being intangible resources, or a combination of both (Diefenbach, 2006). The third being AI productivity tools and apps, over which we have some control. The fourth is *time*—which is an "exogenous" factor over which nobody has any control.

The dynamic interplay of physical and intangible resources create products with the help of human effort. Information is used in the production of capital goods and assets. Besides, the strategic organisational and managerial processes as the operational rules of a firm also determine productivity

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(Tangen, 2005; Syverson, 2011). It creates value, and valuable intangible assets motivate and attract investment (Crouzet et.al., 2022). However, the true value lies in human (*noetic*) capital. But how can it be nurtured and developed? By learning, training, and practice. Learning promotes the development of human capital. Human capital is potentially a productive resource which can be utilised to "organise" production functions (David, 2000). In this research, we would examine the "theory of productivity" and its metaphysical underpinnings (See, for instance, Koskela and Kagioglou, 2005). This is a very general approach—not a specific one to explain the concepts of human productivity which must be based on the principles of reason. Reason or principle, can, however, both be refuted by empirical evidence and data.

2. Metaphysics of Productivity

This study concerns the metaphysical aspects of organisational *productive* capital and productivity (Bänziger & Suter, 2017), which may be intangible or tangible (real) in nature, e.g., human capital, noetic resources, and physical capital and material assets. Noetic (intellectual) capital is stored in people and practice. It is a form of intangible, tacit capital. We refer to this type of intangible capital in relation to Chatterjee's (2023) *tacit knowledge space* (TKS). TKS is a noetic space for all types of intangible capital assets. Productivity of any kind must involve capital *expenditure*, whether physical or intangible.

Organisational productivity is an important concept in managerial economics, since most organisations struggle hard to keep up and maintain a high rate of productivity to meet requirements. Productivity is the key parameter of business, individual, and organisational sustainability and success. The role of human capital in organisational productivity cannot be undermined, since it is *this* form of "intangible capital" that allows economies of scale and scope. In this research, we examine the dynamics of productivity and how productive capital is formed, and what role it has got to play, and by what means, to promote individual and organisational productivity.

A metaphysical understanding is attempted in this inquiry into the depth of the formation of human "productive" capital—noetic *intangible* assets. The value of assets or resources is determined by their ability to generate *utility*—either through creation of physical or intellectual wealth, or by employing both, to create products and services that have value and worth.

> *"There is always a consequence of being productive…"*

In this paper, we model human productivity using simple mathematical equations to examine and explain the formation of productive (human) capital, and how it can be *more* effectively utilised as a "means" to achieve desired ends. In other words, it denotes the effective ways of applying human capital to enhance and augment productivity levels (Diefenbach, 2006). In this respect, we must address the problem of *stochastic* productivity, and the reasons of stochasticity in productive activities. For human beings, maintaining a constant rate of productivity which is actually the pace of work becomes rather difficult under differential conditions that affect productivity levels. This could be an ideal application of a theory of productivity related to human creative dynamics, wherein, outbursts of creative potential lead to the production of innovative works of great merit and value (David, 2000). Apparently, it helps us examine the conception of productivity at the micro-metaphysical level.

3. Model and Method

Productivity is thought to be *contingent* upon the "power" of production technologies. A coordinated system of production process is the reason behind efficiency and positive outcome. It is one the key determinants of business and organisational success. Productivity is a function that require the involvement of capital resources: physical and/or intangible capital, or both. We define productivity function as

$$f(\rho) = \alpha_0 x + 1 - \beta_1 \left(\frac{\vartheta_i}{\theta_j}\right)^{\sigma} - \epsilon_j \qquad \text{eq. 1}$$

Wherein, productivity is the effect of effort and its outcome measured as a ratio of $\rho = \frac{\vartheta_i}{\theta_j}$. The error term ϵ_j is included for the very reason that not all efforts turn into fruitful, productive outcomes, as there is always some wastage of energy from failed, inadequate, or inefficient efforts. Knowledge and actions that promise success must be sought for, since only actions will lead to increased productiveness, and that will lead to successful outcomes. Organisations "design" their operations in such a way so as to generate the 'necessity of consequences': products, services delivery, outcome, results, etc. that define organisational success.

For instance, in manufacturing firms and industries, improvement in technology, innovation in process management and mechanisms, or adoption of new technologies have direct effect on firm-level productivity. Finally, improvements in technology powering productivity, which in turn increase the productive powers of technology is hard to deny, since both these mechanisms have complementary effects. Now, let us talk about additive (productive) power: it is primarily based on the theory of additive growth effects (Philippon, 2022). For example, addition of efforts must commensurate to attainment of (new) goals. In equation 2 below, this is represented as a model of goal-oriented productivity wherein, $\Delta p_i + \Delta \rho_j$ denote additional productivity rates due to addition of efforts

to approach newly set goals, g_i, and ϵ_{ij} being the error term. Now $\Delta p_i + \Delta \rho_j$ also denote the additive effects of new, more efficient and productive technologies, i.e., AI tools, productive toolkits, apps, or a novel and powerful technique of deep learning, etc.

$$f(g_i) = x_n - (\Delta p_i + \Delta \rho_j)^{\frac{1}{x}} - \epsilon_{ij} \qquad \text{eq. 2}$$

Now, by this, we mean that in order to bring uniformity and equilibrium in productive momentum, the "additive effects" of advanced technology is a necessity. These may also be in the tune of, say, expert management systems, knowledge of methods and operations, innovations in processes, development of human capital, and hours of extra efforts as valuable inputs to production, powering organisational productivity. The theory of *additive efforts* is a special case (Philippon, 2022) which can help explain the principles of organisational productivity along with individual output and efficiency with a subtleness in the delicacy of technical detail.

4. Results and Discussion

Capital (wealth & resources) provides the means of attaining certain desired ends. Human capital is the cause and well as the effect of productivity. It is also a means for creating wealth and industry. Capital in the form of money as incentives trigger and help augment productivity level of employees. Organisations employ productive resources to produce goods and generate services which are the sources of their revenues. Productivity is both a mark and metric of efficiency and output. In this research, we have modelled productivity function to show how it is reliant on capital inputs—including human resources and other forms of intangible capital.

5. Conclusions

Production is a process oriented temporal phenomena where action is conceptualised into things of import having certain demand, and hence, are produced. The productive power is the ability to conceptualise certain states of affairs through changes. This paper elucidates the metaphysical analysis of productivity, according to which production is a process-dependent activity by which "things" are produced (Koskela and Kagioglou, 2005). But this a narrow outlook if one may consider given that it fails to provide a metaphysical dimension to the science of productivity and production management. Hence, we have provided a brief description of the philosophy underpinning human productiveness and formation of productive capital. We neither claim that we have made any contribution to philosophy or production management with this research, but alike any re-search, it is a continuous search process by which things past are re-examined and things new produced.

Acknowledgements: The author extends his gratitude to the V.S. Krishna Central Library, Andhra University for providing access to conduct this research.

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References:

Al Naqbi, H., Bahroun, Z., & Ahmed, V. (2024). Enhancing work productivity through generative artificial intelligence: A comprehensive literature review. Sustainability, 16(3), 1166.

Bänziger, P. P., & Suter, M. (2017). Histories of Productivity. Genealogical Perspectives on the Body and Modern Economy.

Chatterjee, S. (2023). Tacit Knowledge Space and Organizational Efficiency (No. 117952). University Library of Munich, Germany.

Crouzet, N., Eberly, J. C., Eisfeldt, A. L., & Papanikolaou, D. (2022). The economics of intangible capital. Journal of Economic Perspectives, 36(3), 29-52.

David, P. A. (2000). Knowledge, capabilities and human capital formation in economic growth (No. 01/13). New Zealand Treasury Working Paper.

Diefenbach, T. (2006). Intangible resources: a categorial system of knowledge and other intangible assets. Journal of Intellectual capital, 7(3), 406-420.

Gao, X., & Feng, H. (2023). AI-driven productivity gains: Artificial intelligence and firm productivity. Sustainability, 15(11), 8934.

Hermeto, J. R. (2024). Towards an Ontology of Capitalist Knowledge Production: Beyond the Metaphysical Epistemic. MODEL-BASED REASONING, ABDUCTIVE COGNITION, CREATIVITY: Inferences and, 478.

Koskela, L., & Kagioglou, M. (2005). On the metaphysics of production.

Philippon, T. (2022). Additive growth (No. w29950). National Bureau of Economic Research.

Pollard, B. (2006). Explaining actions with habits. American Philosophical Quarterly, 43(1), 57-69.

Syverson, C. (2011). What determines productivity?. Journal of Economic literature, 49(2), 326-365.

Tangen, S. (2005). Demystifying productivity and performance. International Journal of Productivity and performance management, 54(1), 34-46.

Wright, J. P. (2011). Ideas of habit and custom in early modern philosophy. Journal of the British Society for phenomenology, 42(1), 18-32.