

# Mr. Keynes and the neo-Schumpeterians: Contributions to the analysis of the determinants of innovation from a post-Keynesian perspective

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## Abstract

The purpose of this paper is to discuss the importance of knowledge, both tacit and codified, in the formation of the state of long-term expectations that drive firms' decisions to search for innovation and to investment in R&D. The paper takes the post-Keynesian theory as reference, associating it with the neo-Schumpeterian analysis of innovation dynamics. First, it is argued that knowledge plays a crucial role in building agents' confidence, emphasizing that radical innovations are more dependent on the accumulation of codified knowledge, given the higher degree of uncertainty associated with this type of innovation, while incremental innovations are more dependent on tacit knowledge about the current market conditions and technological trajectory. Second, it is argued that the accumulation of knowledge and the constant introduction of innovations foster the creation of a convention to innovate, which facilitates the decision to pursue innovations by influencing long-term expectations.

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## Resumo

O objetivo desse artigo é discutir a importância do conhecimento, tanto tácito como codificado, para a formação do estado de expectativas de longo prazo que orienta as decisões das firmas quanto à busca de inovações e ao investimento em P&D. O artigo toma a teoria Pós-Keynesiana como referência, associando-a à análise Neo-Schumpeteriana da inovação. Primeiro, argumenta-se que o conhecimento desempenha um papel crucial na elevação da confiança dos agentes, enfatizando que as abordagens Pós-Keynesiana e Neo-Schumpeteriana são complementares, uma vez que a primeira coloca maior ênfase no conhecimento tácito e a segunda coloca maior ênfase no conhecimento codificado. Segundo, argumenta-se que a acumulação de conhecimento e a constante introdução

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de inovações contribuem para a criação de uma convenção a inovar, a qual facilita a decisão de busca de inovações ao influenciar as expectativas de longo prazo.

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*Palavras chave:* Inovação; Teoria Pós-Keynesiana; Abordagem Neo-Schumpeteriana; Tecnologia

## 1. Introduction

The main branch of post-Keynesian theory emphasizes the role of money and banks in determining the level of investment, which in turn determines the levels of employment, production and income. By contrast, the neo-Schumpeterian theory emphasizes the importance of technological progress in the determination of the levels of production, employment and income.

Although innovation is rarely addressed in Keynes' works, it is possible to identify at least four channels through which the post-Keynesian theory can be combined with the neo-Schumpeterian theory to better understand the dynamics of innovation.<sup>1</sup> Firstly, several studies have sought to combine these traditions to understand the relationship between innovation and financial system dynamics, since both approaches consider money and banks as non-neutral (e.g. Gerschenkron, 1962; Zysman, 1983; Christensen, 1992; O'Sullivan, 2005; Henriques, 2007; Crocco et al., 2008; Raposo and Resende, 2012; Romero and Jayme Jr., 2012). Secondly, post-Keynesians have also sought to use Keynes' models of asset choice and of formation of expectations to understand the determinants of innovation (e.g. Crocco, 2003, 2008), given that both approaches stress the role of uncertainty in shaping firms' decisions (e.g. Dosi, 1982; Cimoli and Dosi, 1995; Dequech, 1999a). Thirdly, studies of Keynesian–Kaldorian orientation have combined the two insights investigating the impacts of demand growth (via specialization and division of labour *a la* Kaldor, 1966), technological diffusion and innovation effort on productivity growth (e.g. Oliveira et al., 2006). Fourthly, studies have also attempted to establish a relationship between innovation and trade, using the Keynesian–Kaldorian balance-of-payments constrained growth models as benchmark (e.g. Fagerberg, 1988; Resende and Raposo, 2008; Jayme Jr. and Resende, 2009; Romero et al., 2011). However, much remains to be explained within each of these research topics.

The purpose of this paper is to discuss the importance of knowledge, both tacit and codified, in the formation of the state of long-term expectations, which drives firms' decisions to search for innovation and to invest in R&D. The paper takes the post-Keynesian theory as reference, associating it with the neo-Schumpeterian analysis of innovation dynamics. First, it is argued that knowledge plays a crucial role in building agents' confidence, emphasizing that radical innovations are more dependent on the accumulation of codified knowledge, given the higher degree of uncertainty associated with this type of innovation, while incremental innovations are more dependent on tacit knowledge about the current market conditions and technological trajectory. Second, it is argued that the accumulation of knowledge and the constant introduction of innovations foster the creation of a convention to innovate, which facilitates the decision to pursue innovations by influencing long-term expectations. Thus, knowledge influences both immediate determinants of the *state* of long-term expectations, confidence and expectations, providing strong incentives to pursue innovation.

The paper is divided into five sections. Section 2 discusses the post-Keynesian theory, which represents the main framework of the paper. Section 3 briefly discusses the neo-Schumpeterian theory related to innovative dynamics. Section 4 discusses how the post-Keynesian theory can contribute to improve the understanding of the innovation process. Finally, Section 5 presents the paper's concluding remarks.

## 2. The post-Keynesian theory: an overview

The purpose of this section is to discuss the foundations of the post-Keynesian theory. The first part of this section introduces the fundamental axioms of this theory, which guides the more careful analysis of this tradition carried out in the subsequent parts of this section. It is worth noting, however, that this section is not intended to establish an exhaustive discussion of the controversies related to the post-Keynesian theory. Rather, following some of Keynes'

<sup>1</sup> See Paula (2011) for a more general analysis on the compatibility of Keynes and Schumpeter's ideas.

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