Dynamic Analysis of Finance and Technology: an Okishio Approach

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Abstract

The rapid advancement of "financial technology" (such as FinTech and artificial intelligence) has significantly transformed corporate finance and operational efficiency. This chapter dynamically analyzes the impact of financial technology on macroeconomic stability using an Okishio approach. Building upon the framework of Kogure (2025, in Japanese), we construct a macroeconomic model that explicitly incorporates the dynamics of interest-bearing debt and the effects of financial technology. While this technology optimizes firms' debt balances, it simultaneously decreases the labor share through the substitution of financial and accounting labor. By integrating Okishio's theory of the cumulative process of disequilibrium and his loanable funds theory of interest rate determination, we demonstrate how the interaction between technological adoption, income distribution, and debt dynamics affects the economic system. The analysis reveals that although financial technology improves individual corporate balance sheets, its excessive introduction and the resulting decline in the labor share can exacerbate financial fragility and destabilize the macroeconomic dynamic system. This chapter contributes to the understanding of the new phase of financialization by extending Okishio's analytical framework of instability.