HOSTED BY
ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

EconomiA xxx (2016) xxx–xxx

EconomiA

www.elsevier.com/locate/econ

A neo-Kaleckian model of capital accumulation, income distribution and financial fragility☆,☆☆

Rafael Saulo Marques Ribeiro[a,*], Alex Wilhans Antonio Palludeto[b]

[a] *Department of Land Economy, University of Cambridge, UK*
[b] *Institute of Economics, State University of Campinas, Brazil*

Received 24 November 2015; received in revised form 28 June 2016; accepted 6 September 2016

Abstract

This paper develops a neo-Kaleckian dynamical model that investigates how an increased financial instability affects the investment rate and the wage share of income in the long run. It is shown that a rising benchmark interest rate affects negatively the capital accumulation and the wage share of income. The main argument is developed in two-steps. First, it is build a two-dimensional model to analyse the stability conditions of the dynamical interaction between wage share and capital accumulation, given a constant debt-capital ratio. Second, by allowing endogenous variations of the debt of firms as a proportion of their capital stock, the extended model explores the stability conditions of the steady-state equilibrium solution in a three-dimensional dynamic system. In doing so, this paper contributes to the literature by setting the conditions in which the debt-capital ratio, the income distribution and the process of capital accumulation can be simultaneously stable in the long run.

Keywords: Capital accumulation; Increasing risk; Income distribution; Financial instability

Palavras chave: Acumulação de capital; Risco crescente; Distribuição de renda; Instabilidade financeira

JEL classification: C62; D33; E12; E22; E44

Resumo

Este trabalho desenvolve um modelo dinâmico neo-kaleckiana que investiga como um aumento da instabilidade financeira afeta a taxa de investimento e da participação dos salários de renda no longo prazo. Mostra-se que uma elevação na taxa básica de juros afeta negativamente a acumulação de capital e a participação dos salários de renda. O principal argumento é desenvolvido em duas etapas. Primeiro, desenvolvemos um modelo bidimensional para analisar as condições de estabilidade da interação dinâmica entre a participação dos salários e acumulação de capital, dada a razão dívida-capital constante. Em seguida, ao permitir variações endógenas da dívida das empresas como proporção do seu estoque de capital, o modelo estendido explora as condições de estabilidade da

☆ The authors are grateful to Fábio Freitas, Amitava Dutt, Gilberto Tadeu Lima, Robert Blecker, Mark Setterfield, Arslan Razmi and the workshop participants for their valuable comments and suggestions on an earlier version of the manuscript. The usual disclaimer applies.
☆☆ Workshop on Economic Growth and Income Distribution, Ilhéus, Bahia, Brazil, 2016.
* Corresponding author at: Department of Land Economy, University of Cambridge, 16-21 Silver St, Cambridge CB3 9EP, United Kingdom.
E-mail addresses: rsmribeiro@gmail.com (R.S.M. Ribeiro), alex.wilhans@gmail.com (A.W.A. Palludeto).
Peer review under responsibility of National Association of Postgraduate Centers in Economics, ANPEC.

http://dx.doi.org/10.1016/j.econ.2016.09.003

solução de equilíbrio em um sistema dinâmico tridimensional. Ao fazê-lo, este trabalho contribui para a literatura, definindo as condições em que a razão dívida-capital, a distribuição de renda e o processo de acumulação de capital possam ser simultaneamente estáveis no longo prazo.

1. Introduction

The issue of long-run stability of capitalist economies has always been in the centre of the debate in the economic growth literature. Roy F. Harrod in 1939 and Evsey Domar in 1946 pioneered this discussion by developing a model where deviations from the warrant growth rate, which is the growth rate compatible with the equilibrium between saving and planned investments, make the actual growth rate to continuously veer off from that growth rate. Neoclassical economists, on the other hand, depart from the Harrod-Domar model by claiming shortcomings with respect to the instability of its solution. In this vein, Robert M. Solow in 1956 sets forth a formal model in which full employment prevails and the long-run economic growth is a stable process wherein the actual growth rate equals the natural growth rate of the economy determined by the growth of the labour force plus the growth of labour productivity. Through formal dynamic models of growth and distribution, early post-Keynesian economists like Nicholas Kaldor and Joan Robinson in the 1950s and 1960s proposed theoretical frameworks in which capacity utilisation is constant in the long run and economic growth is stable and inversely related to wages. Conversely, a newer post-Keynesian growth literature along Kaleckian lines advanced mainly by Robert Rowthorn and Amitava K. Dutt in the 1980s considers the capacity utilisation adjusts in the long run to restore the equilibrium in the goods market, which enables a positive relationship between growth and real wages.

More recently, Dutt (1994) reexamines the question of long-run stability of modern economies through a dynamic model of capital accumulation and income distribution. This model gives two long-run equilibrium solutions. The first equilibrium, which is a saddlepoint, takes place when the economy is operating with excess capacity; given the instability of this equilibrium solution, it is possible that the economy will move over time with increasing capital accumulation and wage share until it reaches full capacity utilisation. The second long-run equilibrium solution, which is usually stable, is obtained when the economy is operating at full capacity utilisation. By incorporating technological change into the model through the 'learning-by-doing' hypothesis, his model allows for oscillations around the long-run equilibrium, with the economy alternating between periods of full and excess capacity. Lima (2004) extends Dutt's (1994) model by defining technological innovation as a non-linear function of distributive shares (wages and profits), with the latter determining both the incentive to innovate and the availability of funding needed to undertake it. Such an extension allows for the existence of a stable solution in an economy with excess capacity.

However, the theoretical frameworks developed by Dutt (1994) and Lima (2004) do not take into account the perceptually salient aspect of modern economies which is the impact of financial dynamics on accumulation and distribution. The diagrams below illustrate how an increasing firms' indebtedness might affect negatively both accumulation and wage share. Fig. 1 shows the total debt-equity ratio of non-financial corporations and the annual rate of growth of gross fixed capital formation of a selected set of countries for 2012.[1] It is observed that, by and large, the higher the level of indebtedness of non-financial corporations, the lower the growth rate of investment. In other words, the data suggests that greater financial weakness of non-financial companies, as measured by its level of indebtedness, is accompanied by a lower growth rate of capital accumulation, particularly when the debt level exceeds 100%.

Simultaneously, as shown in Fig. 2, in countries where the debt-capital ratio of non-financial corporations is higher, the wage share of income is relatively low. In this context, it is suggested that greater financial fragility reduces the power of workers in the collective bargaining process and, consequently, the labour share of GDP.

Although these data do not prove the existence of a direct causal relationship between debt-equity ratio, growth of investment, and the wage share of GDP, it can be said that both diagrams above show some stylised facts of modern economies in a recent period consistent with the results of the model proposed in this work. In this context,

[1] The sample of countries and the period was defined by the availability of data.

Please cite this article in press as: Ribeiro, R.S.M., Palludeto, A.W.A., A neo-Kaleckian model of capital accumulation, income distribution and financial fragility. EconomiA (2016), http://dx.doi.org/10.1016/j.econ.2016.09.003