Variable elasticity of substitution, imperfect competition and declining labor shares

Alessandro Bellocchi*

Abstract

Both the recent literature and a considerable body of empirical works on the functional distribution of income assume that the underlying production function is either Cobb-Douglas or CES. In the former case the labor income share is constant under the additional assumption of perfect competition. On the other hand, with a CES production function, the magnitude of the elasticity of substitution is crucial for the impact of factor accumulation on factor shares. This paper presents a novel theory on how factor shares are determined. Using AMECO data for a set of 20 industrialized countries over a 58-year period we provide empirical evidence against the CES and employ a Variable Elasticity of Substitution (VES) to study the dynamics of the labor share under imperfect competition. We test the prediction of the model by means of a numerical simulation and find that firms' rising markups along with capital biased technological change can account for a significant part of the labor shares' decline observed in the last 40 years. The results also suggest (aggregate) complementarity between labor and capital in most of the cases, with the elasticity of substitution below unity on average, fluctuating around 0.7-1.16. Our contribute to the literature is twofold. (i) On the one hand we provide new estimates of the elasticity of substitution at an aggregate level which indicate that the latter could be lower or higher than that indicated in previous studies and may in some cases differ significantly from one. (ii) On the other hand, our paper reconciles stylized facts on labor share dynamics and other macroeconomic variable by unveiling the connection between the elasticity of substitution, capital deepening, rising markups, technological progress and income distribution with an alternative explanation who carries with it significant and relevant policy implications.

Keywords: Labor share, Capital-deepening, Elasticity of substitution, Technological change, Price markups.

* Department of Economics, Society and Politics (DESP), University of Urbino Carlo Bo, 61029, Urbino, Italy.
E-mail: alessandro.bellocchi@uniurb.it