Policy Responses to Labour Saving Technologies: Basic Income, Job Guarantee, and Working Time Reduction

Topic: Recent Developments in Stock-Flow Consistent Input-Output Modelling - III
Author: Davide Villani
Co-Authors: Simone DAlessandro, Tiziano Distefano, Guilherme Spinato Morlin

This paper investigates policy responses to the rise of labour saving technologies and their potential negative effects on employment and inequality. There is a growing debate concerning the role that new technologies will have on a broad set of spheres. Several authors estimate that new technologies have a major negative impact on the employment (Arntz et al. 2016; Frey and Osborne 2017; Nedelkoska and Quintini, 2018). Another consequence of the interplay between the rising new technologies and the substitution of capital for labour relates to growing inequalities (Lankish et al. 2019; Acemoglu and Restrepo, 2022) and impact negatively on the labor share (Dao et al., 2019; Acemoglu and Restrepo, 2020; Autor and Salomons, 2020; Dauth et al., 2021, among others).

As per the increasing number of studies, the latest advancements in technology could have a more disruptive impact than previous technological waves. This trend may eventually result in a continuous decrease in the employment level, the labour share of income and lead to higher inequalities. Therefore, it is essential to discuss the potential disruptive effects of strong technological shocks and the possible role of diverse policy measures.

In this paper we ask how three different policy measures â€“ basic income (BI), job guarantee (JG), and working time reduction without loss of payment (WTR) â€“ could affect the economy in the wake of a technological shock.

We assess the impact of these policies using the EUROGREEN model (Dâ€™Alessandro et al. 2020). This is an Input-Output-Stock-Flow model which allows the analysis in the long run of a large set of variables of interest. The dynamic macro-simulation model builds on data from a wide set of sources such as Eurostat, EU KLEMS, the World Inputâ€“Output Database, the OECD and the International Energy Agency. Input-Output techniques are used to estimate the propagation effects of technological shocks along the productive structure of the economy, as well as on sectorial employment and carbon emissions.

We build different scenarios in which the effects of these policies are implemented against a reference scenario of high labor productivity growth. The policies are evaluated based on per capita GDP, Gini coefficient, labor share, unemployment rate, and deficit-to-GDP ratio. We find that JG reduces the level of unemployment significantly and permanently, whereas BI and WTR only temporarily affect the unemployment rate. WTR effectively increases the wage share and generates the lowest deficit-to-GDP ratio in the long run.

The introduction of a wealth tax further reduces inequality and helps to offset the increase in public spending associated with JG and BI. Then, we explore how these policies could be implemented together. A combination of all policies (BI, JG, WTR, and WT) delivers the highest per capita GDP, lowest unemployment rate, and best distributive outcomes.

Overall, this paper addresses a highly relevant topic, nurturing the debate on the expansion of labour-saving technologies and discussing the feasibility of novel economic policies to face the possible negative impacts of technological shocks. Our findings suggest that these policies are effective in counterbalancing the negative effects of technological shocks that increase labor-saving technologies. The flexibility of the EUROGREEN model would also allow to implement further

alternative scenarios.