

## **Balancing Sustainability and Labor: Policy Solutions for the Italian National Integrated Plan for Energy and Climate**

Topic: Recent Developments in Stock-Flow Consistent Input-Output Modelling - II

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The Italian National Integrated Plan for Energy and Climate (PNIEC) proposes fundamental policies for substantially reducing emissions and the overall carbon footprint of Italy. As structural changes are made to enable the green transition, it is imperative to implement strategies that prevent productivity gains from exacerbating social and labor market inequalities. Therefore, we examine the socioeconomic impacts of PNIEC in a simulated framework using the Ecohesion model (Cieplinsky et al., 2021). The dynamic macro-simulation model relies on an input-output analysis of the Italian economy, which allows for structural analysis of the composition of output, employment, and emissions. The input-output structure is dynamized through an endogenous process of technical change, which depends on the evolution of relative cost and a random component. Moreover, the Ecohesion model features heterogeneous workers distinguished by gender and three different skill levels, providing a detailed analysis of labor market inequality. Simulations reveal that the transition and mitigation investments of PNIEC can significantly help reduce emissions to a level below 100 kton, but they tend to increase unemployment and inequality. Therefore, we analyze policies targeting the labor market and income inequality, namely Minimum Wage, an upper constraint to the ratio between top and bottom wages, working time reduction with no loss of payment, a Job Guarantee, a universal basic income, and a Wealth Tax. We assess policy effectiveness based on various measures of inequality, including the Gini coefficient, the gender wage gap, the ratio between top and bottom wages, the Palma ratio, and the labor share. Of the policies studied, universal basic income is the most effective in immediately reducing inequality. Both universal basic income and working time reduction lead to a persistent decrease in unemployment in comparison with the PNIEC scenario. In addition, working time reduction has the benefit of increasing the labor share. The introduction of a wealth tax reduces inequality while it improves public balance. These policies, however, have little effect on other measures of inequality in the labor market. On the other hand, the minimum wage significantly impacts wage polarization and the gender wage gap, thus contributing to an equal distribution in the labor market. Since policies perform well for different indicators, a combination of policies can be more effective for a general improvement of labor market outcomes. We test the effect of different combinations of policies. A policy mix including Job Guarantee and working time reduction potentializes gains in terms of low unemployment and greater labor share. When the two policies are combined with a minimum wage, there is a substantial improvement in the gender gap and wage polarization. Overall, introducing social and labor market policies can increase employment and the labor share while reducing inequality, and protecting workers from the radical structural changes associated with the green transition. A more fairly distributed income and better working conditions are both desirable and strategic for facilitating the ecological transition while avoiding social barriers that could cause unnecessary delays in the process.