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# Labour in the circular economy: the catalyst towards sustainable development

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## Résumé

An expanding strand of the literature is ascertaining the positive effects of the circular economy on the reduction of negative externalities (e.g. resource depletion and pollution). In the current technological (e.g. raise of artificial intelligence, internet-of-things) and climatic contexts (e.g. migrations, pandemics), it is important to promptly address issues regarding the future of labour (namely the productivity and the role of labour in the industry of tomorrow). Although practitioners often mention the repercussion of a circular economy transition on labour, scholar acknowledgment is lagging behind. This paper investigates the optimal labour allocation to the circular sector to sustain development while limit environmental impacts of waste. I shape a two-sector growth model in a simple closed economy in emerging countries. The waste stock is assumed to be inappropriately managed, and to negatively affect labour productivity. (e.g. January 2019, in Rome, Italy, a landfill burned forcing workers to stay home for several days (The Independent, 2019)). This study analyses the circular economy as an alternative to cope with both the exhaustibility of resource, and the pollution induced by improper waste management. I investigate the optimal allocation of labour between the production and the circular sector to sustain development while limiting environmental impact caused by waste on labour. I model changes in economies due to an endogenous choice of labour in the supply and I analyse under which conditions the circular economy can generate endogenous growth. My approach is innovative as I emphasise the role of the labour in the circular economy, illustrating the important role of the circular sector to sustain economic development. The results lead to a full circular economy model for the management of resources. The model offers a new approach for substitutable development of supply chains.

**Mots-Clés:** endogenous growth, pollution, recycling, damage function

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