

# The ‘emission disease’ in services

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## Abstract

It is almost conventional wisdom that the shift to services will reduce the environmental impacts of the economy as a whole. This idea critically depends on a static vision about the relatively low emissions per unit of output/value added produced in services compared to e.g. manufacturing or mining. Provided that this is generally true in advanced economies, the idea can be however challenged or - at least validated - based on two arguments.

- i. The dynamic capability of services to improve its own emission coefficients could be lower compared to manufacturing and industry, which could depend to the different innovation capacity (invention and application) of services themselves. In other words, the shift to services can cause decreasing returns in the emission efficiency improvement of the economy. This is dynamically important for the possibility to avoid a stationary state of emission improvements once the service sectors will dominate the economy.
- ii. The indirect impacts of services through the supply chain of intermediate inputs (vertically integrated emissions, or final consumption perspective instead of production perspective) can be much higher than direct emissions coefficients (i.e. the basic advantage of services) and then: (iia) the shift to services can deliver a limited global advantage of efficiency even on a static perspective when the global emissions in the supply chain (wherever they occur) instead of the direct domestic emissions are considered; and (iib) the possibly increasing amount of intermediate (service and non-service) inputs per unit of VA/output in services could dynamically increase the indirect demand of pollution by a service based economy. This effect can largely depends on structural change due to changing value chains and increasing complexity of the production networks at the micro level.

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