Rents in an input-output model with substitution between primary factors and factor markets (= CGE model?)

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The aim of this paper is a simple demonstration of how rents can be derived as an additional source of factor incomes, given the limited supply of a non-renewable resource. Starting point is Faye Duchin's input-output model (2004), which has been extended by (i) allowing for substitution between different primary factors, and (ii) including factor markets for all primary factors. For simplicity, these factor markets are assumed to be competitive, which is the standard assumption in static CGE models. Therefore the solution also resembles the neoclassical CGE solution: absolute scarcity of a resource leads to higher resource prices as well as substitution between the resource and other primary factors. Conclusions are derived how the model had to be further extended or modified in order to take all indirect macroeconomic feedback effects into account.