Economy-wide impacts of higher energy prices on household cost of living: an extended SAM price model

Topic: Economy-wide impacts and forecasts
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This paper attempts to examine impacts of increase in energy prices on household expenditures, which is defined as an indicator for cost of living. By using a so-called social accounting matrix (SAM) price model, the extent to which household groups as well as production sectors will gain or lose due to the increase in energy prices can be examined within a single framework. As far as distribution is concerned, to what extent is household affected depends largely on the degree of substitutability between energy and non-energy inputs, i.e. non-energy material inputs, labor and capital. For example, an increase in energy prices would not affect much on household expenditures if energy and labor are substitute in production of output, because increase in energy prices would result in an increase in demand of labor and so an increase of wages. To capture such issue, we further extent the static SAM price model by incorporating substitution possibilities among production inputs. Cross-price elasticities between energy prices and demand of non-energy inputs which estimated by a so-called restricted translog cost function, are incorporated to refine the static SAM model. Moreover, to ascribe causes for the increase in cost of living explicitly, we decompose total impacts of higher energy prices into the effects that determined by cost of material inputs, cost of factor inputs and cost of consumption. For analytical purposes, we apply a SAM for Malaysia for 2000, within which detailed information on ethnic groups comprising the Malay, Chinese, Indian and a group of other ethnic minority groups across geographical locations is included.