Non-Linear Income Effects and the Welfare Consequences of Tax in Differentiated Product Oligopoly

Rachel Griffith, Lars Nesheim and Martin O'Connell

Random utility models are widely used to study consumer choice and how it is affected by the economic environment. In such models it is standard to assume that the marginal utility of income is constant. This assumption helps with model tractability, in particular simplifying welfare estimates, but it is well understood that the assumption is restrictive; it rules out income effects and, in the commonly used logit model, it imposes log-concavity of consumer level demands which restricts pass-through. We show that allowing non-linear income effects can have important implications, even when considering a product category that represents a small fraction of consumer expenditure. We illustrate this with an application to the introduction of nutrient specific excise and ad valorem taxes. Assuming the marginal utility of income is constant leads to an overestimate of consumer welfare losses and misses important distributional effects, but has relatively small implications for the pattern of tax pass-through as long as the tax is small relative to income. We discuss these results and what they imply for a wide range of empirical applications.