

Direct Complementarity

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We point out that the standard definition of complementarity between two goods (a negative compensated cross-price effect), has a curious property: it is sensitive to the definitions of other goods, even when changing these definitions leaves the actual choice problem unaltered. For instance, in a three-asset portfolio choice problem, assets 1 and 2, which are substitutes, may become complements if asset 3 is replaced by a mutual fund mixing all three assets, even though the prices of all portfolios are unchanged. We create an alternate definition of complementarity, called **direct** complementarity, which is immune to such changes. We also define a robust notion of **relative** complementarity which ranks pairs of goods according to how well they complement each other. Mathematically, the key is that direct complementarity is a relation on bundle-space, while classic concepts are relations on its dual, price-space.