

## The Ecology of Scale: Data Assessment of Beef, Pork and Wine

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Based on previous research regarding juices and lamb, this contribution talks about the specific energy turnover of beef, pork and wine. Global and European data are compared with German process chains, so as to validate our former hypothesis of Ecology of Scale: The scale turns out to have a degressive impact upon the specific energy turnover, as the impact of the transport distance proves to be rather small [Schlich 2003, Schlich 2004].

The specific energy turnover of regional and global process chains is investigated. Beef from Argentina and Hungarian pork are compared with regional German food. German wine regions compete with Hungarian and South African wineries.

The empirical data are researched in terms of energy, looking at all steps of the chain, including farming, transporting and distributing. The energy efforts are allocated to the functional units, so as to assign to the business size. Additionally, the primary energy and the CO<sub>2</sub>-release are calculated.

Again, the case studies demonstrate a degressive relation of the specific energy turnover and the business size, as the question of regional origin is rather insignificant. Regional food can compete with global business in terms of energy, only in case of sufficient business size. Additionally, the data indicate a minimum business size as break even (see tab. 1).

Tab. 1: The break even coordinates of different food

Food	Break even coordinates
Fruit juices	less than 1 kWh/l above 1,000 t/a
Lamb	less than 6 kWh/kg above 10 t/a
Beef	less than 2,5 kWh/kg above 100 t/a
Pork	less than 5 kWh/kg above 15 t/a:
Wine	less than 100 kWh/hl above 1,000 hl/a

These results support our idea of “**Ecology of Scale**”. In all case studies, we find regional food business, which is meeting these requirements as well. But, there is no indication to blame global food as energy wasting process chains.

[Schlich 2003] Schlich E, Fleissner U: Comparison of regional energy turnover with global food. InLCA/LCM 2003, Seattle (2003).

[Schlich 2004] Schlich E, Schlich M: The Ecology of Scale: Further Examples and Comments. InLCA 2004, online conference (2004).

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